

Inter-professional small group learning: A case study of two pharmacist-facilitated groups in Scotland

JUDY WAKELING*, JULIE FERGUSON, DAVID E. CUNNINGHAM, LEON ZLOTOS
AILS A POWER

NHS Education for Scotland, Glasgow, Scotland

Abstract

Background: Practice-based small group learning (PBSGL) is a growing and popular method of Continued Professional Development (CPD). This paper reports on a pilot project in Scotland in which two inter-professional PBSGL groups were set up and facilitated by pharmacists – one group comprising pharmacists and nurses and the other comprising pharmacists, nurses and general practitioners (GPs). The groups met on approximately six occasions in 2013-14 and studied modules produced by National Health Service (NHS) Education for Scotland.

Aim: To explore how the groups functioned and to see whether participants found this a useful method of fulfilling their professional development needs.

Methods: Focus groups and interviews were used to capture in-depth experiences using the methods of grounded theory.

Results: Sixteen participants took part in either a focus group or interview, including the two pharmacist facilitators of the groups. Introducing an inter-professional element to PBSGL was perceived to enhance learning, and different professions brought unique and valuable experience to the group. The enthusiasm and skills of the pharmacist facilitators were key factors in the success of the groups as were the selection of appropriate modules and the belief in the value of inter-professional learning (IPL). A few participants found the group size (sometimes ten plus) too large. Both the group with GPs and the one without functioned well, but it was considered by some that having at least one GP present can enhance the learning although too many GPs might hinder some participants from contributing fully.

Conclusion: The learning achieved in these two PBSGL groups was enhanced by the mix of professions involved. Longitudinal studies are needed in order to determine the factors that influence sustained involvement in PBSGL in general and how these factors may be similar or different in relation to IPL groups.

Keywords: PBSGL, Pharmacy Education, CPD, Inter-Professional Learning

Introduction

Practice-based small group learning (PBSGL), was pioneered in Canada (Premi *et al.*, 1994) and has been widely adopted in Scotland by general practitioners (GPs) (MacVicar, 2003; Kelly *et al.*, 2007). National Health Service (NHS) Education for Scotland (NES), a special health board with responsibility for the education and development of the NHS workforce has promoted PBSGL to other professional groups – notably nurses (Overton *et al.*, 2009) doctors in GP specialty training (Hesselgreaves *et al.*, 2012) and pharmacists (Cunningham *et al.*, 2014).

In 2006, NES extended PBSGL into inter-professional learning (IPL). This approach was piloted with two groups comprising practice nurses and GPs (Kanisin-Overton *et al.*, 2009). After a year, participants reported that new knowledge and perspectives were gained and personal and professional confidence were enhanced. In 2013, NES considered that pharmacists and GPs might learn well together, particularly in light of policy developments relating to pharmacy (Scottish Government, 2013; Royal Pharmaceutical Society and

Royal College of General Practitioners, 2015). Ten existing GP PBSGL groups agreed to have one or two pharmacists join them.

In addition, two pharmacists were encouraged to set up and facilitate new inter-professional groups. The facilitators had participated in a one day facilitator's training course and, using their contacts, they brought together nurses and pharmacists, with one group also comprising GPs and GP trainees. This paper reports on the evolution and experiences of these two pharmacist-led IPL groups. The experiences of the pre-existing GP groups who recruited pharmacists have been published separately (Cunningham *et al.*, 2016).

The first group, (Group 1) comprising nurses and pharmacists, was based in the East of Scotland, meeting in hospital premises in the evening. The second group (Group 2) comprising nurses, pharmacists and GPs was based in the West of Scotland. This group met in a health centre and, due to work patterns and commitments of group members, was run as two separate groups: one in the morning, and one at lunchtime. So Group 2

*Correspondence: Dr. Judy Wakeling, Specialist Research Lead - Quality, NHS Education for Scotland 2CQ, 89 Hydepark St, Glasgow, Scotland G3 8BW. Tel: +44 (0)141 2231447. Email: judy.wakeling@nes.scot.nhs.uk

functioned as two groups, with some flexibility between members who attended the morning or afternoon session.

The groups studied modules produced by NES originally for GPs (Figure 1), (NHS Education for Scotland, 2015). They met approximately six times over the year, although not all participants were able to attend every meeting. No prior training or induction was required of participants.

These IPL groups were unique in Scotland in being facilitated by a pharmacist. NES was keen to explore how the groups functioned and whether or not merging two established learning methods – IPL and PBSGL – was considered useful by participants in relation to their professional development.

Figure 1: NES PBSGL modules described

- Members work voluntarily in small groups (usually of 5-12) with one person as facilitator, meeting on a regular basis. Meetings last 1-2 hours, usually every 6-8 weeks.
- They discuss real patient problems, and the evidence to solve these cases. The problems, the evidence, patient leaflets and websites are all combined in specially-prepared "modules."
- There is a wide choice of modules that groups can study, and groups can cover as many as they like.
Examples include: Adults with Incapacity, Chronic pain, Contraception, Diabetes, Dizziness, Hypertension, Shoulder pain.
- New modules are produced at a rate of 12-14 per year.

Definitions

General Practitioner (GP) – family doctor/physician.

Primary care pharmacist – typically work closely with GP practices in primary care and advise on medicines.

Community pharmacist – work in a variety of settings including independent businesses and large chains of pharmacies.

Secondary care pharmacist – work in hospitals and are involved in the care of in-patients and out-patients.

Anticipatory care nurse – a nurse involved in advance care planning for patients who have serious illnesses.

District nurse – nurses who manage care within the community, leading teams of community nurses and support workers.

General Practice nurse - work in GP surgeries as part of the primary healthcare team, delivering care within the community.

Health Visitor - a qualified nurse who supports and educates families from pregnancy through to a child's fifth birthday.

Methods

NES funding was approved in March 2013 and expressions of interest were sought through established communication strategies, including: emailing through NES databases, the NES website, and social media. Although different professions have different funding mechanisms for CPD, places were sponsored by NES for all professions for the duration of the pilot. Participation was granted on a first come first served basis on the premise that a group could be formed locally and participants agreed to be interviewed at the end of the year.

A qualitative approach was considered the best method for capturing the views and experiences of participants. Towards the end of the pilot, participants were contacted to arrange participation in a focus group or interview. Participants who did not respond were kept on a reserve list with the intention to follow them up if it were felt that more interviews/focus groups were required in order to reach data saturation. In the event, the non-responders were not followed up and no data was gathered on their reasons for non-participation. Interviews were either face-to-face or by telephone dependent upon preference. For a summary of the main interview questions, see Figure 2.

Figure 2: Summary of key interview/focus group questions

- Reasons for taking part**
- Why did you originally join the PBSGL group?
- Experiences/views of PBSGL**
- Can you describe your experience of PBSGL in the last year?
 - Can you describe how you feel the experience has been for the group?
 - Can you tell me if there are benefits to having an inter-professional group in comparison to a single profession group?
 - Are there any challenges?
 - Would you prefer a uni-professional group or an inter-professional group? Why?
 - Are there other health professionals that it would be useful to have in your group?
 - Is there anything you would change about the group?
- Choice of modules**
- How was the topic of the next module chosen? Did you feel you had a role to play in the choosing of modules?
- Impact on practice**
- Has your practice changed since participating in an inter-professional PBSGL group?
 - Has learning together affected your working relationship with the doctors/pharmacists/nurses?
- CPD & Personal development**
- Do you think your involvement with PBSGL will help you with your career progression?
 - Does involvement in PBSGL help you to meet your personal objectives?
 - Is PBSGL a useful way of fulfilling your CPD requirements?
 - What is your preferred method of undertaking CPD?
- The future**
- Does the group plan to continue?
 - Do you plan to continue in the group? Why/not? If continuing, who is funding that?

The qualitative approach used was that of grounded theory. Interviews proceeded on an iterative basis with interview questions allowed to evolve based on early transcript data (Charmaz, 2014). Most interviews were carried out by two experienced NES researchers (JF and JW) neither of whom were GPs, practice nurses nor pharmacists. Interviews with the two facilitators were

carried out by DC, a GP. Analysis began as soon as the first interview transcripts were obtained. This allowed constant comparison of new cases with existing data and allowed for an assessment to be made regarding data saturation. The data were coded separately using NVivo 9™ software (2010) by both JF and JW who met to compare themes and to discuss differences in interpretation. Memos were written to document emerging ideas and were discussed at regular meetings of the authors.

Results

Sixteen participants, eight from each group, agreed to participate (Table 1). All participants were interviewed apart from four pharmacists who took part in a focus group.

Table 1: Research participants from each PBSGL group

	Group composition	Research Participants
GROUP 1		
Nurses	7	4
Pharmacists	6	3
Facilitator	1	1
GROUP 2		
Nurses	4	3
Pharmacists	4	1
GPs	7	3
Facilitator	1	1
TOTAL	30	16

Five themes were identified, as detailed below:

Facilitators as ‘champions’

The facilitators were interviewed first to learn how the groups came together and how they functioned from the facilitator’s perspective. It was clear that the facilitators were both PBSGL and IPL ‘champions’ – enthusiastic about the method of learning and the idea of bringing different professions together. Crucial factors in establishing these groups seemed to be an existing positive working relationship with some potential group participants, and the desire to see an IPL group start up:

I have a good working relationship with the nurses and the GPs potentially already and so I was maybe that link to pull everybody together ...we were already probably in a good position within this health centre where we all talk and we all try and communicate. (Pharmacist facilitator, Group 2)

I did some investigation into PBSGL and I actually quite liked what I saw and the rest was history from

there; I went to the (facilitator’s) course and basically followed it on from there. ...It was something I was very keen to make work. (Pharmacist facilitator, Group 1)

Facilitators sensed that pharmacists and nurses could learn a lot from each other. One, in particular, was adamant that IPL groups offer more than uni-professional (i.e. one profession only):

The last thing I wanted was a single profession group....I’ve worked in groups of just pharmacists alone and they tend to be fairly narrow in their field of vision ...I think another profession can come in and actually open up the avenues for you that you haven’t even thought of. (Pharmacist facilitator, Group 1)

Almost all participants were complimentary about the skills of the two pharmacist facilitators.

Potentially there could be problems in terms of them (pharmacist facilitators) not being medically trained and when you’re going through the scenarios and you’re thinking it through as a GP I think for someone to be facilitating that’s not a GP themselves it can be harder for them to bring out some of the key points. But to be honest [name of facilitator] was very, very good ... I think she was really good as a facilitator actually in terms of making sure we didn’t miss things or overlook important points. (GP 2, Group 2)

One participant did feel that the facilitation by a pharmacist, with pharmacists in the group could influence the learning. Whilst in Group 1 the pharmacists were mixed in the sense that there were both primary care and community based pharmacists attending, Group 2 had only primary care pharmacists and one of the nurses who attended the morning meetings felt that this led to a ‘health board agenda’. She would have preferred more local community pharmacists to be involved. This, combined with the group being facilitated by a pharmacist, led this nurse to feel that some of the chosen modules and discussions were centred around pharmacists and the interests of the health board.

... I can think of at least one occasion when we were told, this is what we are discussing, because that fitted in with the health board’s agenda, and I think that was about multiple medications in the elderly ... and that is a hot topic for the health board just now and that really puts people off, it puts me off and I’ve, from the conversations I’ve had it puts other people off because we don’t like to be driven by anyone else’s agenda when we are doing our own professional learning. (Nurse1, Group 2)

This was a lone voice and none of the other participants expressed any opinions that one profession might be influencing the discussion at meetings.

Benefits of getting other professions’ experiences

All interviewees agreed that taking part in an IPL group provided a broader and richer learning experience

compared with a uni-professional group. In the group which included GPs (Group 2), one pharmacist mentioned that pharmacists can get ‘*bogged down in side effects and costs and [be] very very drug focussed*’ (Pharmacist 1, Group 2) whilst GPs might bring information to the group about why they did or did not prescribe certain drugs and could give a different, perhaps more patient-oriented, perspective and ‘*could always answer questions that we couldn’t answer*’ (Pharmacist 1, Group 2). In the IPL groups participants valued, above all else: ‘*getting the slant of other professions who have a different type of input.*’ (Nurse 2, Group 2).

Examples were given of where knowledge gained at the meetings had allowed individuals to extend their practice. One pharmacist identified a patient who was depressed and made an appropriate referral after studying the module on depression. Two GPs reported a change in prescribing behaviour as a result of learning from the pharmacists in their group.

There was definitely things that I - I’d need to look back at my notes that I made at the time - but I certainly remember thinking that there was quite a few things that I thought ‘oh right I need to make sure that I do that differently,’ or just remember that when you’re prescribing this that it needs to be, you know you’re taking into account different interactions and things like that. Some things I didn’t know and some things I did know, but it was just useful to go over. (GP 2, Group 2)

As nurse prescriber I’ve learnt more from going to the group and the topics that were picked, I quite enjoyed just doing one topic at a time and, you know, and sitting round discussing everything that goes with that one topic. Some places you go they’ll jump from one thing to another so it was a good learning experience and I was able to apply my knowledge to practice. (Nurse 1, Group 1)

Group composition

Participants were questioned about the best mix of group membership from each profession. Some comments suggested that over-dominance by one profession may not be a good thing:

I: Would you prefer a uni-professional or a multi-professional group?

P: I think multi-professional, but with a better distribution of professions. (Nurse 2, Group 2)

I went to the lunchtime group, and it was mostly nurses within that group, obviously there were pharmacists there as well but the bulk of it was nurses, and usually there were only one or two GPs. I felt it was more beneficial when there was a GP there because they obviously had a different perspective to the nurses....if there were a couple more GPs that could come to it that would be quite good, the discussion probably swayed more towards practice nursing than the GP’s role so I think perhaps

having a more equal spread of professions within the group would be – (Nurse 3, Group 2)

The issue of a mix of roles within each profession also emerged as an important factor. Group 1 included primary care, secondary care and community pharmacists and anticipatory care, district and practice nurses. This ensured a variety of roles and skills were brought to the group.

Nursing doesn’t have the in-depth knowledge of the medicines, the clinical nurse practitioners in particular have diagnostic skills, the other nurses had various different patient skills that they could bring... (Pharmacist facilitator, Group 1)

The thing is, it was community pharmacists, it was acute pharmacists from the acute sector, so there was a mix of pharmacists in there as well, so there was a good mix because you had community pharmacists working within shops and community pharmacists working within the CHP [Community Health Partnership] in NHS Fife so that was really interesting as well ‘cause obviously they’ve got people pitching up to their shops, so how they would deal with that situation. (Nurse 3, Group 1)

Despite this beneficial mix, at least one participant in Group 1 (nurses and pharmacists only), and that group’s facilitator, would have welcomed the presence of GPs:

...there are areas where we all sort of were stumbling in the dark, ehm the pharmacists and the nurses, and if we had GPs there you know we were sort of thinking maybe we do this maybe we do that, it would have been quite helpful to have a different, another perspective (Nurse 2, Group 1)

I felt that the GP would give us...or two GPs would give us the extra differential diagnoses which we potentially didn’t have the experience of in the group. (Pharmacist facilitator, Group 1)

Some participants were in favour of widening membership to other healthcare workers - health visitors, for example, were mentioned. Possibly the support for other professions joining reflected the fact that in these groups the focus was very much on the module, rather than on professional support. This perhaps contrasts with some of the established GP groups who agreed to have a pharmacist join, where the attendance of the same close knit group at each meeting seems to have been important (Cunningham et al., 2016).

There was recognition that the group could not just keep expanding to accommodate different professions and the benefits of small group learning could be lost if the group became too large:

I think you can broaden it too much and then it is difficult to have a conversation around you know around the sort of the specifics of the case studies that are basically primary care practice-based aren’t they? (Nurse 2, Group 1)

I think you would need to be careful about what group of allied profession, allied health professionals you will put it up to, because then you would have a

bigger group but potentially with a third to a quarter sitting not saying anything and not contributing. (Pharmacists' Focus Group, Group 1)

Both groups had a maximum of 15 people who might attend, but generally the number who appeared at each meeting varied between eight and 12. For the majority of participants it did not seem to matter if the 'small' group was in fact quite large, but for one participant in Group 2, this affected the success of the group:

Do you know something, I don't think it worked very well, and the reason why it didn't work very well was because it was always a very big group, too big. ...probably about an average of 10 or 12 which is quite a lot. In quite a large room all sitting around the edge, upstairs and I think, some of the doctors who came were registrars and quite inexperienced and quite anxious about speaking in front of people. (GP 3, Group 2)

A nurse from this group also echoed this sense of feeling a little uncomfortable to speak out and wondered if the presence of a number of GPs was a factor:

I felt that [this] group wasn't as comfortable to be able to speak out...but I don't know if that was weighted by the number of GPs in that group. (Nurse 1, Group 2)

It seems that for some people, having a smaller group, possibly with people you feel 'on a level' with can make the learning experience more rewarding. Both the nurse and the GP quoted above went on to participate in another PBSGL group which they found to be more congenial, partly because they knew all the participants better and also because the group was smaller.

Choosing modules

With several professions involved, choosing a relevant module could be a challenging task. After the first meeting the group would choose the next module to study and there was some give and take: not everyone was always happy at the choices but most participants found the discussion useful even when the module chosen was not their first choice.

we were all asked which one we would like to choose next, you know (facilitator) would quite often put out before that date what would people like to see? So we were all able to, and I have to say there was maybe a couple that I thought 'I wouldn't have maybe picked that one' but actually then once I went I actually learned quite a lot. (Nurse 3, Group 1)

Obviously as you say, two different professions wanting slightly different things so, you know, they came and went. So one group would say, one group wanted dizziness as a module, the other group wanted diabetes as a module – so they agreed what order they would do them in. (Pharmacist facilitator, Group 1)

One participant thought that that there were enough relevant modules to sustain the group during the pilot

year but that it might be more problematic to choose something for everyone as time went on:

you know the subjects we had to choose had to be something that was relevant to us all. Whereas the nurses might have chosen a topic like cervical screening but the pharmacists wouldn't have wanted to do that so choosing a subject was a, could have been a little bit of a challenge, I think. At the moment for one year it was OK, there was enough things that we were all interested in...but you could see that that was going to run out quite quickly. (Nurse 2, Group 1)

There was also a sense that some of the modules, originally produced with GPs in mind, were less relevant to the way other professions work:

the module on incapacity it was quite heavy going and I don't know that necessarily that was particularly relevant to us as practice nurses, I think it was a way above where we work. (Nurse 1, Group 2)

maybe with it being a bigger GP cohort ...they looked for, the actual topics were slightly different to what I was maybe, would have liked. (Nurse 2, Group 2)

Nonetheless there were far more complimentary comments about the design, usefulness and relevance of the modules than negative comments:

just the varied topics, you know I think every topic you have learned something and have been able to apply it. (Pharmacists' Focus Group, Group 1)

that's one of the things that appeals to me about continuing with the PBSGL modules, they all seemed very relevant. (GP 2, Group 2)

The modules which worked best were the ones where all participants had something to contribute and where there were aspects that were relevant to different professions' roles:

drugs and the elderly was actually very good, I think that was our first one that we did and, oh the one on dizziness, these are the sorts of things that it is actually quite difficult to get learning on, and the one on headaches, that was good. Osteoporosis, that was quite good and depression and anxiety was quite good as well.... they were the sort of learning that was conducive to the group that we had, we had enough, you know we had enough of an interest for the pharmacists there was enough about medication but it wasn't all about medication so there was plenty that the nurses could contribute as well. So it was probably more to do with the make up of the group rather than anything else. (Nurse 2, Group 1)

Future of the groups

Group 1 (pharmacists and nurses) continued once the year-long pilot finished but Group 2 (pharmacists, nurses & GPs) did not. The makeup of Group 1 altered somewhat after the pilot year with some nurses leaving, mainly due to funding ceasing for the membership fees,

so nurses may have been asked to pay for their attendance at future meetings.

The key factor in whether or not the groups continued related to the willingness of the facilitators to carry on. The facilitator from Group 1 was happy to continue and his group, now with nine pharmacists and four nurses, was continuing to meet and he was pleased with how it was functioning. He noted in an email exchange that ‘the group members are getting more from the sessions the more they attend as the format is familiar to them and they are settling more into bringing their experience to the table.’

The facilitator of Group 2 felt that she could not continue to run two groups – one in the morning and one at lunchtime – and this, with several participants unwilling to fund themselves, meant the groups ended. Within the same health centre, a new IPL PBSGL group, comprising GPs, nurses and pharmacists, had been set up under a new (nurse) facilitator and was working well. It was the impetus of the pilot group which led directly to this new group so the pilot had been important in the setting up of a new group.

Discussion

This study sought to evaluate how well two inter-professional PBSGL groups learned together over a year. Introducing an inter-professional element to the well-established method of PBSGL was perceived to enhance learning. In an earlier study of GPs and practice nurses learning together, it was found that ‘a “mutual keenness” to learn from and about each other emerged as a crucial ingredient’ (Kanisin-Overton *et al.*, 2009). This was very apparent in this study, participants valued IPL over uni-professional learning and actively wanted to gain the experiences of another profession. In doing so they could learn from expertise which they did not have and could reciprocate.

Any evaluation of learning should strive to determine any changes in practice. Kirkpatrick’s four-level model of evaluation (Kirkpatrick & Kirkpatrick, 2006) has been adapted recently to make it more nuanced. For example, Overeem splits behavioural change into: 3a) self-reported change in behaviour; and 3b) measured change in performance (Ferguson *et al.*, 2014). We identified self-reported changes by participants, which can be linked to the knowledge and experience that the other profession(s) brought to the group - for example, altering prescribing behaviour.

The role of good facilitation in the success of PBSGL groups has been well-established in the literature (Kelly *et al.*, 2007). Both groups in this study benefitted from the enthusiasm their facilitators had both for IPL and PBSGL, the facilitators were ‘champions’ who brought together the groups and were key enablers in ensuring they got off the ground.

Successful IPL requires the development of teaching materials which meet the needs of all professions concerned in terms of relevant content and academic level. A systematic review of inter-professional education (IPE) emphasised the importance of ‘the customisation of IPE so that it reflects the reality of practice for specific groups of inter-professional learners’ (Hammick *et al.*, 2007). In our evaluation, the use of modules designed primarily for GPs did not appear to be a significant barrier for most participants – although one did find at least one of the modules to be pitched at the wrong level and the number of suitable modules, chosen by the group, could run out if the groups continue long-term.

The facilitator of Group 1 considered that his group gained more as it became established over time. Other research has found that some PBSGL groups develop to become as much a support group as a group purely studying the module at hand (Cunningham *et al.*, 2016). Possibly the inter-professional nature of our groups militates against this development. The focus on the module at hand rather than professional support perhaps explains why there was some support for opening the group up to further professional groups.

There was a realisation, however, that expanding the groups to other professions may make module selection a challenge and there was a recognition that groups cannot expand indefinitely. PBSGL, after all, is all about small groups. The importance of group size has been reported in other studies (Cunningham *et al.*, 2014) where participants commented that large groups prohibited learning. The ideal size recommended for PBSGL is between five and nine participants (NHS Education for Scotland, CPD), but both groups in this evaluation regularly had over ten attendees. It may be that once word gets round about a new group starting, others ask to join and it is difficult to turn them away. However, for each individual within the group to have the opportunity to fully contribute and to feel thoroughly comfortable in doing so, group size needs to be considered carefully.

Both groups seemed to work well but there is a suggestion that if participants are comfortable with having GPs on board, then it can enhance the group’s experience and usefulness to have at least one GP present. However, too many GPs might hinder some of the other professions from contributing fully.

Individuals may have different expectations of the group: someone looking for a small, supportive group with no inhibitions about speaking up might find a larger group and the presence of fewer familiar faces less conducive. On the other hand, participants who are focussed very much on the module at hand and on learning from many different people might not be concerned by the presence of several unknown faces in quite a large (sometimes ten plus) group. Feeling comfortable in a group seems to be a very individual thing dependent upon personalities, group size and group dynamics and it may be that the professional background of other group members is less important than their ability to fit in well to the group.

Strengths

The choice of a qualitative approach to data collection allowed participants' experiences to be explored in depth through semi-structured interviews. Data analysis by two independent researchers (employed by NES but not GPs, nurses or pharmacists) increased robustness by allowing discussion regarding the important themes.

This study differed from previous NES research as these groups were truly inter-professional: professionals working together, making the decision to form a PBSGL group to learn together as equal partners, rather than pharmacists joining an existing, functioning GP-only PBSGL group (Cunningham *et al.*, 2016).

Weaknesses

Participants may have perceived the interviewers as being associated with the pilot programme because they were employed by NES and so may have provided more positive feedback. Only two groups were involved and analysis of a larger number of groups may have provided further insights. Any changes in practice which participants reported cannot be verified since the data is based on self-reported changes and no attempt was made to verify or measure the reported changes.

Conclusion

An evaluation of these two pharmacist-facilitated inter-professional groups has shown that the participants value the PBSGL method even more if that group is made up of different professions.

The challenge for those planning such groups on the ground is to find a mix of people and professions who work well and learn well together. This research has shown that nurses, GPs and pharmacists provide a good 'fit' in terms of complementing each others' skills and learning from each other.

In the case studies presented here, Group 2 had come to an end after the pilot year but Group 1 was continuing. Future research might usefully focus on longitudinal studies of continuing groups in order to determine the factors that influence sustained involvement in PBSGL in general and how these factors may be similar or different in relation to IPL groups.

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Ethical approval

As this was an evaluation of an educational service the authors considered formal ethical approval was not

required. This was confirmed by advice from the NHS Research Ethics Committee.

Conflicts of Interest

DC, JF and JW are employed by the medical directorate of NES, and LZ and AP are employed by the pharmacy directorate.

All participants were funded to become PBSGL members for one year as part of this pilot which ran from March 2013 to March 2014.

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