# Practice-based small group learning programs

## *Systematic review*

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## Abstract

***Objective*** To identify the format, content, and effects of practice-based small group learning (PBSGL) programs involving FPs.

***Data sources*** The Ovid MEDLINE, EMBASE, and ERIC databases were searched from inception to the second week of November 2011, yielding 99 articles.

***Study selection*** Articles were included in the analysis if they described the format or content of or evaluated PBSGL programs among FPs. Thirteen articles were included in the analysis.

***Synthesis*** Two main PBSGL formats exist. The first is self-directed learning, which includes review and discussion of troubling or challenging patient cases. The contents of such programs vary with different teaching styles. The second format targets specific problems from practice to improve certain knowledge or skills or implement new guidelines by using patient cases to stimulate discussion of the selected topic. Both formats are similar in their ultimate goal, equally important, and well accepted by learners and facilitators. Evaluations of learners' perceptions and learning outcomes indicate that PBSGL constitutes a feasible and effective method of professional development.

***Conclusion*** Current evidence suggests that PBSGL is a promising method of continuing professional development for FPs. Such programs can be adapted according to learning needs. Future studies that focus on the changes in practice effected by PBSGL will strengthen the evidence for this form of learning and motivate physicians and institutions to adopt it.


Staying up to date with the current evidence is a challenge for physicians owing to the immense quantity of new knowledge produced every day.[1] Small group learning can target knowledge relevant to the learners and is being valued as an effective method of continuing medical education over traditional methods such as lectures.[2-4] Small group learning also incorporates personal, social, and professional experiences in the learning process.[5]

The general approach of using real patient problems as a stimulus for discussion in small learning groups was introduced by Michael and Enid Balint in England when they started small group seminars for GPs in the late 1950s.[6] The focus of Balint seminars is on the physician-patient relationship. During Balint seminars the psychosocial aspects of a patient's illness and the physician's role are discussed and analyzed with the goal of initiating an emotional change within the physician. Since their introduction, Balint groups have been started in numerous countries around the world.[7] In some countries they are part of mandatory training for medical trainees and in others they are an important aspect of continuing professional development.[7]

In 1992 a practice-based small group learning (PBSGL) program was piloted as a collaborative effort between McMaster University in Hamilton, Ontario, and the Ontario College of Family Physicians. Their PBSGL program had 2 main objectives: to encourage physician members to reflect on their individual practices and to encourage the group to initiate relevant changes to patient care.[4] The method is now used worldwide as a form of continuing education among FPs.[4] Participants are often guided by a trained peer facilitator to reflect on the discussion and commit to appropriate practice changes.[4,8] These PBSGL seminars differ from Balint group seminars as they do not focus only on the physician-patient relationship.

**KEY POINTS** Practice-based small group learning (PBSGL), which has grown in popularity during the past 2 decades, is a promising systematic approach to continuing professional development used by FPs to stay up to date. Such PBSGL programs are designed to stimulate reflection and to share experiences with colleagues. They can be useful as ongoing process tools for continuing medical education, or can help to implement guidelines or improve specific skills. Changes in practice are helped along as participants learn from their peers and by the social influence of peer interaction. This review shows that PBSGL can be a feasible and effective method of continuing professional development for FPs.

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Small groups of health care professionals can use PBSGL to document, assess, and improve practice.[9] This is usually accomplished through the steps depicted in **Figure 1**.[10,11] Effects on patient care have to be evaluated in addition to learner knowledge and skills.[11,12] This review attempts to describe and evaluate the formats and content of and the effects on practice of PBSGL programs involving FPs.

## DATA SOURCES

The Ovid MEDLINE, EMBASE, and ERIC databases were searched (from inception to the second week of November 2011) using and combining the MeSH terms *continuing education, medical, professional, retraining, group processes, small group, practice based small group,* and *teaching*. The search was limited to English-language articles. The reference sections of identified articles were also reviewed.

### Study selection

The initial search identified 99 articles. Titles and abstracts were reviewed to identify articles relevant to the study aim. Both investigators read the abstracts and selected articles that described the format or content of or evaluated PBSGL programs among FPs. For the purposes of this paper, FPs, GPs, and primary care physicians [PCPs] were assumed to fall into the same category. Ten articles were identified. The reference sections of these articles were reviewed, and 3 more articles were added to the final review.[1,4,13-23]

## SYNTHESIS

### Format and content

Eleven studies had descriptive information about program design including format and content. The frequency of meetings ranged from once to twice monthly,[1,4,19,22,23] with an average session duration ranging from 1 to 2 hours.[15,21,22] Other programs were flexible and let groups decide the location, duration, and frequency of sessions.[4,21,22]

The most commonly described sessions were self-formed groups that discussed cases from daily clinical work. Case presentations were followed by topic review and discussion of the related evidence-based medicine articles to identify implications for practice changes.[1,4,14,16,19,23] The exact group size was mentioned in some studies and generally ranged from 4 to 11 members.[1,4,14,16-21]

Content of modules variously included case-based discussions, videotaped consultations, practice visits, audits, and invited experts. Videoconferencing was used to facilitate PBSGL in 2 studies.[17,21] The format and content of each reviewed program are summarized in **Table 1**.[1,4,13-23]

**Figure 1. Practice-based small group learning program steps**

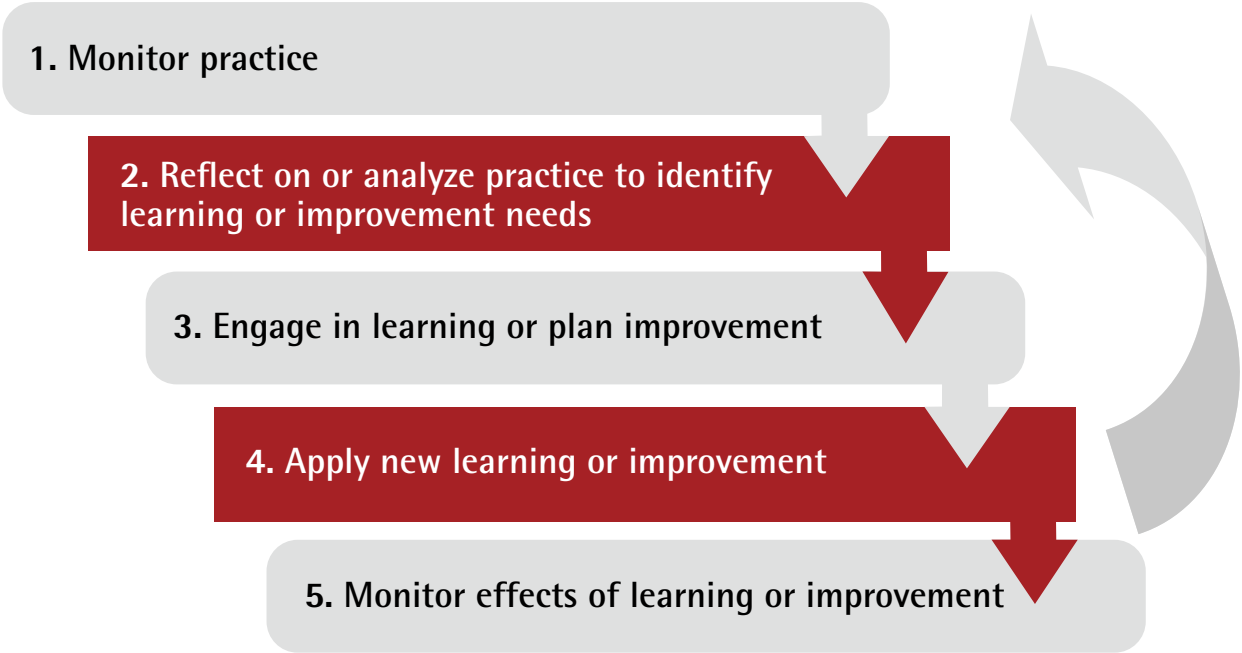

**Table 1. Summary of reviewed studies in chronologic order of publication**

| STUDY | TYPE AND PARTICIPANTS | FORMAT | CONTENT | OUTCOMES | RESULTS |
|---|---|---|---|---|---|
| Eliasson and Mattsson, 1999, Sweden[1] | Descriptive study "literature review"; 400 GPs, 40 group leaders, 100 trained leaders | 222 GPs met 1-2 times/mo; problem-based format, self-directed learning | Modules from daily work relevant to practice; case discussion | Occurrence; themes; effect of small CME groups | • Small CME groups are less common than traditional CME activities<br>• A competent leader is crucial<br>• Group work might enhance knowledge development and facilitates adoption of new guidelines |
| Davis et al, 1999, Edmonton, Alta[13] | Descriptive study; 54 FPs, trained facilitator | 4 pilot PBSGL sessions | 9 clinical osteoporosis cases; effect of PBSGL was evaluated using pretests and posttests consisting of objective structured clinical examination stations and standardized patients | Improvement of knowledge and skills in diagnosing and managing osteoporosis | • The program format, content, and participant satisfaction were highly rated by PCPs<br>• Participants expected the program to have a substantial effect on their practices<br>• 98% of participants improved their pretest scores, with a mean increase of 13% |
| Peloso and Stakiw, 2000, Saskatoon, Sask[14] | Descriptive study; 12-15 participants (8 GPs), a trained facilitator, an expert, a pharmacist, a drug representative, internal medicine residents | >25 sessions over 3 y (evening sessions with a meal); expert made 10-min presentation about the topic followed by summary of 2-3 teaching points then discussion of relevant EBM articles | Cases from the practice presented in 3-4 min then discussions guided by the facilitators in small groups | Advantages to GPs; benefits to facilitators, experts, and sponsor | • PBSGL format was more attractive and relevant to practice and led to practice change more than other forms of CME<br>• Facilitators acquired new knowledge and skills<br>• Experts interacting with GPs improved communication<br>• Program built rapport between GPs and sales representative |
| McSherry and Weiss, 2000, Canada[15] | Descriptive study; 658 GPs across Canada | 86 peer-led workshops with program's educational materials (video case studies and a handbook); peer discussion in small groups | Algorithm for benign prostatic hyperplasia management and practice recommendations | Questionnaires before and after the workshops to evaluate "intent to change" | • Peer-led small group CME can successfully encourage use of new practice guidelines in primary care |
| Verstappen et al, 2003, Netherlands[16] | Multicentre RCT; 174 GPs in 26 groups | During 6 mo of intervention, GPs discussed 3 consecutive, personal feedback reports in 3 small group meetings and made plans for change | Clinical problems with appropriate testing according to evidence-based guidelines | A decrease in number of tests/6 mo/physician according to EBM guidelines; a decrease in inappropriate tests as defined in the guidelines | • PBSGL strategy resulted in modest improvement in test ordering by PCPs |
| Allen et al, 2003, Nova Scotia[17] | Descriptive study; 31 GPs from 3 communities, experienced facilitator | Videoconference link; 4 modules (each 1 h); evaluation done to assess knowledge and change in practice | Modules from the Foundation for Medical Practice Education on clinical cases from practice | Value of discussion; ease of facilitation; effect of videoconferencing; educational content; intended practice change; cost | • Evidence of gained knowledge<br>• Negative effect of videoconferencing on the facilitator leading the discussion<br>• GPs reported practice changes from participating in the modules<br>• Videoconferencing can be used in PBSGL |

**Table 1** *continued on page 640*

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|---|---|---|---|---|---|
| De Villiers et al, 2003, South Africa[18] | Descriptive study; GPs, facilitators | Up to 12 GPs per group; 3 sessions over 9 mo; evaluation done by NGT | Topics from clinical practice | Improvement in knowledge, skills, and patient care | • NGT was an effective tool for program evaluation<br>• The program improved GPs' knowledge, skills, and patient care |
| Herbert et al, 2004, British Columbia[19] | 2×2 RCT; 200 FPs, group facilitators | Monthly meeting in 28 peer learning groups; evaluation by measuring prescribing preference before and 6 mo after the intervention | Case-based educational module, EBM, guidelines about prescribing in hypertension discussed in small groups | Changes in prescribing preferences (ie, probability that patient will receive the EBM medication as first-line therapy) | • EBM educational interventions combining feedback and interactive group discussion led to modest changes in physicians' prescribing |
| Macvicar et al, 2006, Scotland[21] | Descriptive study; 41 GPs, trained facilitators | 5 groups over 12 mo; each group decided the frequency and location of meetings (usually 2 h); 1 group used videoconferencing; evaluation done by pretest and posttest questionnaire | Different modules from the practice selected by the group members | Assess effectiveness of PBSGL on participants' knowledge, skills, and attitudes in relation to EBM; knowledge of small group functioning | • PBSGL has positive effect on learning in applying evidence and on small group function |
| Sommers et al, 2007, San Francisco, Calif[20] | Descriptive study; 98 GPs | 11 groups met regularly in their offices or clinics | GPs present dilemma cases, share experience, review evidence, and draw implications for practice improvement | Meeting and attendance; clinical dilemma cases; clinician feedback; clinician group discussion | • Attendance was stable<br>• PBSGL was feasible and acceptable<br>• Useful method of practice-based learning and improvement |
| Armson et al, 2007, Canada[4] | Descriptive study; program started in 1992 and grew to more than 3500 physicians across Canada by 2007; more than 450 experienced trained facilitators were involved | GPs met an average of 90 min/mo or twice/mo in small, self-formed groups of 4-10 FPs | Standardized format modules from clinical practice cases and topics using EBM approach | Change in practice | • Success of the program is evident in effect on clinical practice, increasing numbers of members, and growth in interest in the program internationally |
| Murrihy et al, 2009, Australia[22] | Descriptive study; 32 FPs in 6 groups, facilitated by experienced psychologists | 6 groups completed 8 sessions, 2 h each, during a 6-mo period | Basic knowledge about CBT; role play scenarios, training workshops | Enhanced brief CBT knowledge and counseling skills | • FPs' knowledge and skills in actual use of brief CBT improved considerably |
| Kanisin-Overton et al, 2009, Scotland[23] | Descriptive study; interprofessional education (GPs and PNs); 19 participants including facilitators | GPs met once/mo | Clinical modules equally challenging and relevant to both GPs and PNs | Assess learning in multiprofessional groups; assess benefits of PBSGL | • Peer facilitators are crucial to PBSGL effectiveness<br>• Mutual respect and equity were important<br>• PBSGL is appropriate for CPD of mixed groups of GPs and PNs |

CME—continuing medical education, CBT—cognitive behavioural therapy, CPD—continuing professional development, EBM—evidence-based medicine, FP—family physician, GP—general practitioner, NGT—nominal group technique, PBSGL—practice-based small group learning, PCP—primary care provider, PN—practice nurse, RCT—randomized controlled trial.

Most PBSGL modules consisted of only FPs; 2 studies evaluated interprofessional learning with PCPs and other health care professionals.[14,23] All sessions involved trained facilitators. Studies investigated method of delivery and topics such as osteoporosis diagnosis and management guidelines,[13] and benign prostatic

hyperplasia algorithm management and practice recommendations.[15] One study used a PBSGL program to train FPs in brief cognitive behavioural therapy,[22] and in 2 studies PBSGL programs were used to assess changes in physician behaviour (in evidence-based prescribing for hypertension[19] or in ordering of tests[16]). Small groups were viewed by one study as prone to disintegration. Members have to ensure good attendance, deal with interpersonal issues, prioritize the group agenda, and re-emerge from periods of stagnation.[1] Attendance was seen as being influenced by personal, professional, and social forces.[14]

The role of facilitators with skills in group leadership seems to be very important in PBSGL programs. Most studies emphasized that their facilitators were trained before starting the program, although some studies did not elaborate on the role of the facilitator. In a study that used videoconferencing, the facilitator gave the program a negative rating because the technology made it difficult to facilitate, compared with more traditional face-to-face formats.[17]

## Evaluation of PBSGL programs

Evaluation of an educational program includes assessing the content, process, delivery, and outcomes.[24,25] Testing before and after participation in the programs was often used to evaluate knowledge gain[17,22] and program value.[1,20,21] Objective structured clinical examinations were used to assess changes in knowledge and skills when programs targeted specific tasks.[13] Questionnaires were used to evaluate participants' intent to change practice.[15,17] One study[4] reviewed log sheets to describe changes in practice and another[23] used them to reflect on the value and experience of the education. Two randomized controlled studies used quantitative methods to demonstrate the effect on practice changes after implementing the program.[16,19] In one study, nominal group technique was used to seek quantitative and qualitative information and was found to be an effective tool for program evaluation.[18] Some participants reported that the PBSGL groups were places of social support and protection against burnout.[1,16,17]

# DISCUSSION

This review identified 2 formats for PBSGL programs. The first focused on identifying learning needs by discussing topics and cases relevant to daily work. This method gave learners more flexibility and allowed for autonomy in learning. The second format investigated a specific clinical problem or task. The problem was identified by the participants or consulting physicians as a topic for discussion. Both formats are important and each has its advantages. The first can be used as an ongoing process tool for continuing medical education, as it helps with reflection on practice problems, sharing experience with colleagues, and facilitating knowledge and skill acquisition. The other format can be used to implement guidelines or to work on needs that participants are not necessarily aware of. Both formats can use real patient cases and both are designed to stimulate reflection and to share experiences with colleagues.

One study[21] considered the lack of formal needs assessment as a relative weakness of the PBSGL approach; however, the primary goal of such programs is identification of issues in practice, and needs assessments thus become an integral part of PBSGL sessions.

The approach that targets specific tasks is useful for improving skills, such as patient-centred management of hypertension[15] or familiarity with cognitive behavioural therapy.[22] Changes in practice are helped along as participants learn from their peers and by the social influence of peer interaction.[16] This was shown in 2 randomized controlled studies (better prescribing[19] and test ordering performance of PCPs[16]) when the interactive group discussion combined with personalized feedback led to improvement in physicians' prescribing (11.5% improvement in ordering appropriate antihypertensive medications according to guidelines[19]) and test ordering (3%, 8%, and 12% reduction in test ordering after 3 interventions[16]).

The role of facilitators with skills in group leadership seems to be important in PBSGL programs, and most facilitators were trained before starting the program. As in other problem-based learning, the role of the facilitator for PBSGL is also to direct the group.[26] Although one facilitator negatively rated videoconferencing technology,[17] videoconferencing does have the potential to bring the benefits of PBSGL to many physicians and it might be the only alternative for physicians in remote areas and in solo practices. The study that examined the effect of interprofessional PBSGL by describing the experiences of GPs and practice nurses showed that participants were open about gaps in their knowledge and open to learning from the other profession.[23]

Although, many PBSGL programs overlap with problem-based learning in general, they are not the same as problem-based learning, which has specific criteria and varying formats.[27,28] As such, this review only addressed PBSGL and not problem-based learning in continuing education. In a review of 6 studies of problem-based learning in continuing education, only one study used a PBSGL format.[29] Our review of PBSGL could be limited by publication bias, as some studies that did not show good effects with PBSGL might be unpublished.

A recent systematic review about educational intervention for primary care physicians to improve detection of dementia showed that although small group workshops increased dementia detection rates, adherence to guidelines improved only after

organizational or financial incentives were combined with education.[30] This raises the question of how to get *commitment* from practitioners, as opposed to compliance, to enhance practice improvement. Facilitating practitioner interactivity seems to be one of the key components of bringing about positive change in communities of practice.[31] Practice-based small group learning establishes a community of practices, and provides the resources for facilitators to improve practitioner interactivity and networking.[32]

## Conclusion

Practice-based small group learning is a promising method of continuing professional development and can be adopted and adapted according to different learning needs. Organizational commitment and incentives might sustain the practice changes effected by PBSGL. Future studies that focus on changes in practice that can be assessed through tracking and analysis of log sheets, critical incident journals, serial chart audits, or other quality improvement indicators will strengthen the evidence for this form of experiential learning.

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**Contributors**

**Dr Zaher** designed the study, conducted the literature review, selected and analyzed the studies, interpreted the analysis, and prepared the manuscript for submission. **Dr Ratnapalan** provided support for the development of the concept and design of the study, and participated in the selection of studies, interpretation of the analysis, and preparation of the manuscript for submission.

**Competing interests**

None declared

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