

Research Article

Quality improvement in chronic care delivery for patients with arterial hypertension through Group Medical Visits: Patient acceptance and attendance in the German pilot project

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ABSTRACT

Background: To improve the quality of chronic care delivered and to effectively manage their panel of chronically ill patients is a challenge for many family physicians, which have historically focused on acute care. A high quality intervention for chronically ill patients are group medical visits (GMV), where physicians see a group of patients with a common (chronic) condition simultaneously in a supportive setting. GMV typically include both, educative group work fostering the exchange of coping strategies between patients as well as elements of the individual one-on-one visit like the taking of history and vital sign collection.

In North America and several European countries GMV as care innovations, have for the most part been introduced with the backing of larger care organizations. In Germany, primary care in group settings is unknown and larger care organizations, which could drive innovations like GMV, are not present.

Aims: The pilot project was conducted in order to assess the transferability and implementability of GMV, following the model of chronic health care clinics (CHCC), into the German health care system.

Method: The findings presented here, stem from a RCT conducted at two rural physician practices to assess the effectiveness of GMV against standard one-on-one visits. After assessing the willingness of patients to attend GMV, 48 patients were included in the study at both practices. At each practice half of the patients were randomized into a control group, while the other half was split in to two intervention groups of twelve patients that met every second month for a GMV. It is the actual attendance of these intervention groups that are described and analysed here.

Results: GMV were successfully implemented by both physicians. With a positive response rate of 81.9%, patients' willingness to attend GMV exceeded the willingness to attend, measured in previous studies.

Actual attendance was on and above target-census of ten patients per GMV, in three out of four patient groups, only, in the fourth patient, the census consistently fell short. On average, 9.8 patients attended each GMV, equaling an attendance rate of 81.6%.

Conclusion: Our pilot study indicates that it is generally possible to establish GMC in ordinary primary care practices, without the backing of a larger health care organization. According to the willingness to attend and actual attendance rates of the small sample in this study, GMV following the CHCC model appear to be a feasible and acceptable model of primary care for chronically ill patients in Germany.

Keywords : Group medical visits, hypertension, patient acceptance, quality of care, primary care

How that fits in with quality in primary care

What do we know?

Group medical visits (GMV) are a high quality primary care intervention that has been highly successful in the treatment of chronically ill patients.[1,2]

Though first experiences and publications on GMV date back over 20 years, GMV have not disseminated as a regular primary care intervention widely outside North America. In Europe, pilot projects have been limited to hospital outpatient settings and have not been implemented in the ordinary primary care practices.[3–5]

What does this paper add?

This paper on the patient's acceptance and attendance in the German pilot project illustrates that need for GMV as a high quality alternative to the customary one-on-one visit. The successful implementation in two rural clinics, without the backing of a larger health care organization, is an encouragement for other primary care providers to implement GMV for chronically ill patients in their practices.

Background

Offering chronically ill patients the high care they need, becomes a challenge for family physicians and health care systems as their number is increasing constantly. The challenge

however, is not only a question of quantity of patients. Due to the complex care needs of chronically ill patients, it is likewise a question in terms the quality of the care intervention.

Because they have historically been focused on acute care through the one-on-one visit, many physicians struggle to improve the quality of chronic care delivery and effectively manage their panel of chronically ill patients.

Group Medical Visits (GMV) is an alternative form of primary care encounter. It focuses on capacity building on the patient's side in terms of health literacy competencies, self-management and problem-solving skills, while also reinforcing patient's self-efficacy. To achieve this, GMV rest on the exchange of coping mechanisms between patients under the supervision of physicians.

Articles and reviews from the USA, Canada, China, Italy and Netherlands demonstrate GMV to increase both patient and provider satisfaction, to have the potential to improve primary health outcomes and to have a neutral to negative effect on health care costs.[1–11]

GMV projects, especially in Europe, have been limited to hospital outpatient settings, where strong institutional support for the care provider was present.[3–5] So far, a wider dissemination of GMV as a regular mode of primary care delivery in ordinary primary care practices has not been established. The German pilot project was set out to empower ordinary primary care provider to implement and hold GMVs in their practice.

Group Medical Visits

The idea of GMV in primary care is a joint medical care encounter of patients which are faced with the same medical issue. Compared to a traditional one-on-one meeting, care delivery is more comprehensive: in addition to the usual care, a GMV includes elements of (chronic) disease management, group support, health promotion and health education.

Since the 1990s, different GMV models have been developed: Cooperative Health Care Clinics (CHCC) with variations thereof, are among the ones most commonly used today.[10]

Chronic Health Care Clinics (CHCC)

CHCC is a GMV model, specifically designed to treat chronically ill patients. It is founded on the principal that patients with a chronic condition are underserved in the traditional one-on-one visit. Chronically ill would need a more holistic care approach to decrease their burden of disease and prevent future health complications. For these patients health literacy, self-management competencies and problem solving skills were as important as psychosocial elements of care.

CHCC foster these aspects of primary care. The concept builds on the benefits of inter-patients learning, as knowledge exchange between patients is promoted: this is set out to allow patients to exchange problem-solving strategies, coping mechanisms and self-management capacities. CHCCs also include routine primary care needs (examinations, diagnoses, prescriptions etc.) of attending patients – thus CHCCs are used to substitute for individual one-on-one visits.

CHCCs are conducted in a program format, which invites up to twelve patients, affected from the same chronic disease, such as diabetes or hypertension, to come together at their care provider. CHCC visits take place in the same group constellation in a one or two month interval. A typical CHCC encounter lasts for 60 to 90 minutes. In the original model, each single CHCC visit is broken into the following five phases:[8]

Warm up and socialization

A CHCC visit is opened by an informal welcoming, which is used to familiarize new members of the group with the rules of conduct in CHCCs and to get patients talking.

Educational session

Central element of the CHCC is the educational session. It is focused on a topic of relevance to the chronic disease the patients of the CHCC have in common such as "*physical activity with hypertension"* or "*adjusting entrenched eating habits"*.

The educational session could be held as a presentation by the physician or a medical staff member of the practice. However, it has proven advantageous to run the session as patient interactive as possible: i.e. to encourage patients to give insights into their own related experience, problem solving skills and coping mechanisms in regards to the challenge presented and to invite patients to discuss theses individual approaches with one another. It is through this interaction in a group of peers, that capacity building takes place between the patients. In the CHCC, patients are hereby empowered to adopt problem-solving strategies from one another that will ultimately lead to improved disease specific self-management capabilities, health literacy and ultimately improved health outcomes.

Break / medical treatment

Following the education session, the physician turns to every patient to deliver medical care appropriate for the group setting. This may include medical assessments, such as blood sugar or blood pressure testing, treatment of minor health issues or immunizations. While the care team turns towards individual patients, other patients are invited to listen in or to talk with seatmates.

Questions and answers

There is time allotted in each CHCC visit to cover patients' questions, not related to the topic of the education session. These questions are also answered and discussed in the forum of the group – for all patients' benefit.

Planning and closing

Planning of the next CHCC meeting (date, topic for the education session) concludes each visit.

One on one time

For medical issues, unsuitable for the group setting, patients have the option to see their physician briefly face-to-face

following the CHCC. Experience tells, it is only a small number of patients that ask for one-on-one time, as patients are using the group-time to discuss most medical issues.[12]

Based on the original CHCC model,[8] the CHCC model has been transferred to various countries where they were adopted to local needs.[10]

Relevance of patient acceptance and patient attendance

As with other chronic care interventions, patients' buy-in is the key to success and an indicator of quality of care delivered.

For CHCC however, patient buy-in is more than merely an indicator of perceived quality of care; it is the driver for success. Patient buy-in, in form of active engagement during the educational session is the catalyst for improved health outcomes through the transfer of problem solving skills and coping mechanisms between the attendees.[13] Low attendance damages group dynamics and reduces chances for attending patients to learn and profit from the absent.[14] Also, chances of improved health outcomes for individual patients are largely dependent on the number of GMV attended.[15–19] As such, patient attendance is a critical success factor for any GMV-program and for every individual patient's chances of improved health outcomes.

To have lively discussions, the target size for CHCCs is about ten patients is advised. It has proved to be adequate to overbook each GMV by about two patients, because due to personal circumstances (sickness, holidays etc.) patients are unable to attend at all given GMV visits offered.[20]

Table 1: Template of Chronic Health Care Clinics CHCC)8

Phase		length
1.	Warm up / socialization	5-10 minutes
2.	Educational session	20-30 minutes
3.	Break / medical treatment	10-15 minutes
4.	Questions and answers	5 minutes
5.	Planning and closing	5-15 minutes
6.	One-on-one time	

GMVs like CHCCs are not only held to increase effectiveness in terms of health outcomes, but also to increase efficiency for the care provider. Efficiency, however, can only be gained by a high patient attendance in the GMV that allow care provider to treat more patients in the same amount of time than he would in a series of one-on-one visits.[21]

While patient acceptance and attendance are for these reason essential to every GMV program, both played a crucial role in the German pilot study: In Germany, primary care in group settings is unknown. Primary care is conducted by family physician working in solo practices unaffiliated with larger care organization as one-on-one visits between patient and physician. Henceforth, the pilot project on GMV was, and still is faced with high skepticism from physicians and health insurances alike.

Thus, it became the crucial metric and goal in the pilot study to reveal patients attendance and acceptance of this innovative model of primary care.

Methods

The findings presented in this article are the first results coming out of a randomized control trial set up in two physician practices to compare the effectiveness of GMV compared against standard one-on-one care. Each participating physician hosted an intervention group and a control group. After recruiting 48 patients in each practice, patients were randomized into an intervention and a control arm of 24 patients each. The 24 patients of the intervention arm were subdivided into two groups (Group 1 and Group 2) holding twelve patients each. As in other CHCC programs, it was the goal to have about ten patients in every visit. 12 patients were invited to attend; therein potential no-shows would not harm group momentum or group discussion.[22] These two groups of 12 formed the constellation in which patients would be invited to CHCCs every second month over the course of 12 month (compare table 2). Our study was carried out as intention-to-treat analysis. Drop outs of the intervention arm were not compensated for by restocking the groups with new patients. Patients in the control arm continued to receive care in one-on-one visits.

Table 2: Participation criteria for patients

Inclusion criteria

I. Patients chronically suffering from hypertension, defined as a level of mmHg larger than 140/90; it was sufficient if either the systolic or diastolic blood pressure value is exceeded,
II. Patients older than 55 years (born in or before 1957),
III. Patients who visit their family physician most frequently, defined as 10 or more visits within the last 12 month,

Exclusion Criteria

I. Patients were terminally ill,
II. Patients were unable to follow a discussion respectively who are unable to actively participate in medical group visits – be it out of cognitive impairment, dementia, deafness insufficient language skills or other reasons,
III. Patient discretion in regards to the medical information of other patients were in question,
IV. Patients were not interested in sharing their medical histories or issues in a group with other patients,
V. Patients did not have transportation means to attend group visits on a regular basis,
VI. Patients, for other reasons, were unable to attend group visits on a regular basis,
VII. Patients were unable to participate in the study over the entire course,
VIII. Patients were at the same time participated in a second clinical trial or just completed a different clinical trial,
IX. Patients had not consented in participation by signing the consent form.

[Figure 1 Patient flow]

In the pilot project, the acceptance of the GMV following the CHCC model by patients is judged in two ways. Firstly, the willingness of patients in both study practices to attend GMV if approached by their physician; secondly, the actual attendance of GMV by patients that were randomized into the intervention arm.

Participating physicians and patients

After trialing GMV at a pilot physician (Physician A), CHCCs were fully implemented in two physician practices (Physician B and Physician C). Both physicians are female, self-employed, work in solo practices, without institutional backing, and care for approximately 2.500 patients each. They are based in a town (30G inhabitants) respectively a rural community (2.5G inhabitants). Both physicians held CHCCs for hypertensive patients.

Patients had to have hypertension, defined as a level of mmHg larger than 140/90, needed to be older than 55 (born in or before 1957) and had a high frequency of one-on-one visits in the past 12 month (10 or more visits) for eligibility to partake in the GMV. Exclusion criteria for patients were formulated in line with earlier GMV studies.[23–25]

[Table 2 participation criteria for patients]

We focused on patients with arterial hypertension, as it is one of the leading causes for cardiac infarction which is one of the key target areas of the regional government in the area the study was conducted and because GMV have been tested extensively for this patient group[7,18,21,26,27]

Patients were approached by their family physician directly, as to whether or not they would be willing to participate in a GMV program, following the CHCC model, at their practice. Patients were given

a) an invitation letter characterizing the GMV to be a, *"new intervention offered by their family physician, which was especially designed to meet the needs of chronically ill"*.,

b) a patient pamphlet describing the sequence of CHCCs,

c) a questionnaire, which would unveil their willingness to attend the CHCC-program of their family physician.

Patients were asked to complete the questionnaire and to return it via a prepaid envelope. This took place over the course of three months.

It was set out to approach approximately 120 patients in this fashion in each practice, in order to recruit the necessary 48 patients. The approach of patients was to be stopped as soon as 50 positive feedbacks had been returned for each practice – a procedure not uncommon for GMV-projects.[28]

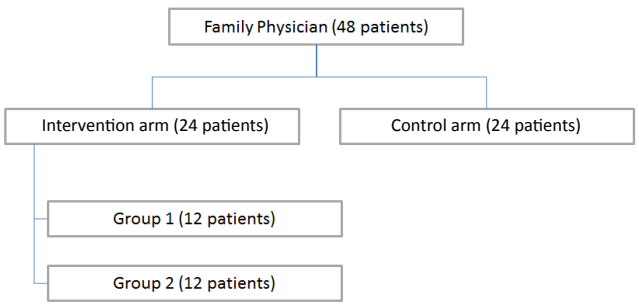

Figure 1: Participant flow.

Patient attendance was collected by a name list to be signed by the patients attending a given GMV.

Template of GMV

GMV were conducted in the pilot project following the CHCC model, including all elements described above. Similar to implementation of the CHCC group visits format in other countries, adaptions to the CHCC-template were necessary.

The most relevant adaption made, was that a special focus was placed upon patient interaction during the educational session. Physicians abstain from presenting health related information. Instead, the education session was used as a forum to discuss patients' perspectives on and experiences with topics related to hypertension. Patients were invited to give insights into their personal experiences in regards to their illness, the therapeutic attempts they have undertaken in the past and the coping strategies for disease related impediments. As such, emphasis was placed upon knowledge exchange between patients, with the goal to create a better understanding of one's illness and to gain insights into possible coping mechanisms used by other patients. Patients especially shared personal experiences on their struggles and success with suggested lifestyle changes including increased physical activity or changes in eating habits. It was the physicians' role to moderate and guide the discussion as well as, to add key information selectively when needed.

The Ethics Commission of the Medical Faculty of the University of Cologne, Germany as well, as the Ethics Committee of Medical Association of Saxony-Anhalt, Germany approved the study; written consent was obtained for each patient participating.

Results

Willingness to attend in German pilot project

Prior to study launch, it was set that 240 patients should be approached, 120 by each physician, to accumulate 50 positive feedbacks for each practice. Due to unexpected high number of positive patient responses, a total of only 126 returned questionnaires were needed to collect the 50 positive feedbacks per practice. Thus, patient approach could be ceased very early as. Post cessation, another 18 positively answered questionnaires arrived from patients to whom the questionnaires were given prior to the ceasing – in total 144 patients returned the questionnaire.

23 patients were not interested to participate; one patient asked for further information and 118 confirmed their willingness to attend – 82% positive responses of all approached patients.

[Table 3 willingness to attend GMV (absolute and relative numbers)]

With 86% approached patients responding positively at physician B and 78% at physician C, the willingness to attend a GMV at both physicians differed slightly. In terms of gender, age, or any other demographic factor there was no significant

difference between patients willing to attend and not willing to attend.

[Figure 2 willingness to attend GMV (absolute and relative numbers)]

Patient attendance in the German pilot project

Both physicians had high attendance rates in their initial CHCCs. The attendance rate in the practice of Physician B dropped at the second meeting of Group 2, respectively third meeting of Group 1 down to only six patients. In the following CHCCs-visits participation rates climbed again in Group 2. However, in Physician B's Group 1, the census never reached two-digit numbers again and one visit was held with only five attendees. On average, 8.6 patients participated at any CHCC visit of Physician B.

Physician C was able to maintain the high attendance rate over the course of the entire 12 month period. On average, eleven patients attended every CHCC at this practice – a better outcome than the initial goal of ten participants in every CHCC visit.

[Table 4 Patient attendance in German pilot project]

Combining all four groups, an average of ten patients participated in every given CHCC-visit. This accounts for an attendance rate of about 81.6%.

Discussion

Willingness to attend

So far, there has not been a systematic analysis of how many patients, which fall in any given eligibility criteria, are actually interested in participating in GMV. A study from the US reported a willingness to attend of 68%.[21] A study by Kaiser Permanente reported that out of 793 potential patients 295 patients (37%) would have expressed a strong interested to participate in GMV.[22]

We discovered a willingness to attend of 81.9% of all approached patients, with a split of 85.9% respectively 78.1% at the two participating practices. We ascribe the high willingness to attend, compared to these studies mentioned above, to the fact that both physicians were very passionate in offering GMV and were eager in approaching patients personally, which might not have been the case in other studies.

Our target population was older and from a rather rural area. A conservative patient group together with a strong interest on the physician's side might have led to physician induced willingness to attend – however we did not find any indication to support this assumption in our patient interviews.

Patient attendance

The aim of our study was to have an average of about ten patients attending each CHCC visit. To account for no-shows, we overbooked each visit by inviting twelve patients.

With a variation of 5 to 12 attendees, an average of 9.8 patients attended each visit equaling an attendance rate of 81.6% of patients invited.. Compared to previous studies from other countries, this rate is on the high end of the spectrum: studies describes between 60% - 80% of invited patients are actually attend.[6,10,14,17,29] However, as depicted in the table 4 ,above, the number of attendees differed between both practices. On average, almost 8.6 patients attended each CHCC visits of Physician B, while an average of 11 patients attended CHCC visit of Physician C:

Physician B's Group 1 had only 6 attendees in the third

Table 3: Willingness to attend GMV (absolute and relative numbers).

	"I am interested to participate in the new medical group visit."				
Patient response	„I need more information"	„Yes"	„No answer"	„No"	**total**
Physician B	1 (1,4%)	61 (85,9%)	0 (0%)	9 (12,7%)	**71 (100%)**
Physician C	0 (0%)	57 (78,1%)	2 (2,7%)	14 (19,2%)	**73 (100%)**
Total	**1 (0,7%)**	**118 (81,9%)**	**2 (1,4%)**	**23 (16%)**	**144 (100%)**

Table 4: Patient attendance in German pilot project (twelve patients invited to each GMV).

		1st CHCC Visit	2nd CHCC Visit	3rd CHCC Visit	4th CHCC Visit	5th CHCC Visit	6th CHCC Visit	average attendance	relative attendance
Physician B	**Group B 1**	12	8	6	8	7	5	7.7	63.9%
	Group B 2	12	6	9	11	8	11	9.5	79.2%
	total							**8.6**	**71.5%**
Physician C	**Group C 1**	10	12	12	9	9	12	10.7	88.9%
	Group C 2	11	11	12	11	12	11	11.3	94.4%
	total							**11.0**	**91.7%**
							total	**9.8**	**81.6%**

GMV visit, when the physician had to move the date on short notice due to being ill herself, not all patients were able to attend the alternative date. More relevant for the overall census of Physician B's Group 1, was the permanent drop-out of four patients over the first months of this study:

- One patient switched permanently to seek care at a different family physician.
- Another patient was diagnosed with cancer; he left the group for tumor excision and rehabilitation.
- A third patient suffered from a severe stroke which led to him and his wife leaving the group visit program.

Due to the study design, permanent drop-outs of a group practice were not restocked by new patients. Henceforth, the study design was also a factor that contributed to a low census at physician B's Group 1, once patients had left the GMV.

In Physician B's Group 2 all CHCC visits met the target census of about 10 patients, except for the second visit held. At second CHCC visit, the low census of only 6 patients was due to miscommunications of the date the meeting was supposed to be held. In the following visits, attendance picked up again and reached target level.

Physician C was able to have a stable attendance with an average of 11 attendees. We attribute the high attendance at Physician C's practice to the strict regularity of GMV held; visits were always held on the same weekday at the same time. Visits were never postponed on short notice, nor were any visits canceled. Thus, patients were able to schedule their coming ahead of time and make arrangements to be able to participate.

Conclusion

Prior to the conduction of the pilot project, GMV were unknown in Germany. It was the intention of the pilot project to establish GMV at two ordinary primary care practices, without the backing of a larger health care organization. To explore the acceptance of this new primary care format among German patients affected from arterial hypertension, in general practices, this paper was developed. For this purpose, we assessed the general willingness to participate in GMV, as well as the actual attendance to GMV by patients randomized into the intervention arm. Our positive results serve as an encouragement for GPs to explore the implementation of GMVs in their private practice.

In our patient sample, the willingness to attend was higher than expected and over exceeded the willingness to attend measured in previous studies. The participation of patients in the actual visits was on and above target census in three out of four patients groups (Group B2, Group C1 and Group C2). Only in one patient group (Group B1) the census consistently fell short due to early drop-out of four patients.

According to the patients' willingness to attend and actual attendance rates in this study, GMV following the CHCC model appears to be a feasible and acceptable model of primary care for chronically ill patients in Germany. The high attendance rate, and the fact that both physicians continued to offer GMV in their practice beyond the time of the pilot study, underlines the successful implementation of the primary care intervention in both practices.

The study was conducted with two highly motivated physicians and a group of patients, which identified themselves to be interested in participating in GMV. Thus our findings might not be generalizable on average physicians less motivated to move to GMV.

To what extent patients benefited medically from GMV remains to be scrutinized as follow up of the study. Attending patients and both physicians however, described GMV to add value to chronic care and emphasized their willingness to continue GMV after study completion.

Abbreviations : GMV: Group Medical Visit; CHCC: Chronic Health Care Clinic

Ethical Approvals

The study has been approved by the Ethics Commission of the Medical Faculty of the University of Cologne, Germany as well as the Ethics Committee of Medical Association of Saxony-Anhalt, Germany.

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CONFLICTING INTERESTS

The authors declare that they have no conflicting interests.

PATIENT CONSENT AND PATIENT CONFIDENTIALITY

We, the authors, declare that patient consent has been obtained and that all reasonable steps have been taken to maintain patient confidentiality.

Trial registration:

DRKS00004346

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