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Implementing Group Medical Visits for Older Adults at Group Health Cooperative

Martin D. Levine, MD¹, Tyler R. Ross, MA², Benjamin H.K. Balderson, PhD², and Elizabeth A. Phelan, MD, MS^{2,3}

¹Group Health Cooperative, Seattle, WA

²Group Health Center for Health Studies, Seattle, WA

³Department of Medicine, Division of Gerontology and Geriatric Medicine, and Department of Health Services, School of Public Health and Community Medicine, University of Washington, Seattle, WA

Abstract

In a pair of randomized controlled trials in Kaiser Colorado in the 1990s, Group Visits for older adults (monthly non disease-specific group medical appointments for a cohort of patients led by primary care teams) were proven to reduce costs, decrease hospitalizations, and improve patient and provider satisfaction. As part of a translational effort, this Group Visit intervention was replicated in a delivery system in Seattle, WA, and the log of total health care costs measured in the first year of the intervention. Utilization and patient and physician satisfaction were secondary outcomes. For the cost and utilization analysis, a retrospective case-control design compared 221 case patients 65 years of age and older with high outpatient utilization in the previous 18 months with 1,015 control patient selected randomly from clinics not participating in the intervention. Controls were matched to cases on the number of primary care visits in the prior 18 months. Total costs were not statistically different for intervention patients compared to controls (\$8,845 vs. \$10,288, $p=0.11$), nor were there statistically significant differences in utilization, including hospital admissions and outpatient visits. However, patient and provider satisfaction was high. This translational effort did not demonstrate the cost savings of the original efficacy trials. Possible explanations for these divergent results may have to do with differences in those who participated and differences between the two delivery systems.

Address for Correspondence and Reprints: Martin D. Levine, MD, Group Health Cooperative, Northgate Medical Center, 9800 4th Avenue, Seattle, WA 98115-2158; 206.302.1237 (phone); 206.302.1263 (fax); levine.m@ghc.org. **Alternate Corresponding Author:** Tyler R. Ross, MA, Group Health Center for Health Studies, 1730 Minor Avenue, Suite 1600, Seattle, WA 98101-1448; 206.287.2927 (phone); 206.287.2871 (fax); ross.t@ghc.org.

Contributors:

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Author Contributions:

Author Name: Martin Levine implemented the interventions and took primary responsibility for preparation of the manuscript.

Author Name: Tyler Ross performed data analyses, interpreted data, and assisted with drafting the manuscript.

Author Name: Benjamin Balderson was involved in design of the analysis, contributed to interpretation of the data, and provided critical review of the manuscript.

Author Name: Elizabeth Phelan contributed to design of the analysis, interpreted data, assisted in drafting the manuscript, and provided critical review of the manuscript.

Keywords

primary health care; health care costs; Group Visits; health services for the aged/organization and administration; intervention studies; translational research

INTRODUCTION

Two randomized controlled trials of a Group Visit intervention for seniors were conducted in the 1990s in the Kaiser Permanente delivery system in Colorado.^{1,2} These one- and two-year trials demonstrated that participants in the Group Visit intervention received more complete preventive care services and had higher satisfaction, reduced hospitalizations and emergency department use, and lower costs than controls. The one-year trial showed a cost savings of ~\$15 per member per month, whereas the two-year trial showed a cost savings of ~\$48 per member per month.

Although the study entry criteria for the two Kaiser studies was slightly different, the patients in these two trials were similar in terms of age, burden of chronic illness, and utilization patterns prior to the start of the Group Visit intervention. In the one year trial, patients had to be 65 years of age or older, have either heart disease, lung disease, joint disease, or diabetes; have 12 or more outpatient visits in the prior year; and have 6 or more phone calls placed to a nurse in the prior year. In the two year trial, patients had to be 60 years of age or older and have 11 or more outpatient visits in the prior 18 months.

It was unclear whether the Kaiser intervention could be implemented outside of a research setting and, if so, whether the cost savings of the original trials could be replicated. In July 2004, Group Health Cooperative, a primary care-based, non-profit, multi-specialty health care delivery system based in Seattle, WA, decided to translate this intervention into its own delivery system at two primary care clinics and evaluate the impact on health care costs, utilization and patient and provider satisfaction. The Group Health delivery system, like in Kaiser Colorado, manages and directs clinical care across settings (clinic, hospital, skilled nursing) and promotes care coordination through the use of an electronic medical record.

It was hypothesized that the utilization reductions of the original Kaiser trials could be replicated at Group Health.

METHODS

The intervention involved inviting physicians to offer a monthly Group Visit to patients 65 and over who had high outpatient utilization. Details of this intervention are available elsewhere.^{1,3} In brief, a cohort of 25 patients per physician was invited to a standing monthly Group Visit that lasted 90 minutes and included a 15 minute warm-up, a 35 minute group discussion on a health care topic chosen by patient consensus, 30 minutes of individual health care time between the patients and the doctor and nurse, and a 10 minute wrap up. During health care time, physicians had access to the patient's electronic medical record and provided routine medical services (e.g., performed exams, ordered labs, adjusted medications). Table 1 summarizes key points of the intervention.

Selection of Cases and Controls

Physicians were presented with a list of their patients 65 years of age and older with the highest primary care utilization in the prior 18 months. Physicians were asked to exclude those for whom the Group Visit would be inappropriate (e.g., those with dementia, profound hearing loss, or enrolled in hospice). A receptionist then called and invited the remaining

patients to participate in the intervention until 25 patients from each provider panel had agreed to join. These 25 patients then participated in monthly, 90-minute clinic visits facilitated by their physician, a nurse, and a medical assistant. In the original trials, a patient needed to have had 11 or more visits in the prior 18 months to qualify for the study, but in this translational effort, not every physician had enough patients with this level of prior primary care utilization, and so the entry criteria of 11 or more visits in the prior 18 months was relaxed such that 25 patients could be invited from each physician's panel. A physician champion and nurse group visit coordinator attended the first couple of visits for each clinical team and modeled group visit facilitation skills. After a couple of visits, the nurse coordinator continued to attend groups but in an observational role only.

For purposes of the analyses presented herein, cases were defined according to the following criteria: participated in at least 1 Group Visit, at least 7 primary care visits in the prior 18 months, aged 65 or older, continuously enrolled for the 18 months prior to and 12 months following her/his first Group Visit, and no diagnosis of dementia in the prior year.

Controls were randomly selected Group Health patients who received primary care at a clinic not involved in the Group Visit intervention but from other clinics that had a similar socio-demographic profile to the intervention clinics. Controls were matched to cases on the number of primary care visits the patient received in the prior 18 months.

The earliest index date in the cohort was in September 2004. The latest index date was September 2005. We pulled data one year prior and one year post index on the cohort.

Primary Outcome: Total Health care Costs

The automated data systems at Group Health allowed measurement of total direct health care costs for individual patients' use of health care services. These costs included all costs directly related to delivering health care services, whether or not those services were received within a Group Health-owned facility. Costs excluded were those not directly related to delivering health care services (e.g., costs of insurance administration), overhead costs, and patient out-of-pocket costs. Total direct health care costs for the individual in the year following the first Group Visit was the primary outcome.

Secondary Outcomes: Health Care Utilization & Patient and Provider Satisfaction

Secondary outcomes included several measures of health care use, including hospitalizations and outpatient (urgent, primary care, and specialty) visits. Hospital admission was defined as any inpatient visit following the start of the intervention.

At the conclusion of each individual Group Visit, patients were administered a written survey that asked them how much they agreed or disagreed with three statements: 1) I learned something helpful during this visit; 2) I feel the visit increased my confidence to take care of myself; 3) I felt listened to by the doctor and/or others. The survey ended with the patient being asked "How would you rate this visit overall?" Each statement had response options on a Likert scale ranging from 1–5, with values as follows: 1= very dissatisfied; 2= dissatisfied; 3= not sure; 4= satisfied; 5= very satisfied.

Physician satisfaction was measured at six months by asking physicians participating in Group Visits to state how much they agreed or disagreed with two statements, using Likert scale response options from 1-5, where 1= strongly disagree, 2= disagree, 3= not sure, 4=agree, and 5=strongly agree. The two statements were: 1) I get a lot of satisfaction from Group Visits; and 2) Group Visits enhance my practice.

Statistical Analysis

Characteristics, costs, and utilization of cases and controls were compared using chi-square tests for categorical variables and t-tests assuming unequal variances between intervention and control groups for continuous variables. To evaluate differences in direct costs and utilization during the first year of the intervention, we used multivariate linear regression accounting for baseline case-mix differences by adjusting for age, gender, date of first Group Visit, RxRisk, log of baseline costs, and baseline utilization. Baseline was defined as the year immediately preceding the date of the first Group Visit. RxRisk is a validated comorbidity measure based on prescription pharmacy fills at baseline.⁴ Utilization measures included the number of primary care and specialty care visits, and whether the individual had an inpatient encounter or urgent care visit in the baseline year.

Because a few patients incurred high total cost relative to the others, the distribution of total cost was heavily skewed; therefore, we used the natural logarithm transformation of total costs when evaluating it in the linear regression model. For primary care and specialty care utilization, we used multivariate negative binomial regression. For urgent care and hospital utilization, we performed multivariate logistic regression.

In the cost model, accounting for censoring at zero dollars using a Tobit model⁵ did not result in any substantial differences in results. Likewise, analyses adjusting for heteroskedasticity using generalized linear models with a gamma-distributed error term were not different from those produced using the ordinary linear model; thus, analyses based on ordinary linear model are presented herein.

RESULTS

Table 2 compares the intervention patients and controls at baseline. Intervention patients were slightly older (mean age 79.5 years for intervention patients vs. 77.9 years for controls, $p<0.001$), more likely to be female (71% vs. 64%, $p=0.039$), and had lower total costs in the 12 months preceding the intervention (mean total costs \$7,968 vs. \$10,215, $p=0.007$). The groups were balanced on all other factors, including health status, as measured by RxRisk, and percent hospitalized, mean number of primary care visits, mean number of specialty care visits, and percent with outpatient (urgent care, primary care, and specialty) visits in the 12 months preceding the intervention.

Of the 25 patients in the invited cohort per physician, 12-16 participated each month. Some patients attended every Group Visit, whereas others were more sporadic in their attendance. The mean number of Group Visits attended was 5.55 (Table 3). A total of 16 primary care physicians participated in the intervention, with 56% of invited patients becoming cases for analysis.

Table 3 compares costs and utilization outcomes during the 12 month follow-up period. Total costs remained lower for the group that participated in Group Visits compared to controls, but were not statistically significantly so (\$8,845 vs. \$10,288, $p=0.112$). There were no significant differences between intervention and controls on any form of utilization: hospital admission, urgent care visits, primary care visits, and visits to specialists. Group Visits were not counted in the primary care visit counts.

A multivariate regression analysis was performed (data not shown). After adjustment for case-mix, comorbidity, baseline costs, and baseline utilization, the Group Visit intervention was not associated with an effect on total costs. Secondary regression analyses on our various measures of utilization (hospital admission, urgent care use, primary care visits, and

visits to specialists) indicated that the intervention was not associated with an effect on utilization.

Regarding the patient satisfaction recorded at the end of each Group Visit, the percentage of patients agreeing or strongly agreeing for all four survey items was above 90%.

Regarding the physician satisfaction survey, the percent of providers responding that they agreed or strongly agreed was: 1) I get a lot of satisfaction from Group Visits, 90%; and 2) Group Visits enhance my practice, 50%. The overall physician response rate to this survey was 70%.

DISCUSSION

This analysis is, to our knowledge, one of just a few reports of efforts to translate Group Medical Visits into practice. We accessed comprehensive cost capture data, available through health system administrative files, which allowed for examination of all direct healthcare costs, including those associated with services received outside the integrated delivery system. The patient and physician satisfaction results in this analysis mirrored the findings of the original trials, but the reductions in the use of emergency services, hospitalizations, and total costs were not replicated.

Findings like the drop in number of primary care visits from 10 to 8 in both intervention and control subjects are an example of regression to the mean. An intervention focused on high utilizers will typically find outliers that will regress naturally with the passage of time.

A comparison of the trials of Group Visits and our translational effort may shed light on the reasons for our differing results. The Group Visits mounted within Group Health were somewhat different from those in the two efficacy trials: Our patients were older (aged ~80 years in our analysis, vs. 72 and 74 years in the efficacy trials); they had less outpatient utilization prior to the intervention (average of 7 primary care visits in the prior 18 months vs. 11+ in the efficacy trials); and the average group size was somewhat larger than in the Kaiser trials (12–16 participants vs. 8–12).⁶ Additionally, there was selection bias operative in how patients were invited to participate in the Group Health Group Visits, since they were not randomly selected as they were in the Kaiser trials. And patients that did choose to participate may have been more motivated to at baseline than those who refused. These differences suggest that patient selection factors may be important in achieving the results demonstrated in the efficacy trials. The relaxation of prior outpatient utilization entry criteria in this translational effort was necessary to make engagement of every physician practice a possibility. A recent negative study of a modified senior Group Visit intervention that targeted lower income, middle-aged adults with diabetes⁷ supports the assertion that variation from the features of the original trials, such as changes in patient selection criteria, may negate the program's impacts on utilization and costs.

It is important to note that baseline costs for intervention patients in this study were actually lower than they were for controls, suggesting that perhaps the intervention cohort simply could not experience a further reduction in hospitalization. Despite the effort to use outpatient utilization habits as a marker for higher costs, it does not appear that this method of identifying patients was as effective in this study as it was in the Kaiser trials. With another case finding methodology, the cost savings of the Kaiser trials may well be possible.

Another possible explanation for our negative findings related to healthcare costs may be that the ability of this intervention to affect costs and utilization is at least in part dependent on the nature of the primary care system in which it is delivered. For example, Group Health had an advanced access system⁸ in place at the time of this translational work, whereas

Kaiser Colorado did not at the time of the efficacy trials. Optimized access and its associated care continuity may have served to lower costs and utilization to a level beyond which Group Visits were able to further contribute.⁹ Different targeting criteria (e.g., frequent emergency care use, or frequent hospitalizations) for appropriate patients for the intervention may have identified patients for whom the Group Visit intervention would have reduced costs and utilization.

Our patient and physician satisfaction data from the Group Visits were positive. Although usual care data on patient and provider satisfaction were not available for comparison, our participant report data were nonetheless important for the implementation effort. Clinical teams offering Group Visits were often initially intimidated by the group format rather than a one-on-one encounter. When they received positive patient report data after a group visit (usually within 24 hours), their confidence and motivation grew. Similarly, stories about successful group visit experiences quickly spread within the organization increasing the interest of nonparticipating physicians and administration. When we were able to share the physician report data in the organization, it served to strengthen an already favorable impression of the model and gave us momentum for spread.

Though we are reporting a negative study in terms of costs, the overall group visit implementation effort had a positive impact on our organization. Although this analysis is restricted to the first year of the Group Visit implementation effort, more and more physicians began to incorporate Group Visits into their practices over the next year. After two years, close to 45 different monthly Group Visits were occurring in different medical centers. Some physicians made modifications to the model, adapting the intervention to serve different subgroups of patients other than high utilizing elderly. Other versions of group models included group preventive visits for women and diabetes group visits.

Another benefit of Group Visits at Group Health was the morale boost they gave to many physicians feeling disillusioned with the speed, complexity, and pressure of modern primary care practice. Many physicians and patients, their years working together notwithstanding, reported getting to know each other better and being pleasantly surprised by the experience. Some motivated physicians began organizing second cohorts of patients such that they could lead Group Visits twice a month. Others have noted that Group Visits increase trust in the physician;¹⁰ this may be one explanatory mechanism for the high levels of satisfaction observed in this as well as other studies of Group Visits.^{2,10}

Given the favorable reaction of primary care teams and patients to the Group Visit intervention, the value of the patient and physician satisfaction data should not be underestimated. Although we did not have controls for these outcomes, these outcomes attracted a lot of organizational attention and were essential to our ability to spread the intervention in the years following the retrospective analysis. Our clinical teams depended on the patient and physician satisfaction data to provide as near an objective evaluation of the intervention as possible in real time, allowing them to make improvements from Group Visit to Group Visit. This intervention seemed to have a meaningful impact on the patients and physicians and suggests that an intervention such as this may have real value to delivery systems that not only must manage health care costs, but must also maintain healthy, happy workplace environments.

Despite the limitations of our analysis, the findings are important, insofar as few reports of the effects of Group Visits conducted outside of strict trial conditions are currently available. Though reduction of utilization and overall costs was not achieved, Group Visits may be associated with other benefits not measured in this study. Although formal, one-on-one interviews with participants and their providers to understand their perceptions of the value

of Group Visits were beyond the scope of this translational effort, our impression from informal conversations with a handful of involved individuals is that Group Visits were of substantial value both to patients and to clinical teams. Most (>90%) patients who were invited to participate agreed to attend. Patients participated enthusiastically, suggesting that the groups were meeting a clinical need not well attended to by one-on-one patient-physician encounters. Clinical teams found the exercise of learning the model, implementing it, and then refining their skills to be a welcome change of pace from their usual work.

Whereas we hope that the results of this study will enrich understanding of the expected benefits of Group Visits outside of controlled trial conditions, this intervention has not been tested in a fee-for-service setting, nor do we know whether cost or utilization reductions would be achieved with a different approach to targeting (e.g., involving those with the highest emergency department use, or those most frequently hospitalized). These uncertainties, in combination with the fact that various professional medical organizations have promoted the adoption of Group Visits,¹¹ suggest that further translational research of the Group Visit model is needed. Although we were not able to replicate the utilization and cost savings findings of the efficacy trials, this intervention may well achieve these outcomes in different settings.

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Table 1**Group Visit Intervention**

Logistics & Supplies

- Standing monthly meeting date and time. For example, the first Wednesday morning of every month from 10:00 –11:30 AM
- Conference room with tables arranged in a U-shape
- Name tags, sign in sheet, patient charts, scale, blood pressure cuff, coffee/tea

Participants

- Primary care physician plus medical assistant and/or nurse
- Cohort of 25 patients with high outpatient utilization or chronic illness invited from physician's practice. Same 25 patients invited to attend each month.

Standard Agenda

- Warm Up (15 minutes): everyone shares news since the last group visit
- Discussion Topic (35 minutes): group discussion of a topic chosen by the patients the previous month
- Health Care (30 minutes): physician and medical assistant or nurse check in with patients individually with patients free to get coffee and socialize with neighbors while clinicians are with other patients
- Wrap Up (10 minutes): group reconvenes to discuss what went well, what could be improved, and what topic to cover next month

Keys to Success

- Ensure that at least 12-15 patients come each month
 - Physician must facilitate a group discussion rather than lecture
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Table 2

Intervention and Control Patients at Baseline

	Intervention	Control	P-Value
	N=221	N=1,015	
Age, years, mean $\pm$ SD	79.5 $\pm$ 6.1	77.9 $\pm$ 7.4	< 0.001
Female, %	71.0	63.7	0.039
RxRisk, mean $\pm$ SD	5,982 $\pm$ 4,195	6,190 $\pm$ 5,988	0.539
Costs in 12 Months Prior to Index Date, mean $\pm$ SD	\$7,968 $\pm$ \$10,005	\$10,215 $\pm$ \$15,588	0.007
Log Costs in 12 Months Prior to Index Date, mean $\pm$ SD	8.50 $\pm$ 0.0.95	8.59 $\pm$ 1.09	0.238
Hospitalized in 12 months Prior to Index Date, %	19.9	20.9	0.745
Urgent Visit in 12 Months Prior to Index Date, %	39.8	34.2	0.112
Primary Care Visits in 12 Months Prior to Index Date, #, mean $\pm$ SD	10.29 $\pm$ 5.15	9.67 $\pm$ 4.41	0.102
Specialist Visits in 12 Months Prior to Index Date, #, mean $\pm$ SD	5.68 $\pm$ 5.77	5.54 $\pm$ 6.94	0.751

Table 3

Costs and Utilization in 12 Months Following Start of Intervention

	Intervention	Control	P-Value
	N=221	N=1,015	
Total Costs, mean $\pm$ SD	\$8,845 $\pm$ \$10,689	\$10,288 $\pm$ \$17,630	0.112
Log Costs, mean $\pm$ SD	8.57 $\pm$ 0.98	8.51 $\pm$ 1.19	0.429
Hospital Admission, %	25.8	26.2	0.899
Urgent Care Visit, %	37.6	31.1	0.064
Primary Care Visits, #, mean $\pm$ SD	8.18 $\pm$ 4.99	8.07 $\pm$ 5.11	0.756
Specialty Visits, #, mean $\pm$ SD	5.37 $\pm$ 4.90	5.46 $\pm$ 7.38	0.809
Group Visits Attended, #, mean $\pm$ SD	5.55 $\pm$ 3.05	0	