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Review of Pharmaceutical Counseling Conducted in Collaboration with Nurse Practitioners and Pharmacists at Presbyterian Seniorhealth

Abstract

Medication adherence is an ongoing challenge in healthcare today, and more specifically in Geriatrics. Understanding medication regimens and following those regimens is often difficult for older adults, especially those who have chronic conditions and are taking many prescription medications. With multiple prescription medications adherence to the drug regimen can become a problem, and disease management worsens. Polypharmacy is a problem that exacerbates drug nonadherence. In older adults, the number of prescriptions is more than twice that of the national population and nearly three times that of persons under age 65 years. Polypharmacy is often defined as four or more prescribed drugs.

Comprehensive medication therapy management is effective in managing chronic disease and drug-related issues in the elderly. Current evidence points to the fact that medication management programs for chronic disease conditions can be improved through collaboration between physicians and pharmacists. Pharmacists spending time with patients reviewing medications translates into important improvements health status and in cost reductions. Pharmacists' involvement with individual patients is pivotal to improve medication regimen adherence and chronic disease management.
Introduction

This Nurse Practitioner driven project implemented a collaborative practice between primary care clinicians, nurses, and pharmacists. The goal of the project was to provide pharmaceutical counseling in a senior care practice in Charlotte, NC. Patients were selected who were on a regimen of four or more medications, who had diagnosis of uncontrolled diabetes mellitus, hypertension and/or hyperlipidemia, and who had expressed confusion with their medication regimens. At the onset of project implementation, patients were seen by a nurse practitioner, and referred to pharmaceutical counseling via telephone. Patients then had a follow up visit with the nurse practitioner to review the phone consult and medication regimen suggestions which had been given by the pharmacist. Questions were addressed, and medication regimens changed as needed.

After five months of the initial referral to the telephone medication counseling, chronic disease indicators (A1C, LDL, and/or BP) were assessed and results compared with the precounseling readings. This project implemented evidence based practice that substantiated existing evidence that medication therapy not only increases patient satisfaction and understanding of medication regimens, but, also improves management of diabetes, hypertension and/or hyperlipidemia. Those patients who were given pharmaceutical counseling and followed by their nurse practitioner had improved A1C, LDL and /or BP readings at the end of five months.

Purpose and Methods

Evidence supports pharmaceutical counseling as a method of reducing the risk of
medication nonadherence and errors. The purpose of this quality improvement project was to address the risk and problems associated with medication compliance challenges for older patients in an outpatient clinic.

One of the aims of this quality improvement was to equip patients on a regimen of four or more medications towards greater understanding and adherence of their medication regimens through telephone sessions with a pharmacist in the outpatient setting. The objective goal of this project was to evaluate the results of pharmaceutical counseling on objective outcomes of LDL, A1C, and blood pressure in those with hyperlipidemia, diabetes, and hypertension.

The existing evidence that pharmaceutical counseling can reduce chronic disease indicators in elderly patients on polypharmacy regimens was the foundation for this project. Patients selected for pharmaceutical counseling were scheduled for a telephone appointment with a pharmacist. At that appointment, pharmacists reviewed the patients’ medication list, and then answered the patients’ questions. Pharmacists discussed with the patients the best time of day to take their meds, and also discussed combination medications options in order to increase compliance and limit daily medications. Following the telephone consult, patients were seen by the nurse practitioner who reviewed these suggestions with the patient. Five months after the initial counseling visit, patients had a follow up visit with the pharmacist to address additional questions, and then their disease indicators were evaluated at that time. This collaborative model has been used in NC to assist patients with understanding their medication regimens in various settings.

This project promotes the Institute of Medicine's six goals in evidence based medicine: patient centeredness, effectiveness, efficiency, safety, timeliness, and equitability. These six
goals were addressed as the project was patient centered. Effectiveness and efficiency were addressed through regular review of the system being used for collaboration between the pharmacists and the nurse practitioner. The office manager of this practice ensured timeliness and equitability through regular review of the referral system, as well as addressing patient concerns. As mentioned, LDL, A1C, and BP were chosen as objective measures to determine outcomes results. These chronic disease markers were chosen because pharmaceutical counseling has often been suggested as a way to combat medication noncompliance in the outpatient primary care setting. As an example, one study published in JAMA showed that pharmaceutical counseling actually reduced LDL, glucose, and blood pressure readings in patients in an outpatient setting.

Methods

Site selection

A community hospital senior citizens’ outpatient clinic, Presbyterian Senior healthcare was chosen as the site for this project, as this outpatient clinic has 5000+ established patients, ages 60 years and older. Due to the high incidence of multidrug regimen in this practice, it was selected as the appropriate site for medication counseling as the risk for nonadherence is increased.

A needs assessment was conducted to determine the percentage of patients taking four or more prescriptions meds, and it was determined that about 60% of the patients in this primary care setting were on four or more meds, placing them at risk for medication errors and noncompliance.
Subject selection

The criterion for selecting patients for pharmaceutical counseling was based on the following: patients on four or more medications that shared either the diagnosis of uncontrolled diabetes, hypertension, and/or hyperlipidemia levels. Medication noncompliance is a great risk in this patient population, and therefore those on four or more medications with the comorbidities of uncontrolled diabetes, hypertension and hyperlipidemia were randomly selected.

These referrals began in September 08 until March 09. Patients ranged in age from 60 and above. Patients were asked at the time of their visit with their primary care if they were interested in this counseling. Informed consent was given, and patients were then referred to this telephone pharmaceutical counseling program. Exclusion criteria included those patients who did speak English, as no translator was available for this quality improvement. Patients were also given a form for informed consent at the time of the referral. A total of 121 patients were referred to be included in this quality improvement project from September 08-March 09

Intervention

Presbyterian Hospital’s (Charlotte, NC) pharmaceutical counseling, SafeMed, was used for telephone based counseling. SafeMed is a hospital based pharmaceutical counseling program for patients being discharged from the local hospital. During the planning stage of this project, it was determined that SafeMed pharmacists could be utilized in the outpatient setting for telephone consulting through referrals from nurse practitioners and physicians in the senior care practice selected for this project. SafeMed pharmacists follow the Beers criteria when determining safe medications in the elderly. This criterion very clearly guides the pharmacist in advising the patient and clinician on safe medication regimens. Therefore, the telephone counseling with these subjects focused on reviewing medication regimens, determining the most
appropriate times to take the meds, and clarifying patients’ questions or concerns about their specific medication regimens. When a question arose about the patient’s medication regimen, a note was faxed to the patients PCP, and then the clinician followed up accordingly with the patient at an office visit, to modify regimens as needed. The Hospital's Clinical Improvement Committee was chosen to be an avenue for reporting objective outcome results at the conclusion of the project.

At the conclusion of the counseling session, a detailed note was provided by the pharmacist to the nurse practitioner with an overview of the counseling suggestions, such as list of the medications changes or labs that were needed. This note was then filed in the patient's chart. When following up with the primary care provider, the patient and provider reviewed the suggestions provided by the pharmacist.

At the conclusion of the telephone counseling with the pharmacist, the patients were mailed a survey form to evaluate their experience with the counseling session, and were asked to return the surveys to their PCP. The pharmacists also assured that the patients had a follow up appointment with their respective clinician. At each follow up visit the nurse practitioner also reviewed the patients' medications, and addresses any concerns or questions the patient may have from the counseling.

At the follow up visit with the PCP, adherence with medication regimens was reviewed, and the list of prescribed medications was compared with what the patient was actually taking according the pharmacist. Blood pressure, A1C and cholesterol measurements were taken as a baseline before the consulting session, and compared with readings five months after the initial session with the pharmacist. Improvement in these chronic disease indicators was in the majority of this population. These objective outcomes of successful medication adherence and
understanding implied better chronic disease management. Objective outcomes as markers, such as LDL, A1C, and blood pressure to measure results with outpatient drug therapy is especially important when addressing medication management in the elderly. These markers were taken as baseline before the counseling, and reevaluated five months after the counseling session.

**Barriers**

In the beginning stages of implementation, it was noted that the reports from the SafeMed pharmacists included recommendations for the primary care provider that were embedded in the pharmaceutical consult note, and were being overlooked. These recommendations were being overlooked due to the layout of the note from the pharmacist. Because of this, a request was made to SafeMed to separate the recommendations into a separate section on the form. A plan section was then integrated into the form of the pharmaceutical consult note to advise the patients' nurse of recommended changes or follow up in drug therapy.

The decision was also made to emphasize to the nursing staff in this outpatient setting the importance of placing the pharmaceutical consult notes on the patients' charts and bringing these notes to the provider, advising the clinician of the new recommendation section on the form.

**Outcomes**

Patient satisfaction with counseling was reviewed through a survey form that was provided to patients at the initial visit with the nurse practitioner. Patients were given an opportunity to fill out the questions on the form. The form was kept simple as it was filled out in the presence of the provider. Patients were asked if they found the counseling helpful to understand their medication regimen. Patients were asked if their medication questions were adequately addressed at the time of their consult. Patients were also asked if they had changed
the time of the day they take their medications for greater efficacy. Finally, patients were given an opportunity to comment on their individualized drug therapy counseling.

Patients were evaluated from the survey forms given by the pharmacist and satisfaction rate averaged 95%. Patients' only complaint was the delay in the time of counseling from the time of referral. This apparently was due to language barriers (some patients only speak some Spanish and were unable to find interpreters), and also due to disconnected phone numbers. Patients clearly stated in their survey forms that they were able to understand their medication regimens more clearly, and questions were answered appropriately. Although many of the patients referred to pharmaceutical counseling did not understand their individual medication regimens, ninety percent of the patients confirmed that they understood the indications of their medications after the pharmaceutical counseling.

Outcomes were determined through a random chart review of patients referred to this counseling. Chart reviews have been shown to be an effective means to review outcomes of quality improvement projects in outpatient settings. Results were determined from charts by comparing A1C, LDL, and blood pressure values with precounseling values five months earlier. The outcomes of this counseling were then reviewed with the patient.

A sample of thirty percent of the patients was chosen to determine an overview of the outcomes for those patients referred to SafeMed program. Forty charts were selected from the 121 patients who participated in this collaborative counseling. A1C levels, blood pressure, and cholesterol levels were obtained, comparing readings to precounseling readings. The following were the results obtained for the thirty percent sample obtained from chart review:

1) 21 out of the 40 charts selected were patients with previously uncontrolled Diabetes Mellitus.
Out of these 21 patients, three patients had A1C levels out of the 5.5-7.0 acceptable range, the rest of whom had stable A1C levels. Five of the patients had actually had an improvement of 1.0 point in their A1C level after five months of pharmaceutical counseling.

2) 36 of the 40 charts selected for review were patients with previously uncontrolled hypertension. Out of these 36 patients, thirty had blood pressure levels that were within the JNC7 guidelines (not greater than 140/90). Over the six months of PharmD counseling, four had seen improvement in their readings, but fell outside of the JNC 7 guidelines. Two had BP readings that had worsened over the year, and their levels were well above the accepted guidelines. One of these actually declined medication for his treatment, thus the uncontrolled hypertension.

3) 35 of the 40 charts selected for review were patients with previously uncontrolled hypercholesterolemia. 34 of these patients had LDL levels < 130, which is within acceptable range for guidelines established by the AHA. Only one patient was found to have levels that were above the recommended, and this patient had declined treatment, choosing a lifestyle approach to combat an LDL level of 170.

These results as well as the results from the patients’ satisfaction surveys were reported to Presbyterian Hospital's Clinical Improvement Committee in March 2009.

Conclusion

Pharmaceutical counseling is linked to improvement in medication adherence. This Nurse Practitioner driven project implemented the evidence based approach of pharmaceutical counseling in an outpatient setting to improve medication compliance and also determine
improvement in chronic disease indicators, specifically in this elderly patient population. The implementation of pharmaceutical counseling in collaboration with nurses and clinicians has been shown to be an effective method of improving medication regimen efficacy and adherence\textsuperscript{12} This is especially important in the elderly population that are at risk for noncompliance due to multidrug regimen in chronic disease\textsuperscript{13} The objective outcomes of pharmaceutical counseling obtained from a chart review of 40 patients (out of the 121 referred for counseling) showed improvement in chronic disease indicators, as well as greater patient satisfaction and understanding of individual drug regimens.

These outcomes seem to substantiate the existing evidence that a collaborative model of pharmaceutical counseling in primary care setting is correlated with improved outcomes for patients A1C, blood pressure, and cholesterol readings. Presbyterian Hospital’s Clinical Improvement Committee conferred the value of this project, reviewed the possibilities for the sustainability of such a project through further grant funding for SafeMed outpatient pharmaceutical counseling.

It is apparent that drug therapy counseling provided by a multidisciplinary team of nurse practitioner, physician, nurse, and pharmacist provides greater patient satisfaction with increased understanding drug regimens.
References


