



Pharmacists trained and participating in the Pharmacy Hypertension Clinic: (l to r) Sue O'Loughlin, Jim Rasch, Ben Brenkman and Megan Donovan.

## Creating a Pharmacy Hypertension Clinic

Preliminary report of a pilot project

by Benjamin L. Brenkman, PharmD

**O**ur pharmacy is a University of Wisconsin Hospital and Clinics (UWHC) retail pharmacy, located at the University of Wisconsin Medical Foundation (UWMF) West Towne Clinic on the west side of Madison. In March of 2007, we received a new piece of automation, and our hope was that this would not only help to free up time for our pharmacy technicians, but also translate into freeing up our pharmacists. As the pharmacy-site manager, my goal was to use this new efficiency to expand our pharmacy practice into new clinical areas. I wanted to begin doing direct patient care that could be incorporated into an existing retail business, but without much additional staffing or work burden. I began to focus on developing a program that would use short pharmacist interventions (15-30

minutes) to help treat a chronic disease. My coworkers and I also specified that we wanted to become involved in something that involved a significant amount of medication management in which we could use our pharmacy background, but where there was still a need for new intervention techniques.

This all led to the establishment of the Pharmacy Hypertension Clinic. This is a collaboration between the UWMF West Towne Internal Medicine Department, consisting of four primary care providers (PCPs), and the UWHC West Towne Pharmacy, consisting of four trained pharmacists. Our plan was to have pharmacists meet with hypertension patients in a clinic setting to help augment the care provided by the PCP. Our hope was that this joint effort would help develop a new method of treatment for hypertension, which would take advantage of both our

proximity within the same building and the benefits of working as a "care team."

I then approached two HMOs to see if they would be willing to help fund the start-up costs and the 6-12 month maintenance costs of this pilot project for their patients. Their enthusiasm was mixed, and in addition, we began to worry that if we treated only one subset of insured patients we may be limiting the number of eligible patients too severely. With this in mind, I began to look internally within our organization to see if there were funding opportunities for the collaborative practice that we were hoping to start. We applied for an Ambulatory Care Innovation Grant (ACIG), a grant program funded by Physicians Plus Insurance Corporation and the UWMF. These grants are not intended to fund purely clinical research projects, but are instead aimed at innovative ideas to improve the quality or operations of ambulatory care at UW Health. Our project was approved for funding as it fit the criteria for its potential to advance patient care and increase both employee and patient satisfaction. This helped cover our start-up costs for materials, training, and development time for the pharmacists, and also for some of the maintenance costs of the pilot project.

### WHY DID WE CHOOSE HYPERTENSION?

Hypertension is a chronic disease that affects more than 50 million Americans.<sup>1-4</sup>

In 1994, the National Health & Nutrition Examination Survey (NHANES III) data showed that of the monitored hypertensive patients taking medications, only 23% of patients were taking medications that controlled their hypertension.<sup>5</sup> In 2004, the current NHANES data reconfirmed that the overall control rates of hypertensive patients remained low, especially in women, minorities, patients with diabetes or chronic kidney disease, and the elderly.<sup>6</sup> Both of these data sets are similar to community-based studies throughout the world in which only 25-40% of patients who take antihypertensive treatment achieve their blood pressure goals.<sup>5</sup> Prescriber visits alone may not be able to provide the level of education, drug counseling, and follow-up care required by many patients to ensure that their drug regimen is providing adequate

**TABLE 1. PHARMACY HYPERTENSION CLINIC VISIT GUIDELINES**

| INITIAL PHARMACIST VISIT (30 MIN)   | FOLLOW-UP PHARMACIST VISITS (15 min)   | FINAL PHARMACIST VISIT (30 MIN)  |
|---|--|--|
| <ul style="list-style-type: none"> <li>• Explain the scope of the services that will be provided</li> <li>• Obtain/verify medical and pharmaceutical history</li> <li>• Initial hypertension education survey.</li> <li>• Initial weight and calculation of body mass index (BMI)</li> <li>• Initial readiness-to-change score</li> <li>• And same content as follow-up visits</li> </ul> | <ul style="list-style-type: none"> <li>• Evaluate patient blood pressure response to medication and lifestyle management</li> <li>• Identify and manage additional complications, reactions, and problems.</li> <li>• Provide educational material*</li> <li>• Evaluate patient's understanding of educational material and monitor adherence.</li> <li>• Refer patient to health care personnel for specialized care, if needed</li> <li>• Document visits in medical chart and recommend therapy changes to providers based on therapeutic responses, JNC-7 guidelines, and adherence with prescribed therapy</li> </ul> | <ul style="list-style-type: none"> <li>• Review changes in blood pressure, weight, and BMI</li> <li>• Review recommended follow-up with providers</li> <li>• Final survey on hypertension education</li> <li>• Patient satisfaction survey</li> <li>• Final readiness-to-change score</li> <li>• And same content as follow-up visits</li> </ul> |

\*weight management, DASH eating plan, salt intake, exercise, alcohol/stress/tobacco, and home monitoring

blood pressure control without unnecessary adverse effects.

Based on this data, new methods in the treatment of hypertension are obviously needed, and one proven trend is toward development of a team-based health care approach. In addition, utilizing staff members to the highest level of their credentials has been shown to produce better patient outcomes at a lower cost.<sup>1-3</sup> We believe that pharmacists are well positioned to educate patients about the importance of therapeutic lifestyle changes (JNC-7) and drug therapy, and to help further assess medication selection and dosage. It has already been demonstrated that the management of hypertensive patients by pharmacists and the resulting collaboration between pharmacists and medical providers has produced better control of patient blood pressure as compared to standard physician care.<sup>1-3</sup> Our Pharmacy Hypertension Clinic intends to use motivated and trained pharmacists who have the ability to provide continual care and disease-specific interventions to treat hypertensive patients in between visits with their PCPs. We are aware that it has been found that more frequent contact with health care professionals does not necessarily elicit better blood pressure control unless there is high quality care.<sup>5,7</sup> We are also aware that evidence-based guidelines for the treatment of hypertension are well established in medical literature but inconsistently used in clinical practice.<sup>1,7,8</sup> We believe that the Pharmacy Hyperten-

**TABLE 2. MONITORING & METRICS OF ENROLLED PATIENTS**

| MONTHLY MEASUREMENTS   | INITIAL VS FINAL MEASUREMENTS  |
|--|--|
| <ul style="list-style-type: none"> <li>• Blood pressure changes</li> <li>• Adherence and side effects</li> <li>• Medications, dosages and drug classes</li> <li>• Completion of monthly lifestyle goals</li> <li>• Number of MD recommendations made</li> <li>• Percentage of MD recommendations followed</li> <li>• Number of patient recommendations made</li> <li>• Percentage of patient recommendations followed</li> </ul> | <ul style="list-style-type: none"> <li>• Blood pressure</li> <li>• JNC-7 hypertension classification distribution</li> <li>• Distribution of blood pressure medication classes</li> <li>• Weight change / BMI change / BMI distribution</li> <li>• Readiness-to-change score</li> <li>• Framingham Risk Score</li> <li>• Patient knowledge survey</li> <li>• Patient satisfaction survey</li> <li>• Staff satisfaction survey</li> </ul> |

sion Clinic will address the above issues as it will also focus on patient education, lifestyle modification, personalized goals, aggressive adjustment of medications, and more frequent monitoring of both the therapeutic effect and adverse effects of patients' medications. In addition, we are also using JNC-7 guidelines as our evidence base to allow the pharmacists and prescribers to more effectively manage the enrolled hypertensive patients' blood pressure, and thus more closely follow evidenced-based guidelines.

**WHAT IS THE INTERVENTION?**

The target population is adult UWMF West Towne Internal Medicine patients with uncontrolled hypertension or newly diagnosed hypertension. Patients are

referred by their PCPs for enrollment in the pharmacist-managed program. Trained pharmacists from the UWHC West Towne Pharmacy meet with enrolled patients in clinic rooms on a required monthly basis, but may be seen more frequently if requested by their provider for medicine changes or other special circumstances. Patients meet with the pharmacists on at least six occasions, over six months, including a more extensive initial and final visit.

**WHAT ARE WE MONITORING?**

In order to obtain enough data, our goal is to enroll at least 40 patients who will be seen six times over six months. We are using three separate surveys and we are recording various specific measures to gauge

**TABLE 3: POTENTIAL OUTCOMES OF PHARMACY HYPERTENSION CLINIC**

| MONTHLY MEASUREMENTS  | LONG TERM EFFECTS   |
|---|---|
| <p>1) Potential reduction on the burden of nurse and provider hypertension office visits</p> <p>2) Potential understanding of how to develop the most cost-effective method to treat hypertension</p> <p>3) Potential implementation of a new method of practice aimed at providing:<sup>9,10</sup></p> <ul style="list-style-type: none"> <li>• <b>Improved patient access</b> to evidence-based knowledge, new education materials, and clinic appointments</li> <li>• <b>Increased communication</b> with patients and between departments</li> <li>• <b>Improved environment</b> for education, work, and learning</li> <li>• <b>Enhanced quality</b> of care across continuum and across networks</li> </ul> | <p>1) A better understanding of the cost of quality interventions. Improved clinical outcomes are important to long-term organizational financial planning.</p> <p>2) A better understanding of the cost of providing care to insured patients with hypertension. This will allow UW Health to become more informed for future health insurance contract negotiations with health plans that capitate payment.</p> <p>3) Utilizing staff members, such as pharmacists, to the highest level of their credentialing should produce better patient outcomes at a lower cost.</p> <p>4) Improved continuity may help reduce patient complaints and malpractice exposure.</p> <p>5) While beyond the scope of this project, improved control of chronic hypertension should lead to a reduction in the overall health care costs, both direct and indirect, associated with this disease.</p> |

the intended outcomes of our intervention. Patients will complete the initial and final hypertension education survey, consisting of 15 multiple-choice educational questions about hypertension. Patients will also take a satisfaction survey at the end of the project, which will be compared to existing patient satisfaction questions and scores for the Internal Medicine Clinic. In addition, all involved staff will take an initial and final staff satisfaction survey to assess the potential effect of the program on team-building.

At each appointment we will assess and document changes in blood pressure, side effects from medications, current doses and drug classes of the prescribed medications, adherence to blood pressure medications, achievement of previous months' goals, recommendations made by pharmacists, and how frequently they are followed by patients and/or prescribers. All of this monthly data, combined with our surveys and other specific data, will help us filter out which parts of the pharmacist intervention are the most influential on the outcomes of the enrolled patients.

### WHAT OUTCOMES ARE WE HOPING FOR?

This collaborative clinic has both staff and patient goals and objectives in mind. The staff goals include improving hypertension care, developing new cost-effective methods of care, decreasing work burden on clinic staff, and increasing job satisfaction. All of these will hopefully be accomplished by using a team-based approach to increase pharmacist involvement in patient care and increase communication between departments. Our goals for the enrolled patients are to increase their blood pressure control (higher percentage controlled, improved JNC-7 class distribution), increase their knowledge of their disease, and increase satisfaction with their care from their PCP.

### CONCLUSIONS

As this project has progressed, it has been very exciting and rewarding to see both the positive emotional and physical response from our enrolled patients. We are continuing to work toward our goal of enrolling 40 patients for this pilot. Our ultimate hope is that by demonstrating

improved outcomes in the treatment of hypertension due to both the pharmacist-provider collaboration and the more intensive patient education of hypertension, this project can serve as a model for improved hypertension care. We also hope that if this pilot is successful we will be able to continue the Pharmacy Hypertension Clinic on a long-term basis, and potentially expand the clinic to additional patients and to other sites across UWMF and UWHC. After the conclusion of this project, we may even be able to use the information from this effort to design a new system of care for other chronic disease states within our organization. ●

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