

Role of the pharmacist in diabetes management

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Diabetes is a major health problem in the United States. Most patients with diabetes have fair to poor glycemic control.¹ Less than 2% of patients receive optimal care,² and only about one third of patients receive diabetes education.³ These problems present pharmacists with an opportunity to contribute to the care of patients with diabetes.

Diabetes receives less attention from clinicians and fewer research dollars than might seem warranted, based on its high frequency and the serious health consequences of its inadequate treatment. The economics of the health care system are such that primary care physicians have little time to spend with patients. Primary care physicians are more effective in managing acute conditions than in providing care for chronic ones because chronic diseases require clinicians to spend considerable time with patients. The potential for negligence lawsuits for failure to adhere to standards of care (i.e., the recommended frequency for physician visits and diagnostic testing) as described by White in this supplement might be impetus for change to improve health care for patients with diabetes.⁴ Diabetes presents an opportunity for increased involvement of pharmacists and var-

Abstract: The role of pharmacists in diabetes management, including patient identification, assessment, education, referral, and monitoring, is described.

Pharmacists can help identify patients with diabetes through screening and should target patients at high risk, people with a family history of the disease, and women with a history of gestational diabetes or who delivered a baby weighing more than nine pounds. Patient education should be provided immediately after diagnosis, at a second stage at which time a patient assessment can be performed, and at a third stage during which patients can receive continuing education to reinforce concepts and a motivational boost. One of the pharmacist's most important roles is the referral of patients to other members of the diabetes care team. Although the role of the pharmacist in monitoring diabetes is not well defined, it might include such things as ascertaining whether physician visits and testing to assess long-term glycemic control. Obtaining certification as a diabetes educator is recommended. This process requires at least 1000 hours of experience in providing disease-state man-

agement for patients with diabetes and successful completion of an examination. Implementing diabetes management services requires a commitment of time, effort, and resources and may necessitate training of staff and changes in work patterns.

The pharmacist can play an important role in diabetes care by screening patients at high risk for diabetes, assessing patient health status and adherence to standards of care, educating patients to empower them to care for themselves, referring patients to other health care professionals as appropriate, and monitoring outcomes. Providing diabetes management services requires market savvy, communication skills, and a commitment of time, effort, and resources. Pharmacists who obtain training in diabetes management reap rewards in professional satisfaction and financial reimbursement.

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ious other health care professionals (e.g., health educators, dietitians, physician assistants, nurse practitioners) who can find the time to spend with patients.

The dramatic increase in the number of new diabetes cases in re-

cent years and the expected increases in coming years will place a strain on all health care professionals.⁵ By the year 2030, the number of people in the United States requiring health care for chronic diseases will reach 148 million, at a cost of \$798 billion.⁶

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The majority of diabetes health care expenditures in the United States are for inpatient care, with a relatively small percentage spent on medications.⁷ Nevertheless, drug therapy is a common target for cost-containment efforts because it is so readily identifiable. Efforts to examine the benefits of drug therapy in reducing inpatient and emergency department costs are needed.

The National Community Pharmacists Association's National Institute for Pharmacist Care Outcomes defines pharmacist care as "comprehensive care that focuses on disease prevention and wellness, including monitoring, evaluating, counseling, intervening, and directing medication-related therapies to enhance patient care and improve health outcomes."⁸ This pharmacist care, in essence, is disease management, although the latter may include nonmedication-related therapies. Training programs in disease management are available to pharmacists to help patients with diabetes and other chronic diseases. Because patients often have limited access to specialists, pharmacists who have proper training can assume the role of disease manager. It is a role for which pharmacists can obtain both professional satisfaction and financial reimbursement. Pharmacists can play a role in patient identification, assessment, education, referral, and monitoring.

Patient identification

Pharmacists can help identify some of the estimated 5.9 million Americans who are unaware that they have diabetes mellitus.⁹ Patient screening was somewhat controversial in the past because of concerns that the number of patients identified was too small to make the process cost-effective. However, as the rate of diabetes increases, the likelihood that screening will be cost-effective also increases. Patient screening also provides public-relations benefits for pharmacists.

Screening efforts should target high-risk patients, including patients who are overweight, are more than 40 years of age, have hypertension or dyslipidemia, are members of certain racial and ethnic groups (e.g., African-Americans), have a family history of diabetes, and have a history of gestational diabetes mellitus or delivered a baby weighing more than nine pounds.¹⁰ At-risk patients may be identified when filling prescriptions or by reviewing prescription records. The role of pharmacists has been evolving such that many community pharmacists now judge their effectiveness in terms of the effect they have on the health of patients instead of simply the prescription volume that they handle.

Patient assessment

Assessing the health status of patients with diabetes and developing a short- and long-term plan for improvement can be challenging for pharmacists, especially in community settings where access to laboratory data is limited. The use of patient assessment questionnaires based on American Diabetes Association (ADA) standards of medical care (i.e., the recommended frequency for physician visits and diagnostic tests) is recommended to assess patient needs and ensure that standards of care are met.¹¹ Such questionnaires have been published and may be adapted for local needs.¹² A copy of the completed questionnaire might be sent to the patient's physician to facilitate communication among the pharmacist, physician, and patient about the care plan.

Patient education

Patient education should be provided in three stages. The initial stage occurs immediately after the patient is diagnosed and should help the patient address immediate concerns and accept the diagnosis. The second stage provides in-depth information, focusing on problems identified in

the patient assessment (e.g., constipation, athlete's foot) and needs that might be anticipated (e.g., sick-day management). One approach is to outline the schedule for daily, weekly, monthly, and annual visits to physicians and specialists for the diagnostic tests recommended by ADA.¹¹ The role and proper use of medications (e.g., antidiabetics, antidiyslipidemics, antihypertensives, aspirin) should also be addressed. The third stage provides continuing education to reinforce concepts, boost and maintain motivation, and empower patients to care for themselves.

Patient referral

Referring patients to other members of the diabetes care team (e.g., diabetes educators, dietitians, nurse managers, ophthalmologists, podiatrists, dentists) is one of the pharmacist's most important roles. Mental health professionals can greatly impact patient outcomes because depression is common among patients with diabetes.¹³ Moreover, mental health professionals can assess patients' readiness to change their lifestyle to cope with newly diagnosed diabetes.

Monitoring diabetes care

The role of the pharmacist in monitoring diabetes care is not well defined. It might involve determining whether physician visits and tests to assess long-term glycemic control and detect early signs of complications are conducted at the recommended frequency. Use of a checklist facilitates this process. Teaching patients to self-monitor blood glucose levels and evaluating data collected by patients is another important component of monitoring. Antidiabetic drug therapies often require repeated dosage adjustments, a time-consuming process for which pharmacists can assume responsibility. Table 1 lists the effects of oral agents on HbA_{1c}, which pharmacists can use to measure outcomes.

Table 1.
Effects of Oral Agents on HbA_{1c}^a

Drug	Maximum Daily Dosage	Effect on HbA _{1c}
Sulfonylureas		
Glimepiride	8 mg	Decreases by 1.5–2.0%
Glipizide	40 mg	
Glyburide	20 mg	
Alpha-glucosidase inhibitors		
Acarbose	100 mg tid; titrate dose slowly; start with 25 mg with first bite of largest meal	Decreases by 0.5–1.0%; decreases after meal blood glucose by 50 mg/dL
Miglitol		
Biguanide		
Metformin	2000 mg in divided doses or once daily extended release preparation	Decreases by 1.5–2.0%; decreases lipids and increases LDL
Glitazones		
Pioglitazone	45 mg	Decreases by 1.6–2.6%; decreases an additional 1% when combined with other agents
Rosiglitazone	8 mg	Decreases by up to 1.5%; decreases an additional 1.2% when combined with metformin

^aAdapted from Campbell RK, Wysham C, Wysham DG. Type 2 diabetes mellitus: disease state management. *Cardiol Special Edition*. 2002; 8:26.

Becoming a diabetes care provider

Education and training in diabetes care (e.g., certificate programs) are available through various schools and colleges of pharmacy, pharmacy associations, and other groups. Obtaining certification as a diabetes educator is recommended for pharmacists. The process requires at least 1000 hours of experience providing disease management for patients with diabetes and successful completion of an examination. Joining professional groups (e.g., ADA, the American Association of Diabetes Educators) to obtain information about the latest topics and research developments is also recommended.

The health care professionals currently approved by Medicare as credentialed providers of diabetes care include physicians, physician assistants, nurse practitioners, nurse midwives, clinical psychologists, and clinical social workers. Pharmacists who wish to obtain provider status

should choose an insurance carrier that serves patients in their area and contact the provider relations or credentialing department. An alternative for pharmacists who are particularly ambitious is to approach large local employers. The pharmacist should be prepared to answer many questions (e.g., What types of services will be provided? Do you have proof of improved outcomes?), take notes, and follow up.

Marketing diabetes management services

Pharmacists seeking to market diabetes management services should be prepared to quickly and concisely explain the advantages of the service and the potential benefits for patients, other health care professionals, third-party payers, and employers. The poor adherence to standards of practice and the poor health status of patients with diabetes are well documented.⁴ Significant cost savings from a decreased need for hospitalizations and emergency depart-

ment and clinic visits have been demonstrated with patients in whom a sustained improvement in glycemic control was achieved, suggesting that such savings could be realized with the implementation of diabetes management services.¹⁴

Pharmacists should position their proposed service by emphasizing the characteristics that make it unique. For example, many community pharmacists offer longer hours of service and are more accessible than other health care professionals. Pharmacists could also conduct home visits.

Implementing diabetes management services

Implementing diabetes management services requires a commitment of time, effort, and resources. Remodeling of the practice setting may be required to provide a private or semiprivate area for patient consultation and accommodate equipment for performing blood tests and measuring blood pressure. Occupational Safety and Health Administration and Clinical Laboratory Improvement Amendments regulations, which govern point-of-care diagnostic tests, should be considered. The initial paperwork burden to meet regulatory requirements can be daunting, but it usually is not as great as one would believe. A considerable amount of time is required for documenting and billing for pharmacist services provided.

Implementation of the service may require training of staff members and changes in work patterns. Professional staff benefit from advanced training and spending time (e.g., in traineeships or residencies) at other sites where diabetes management services are offered. Support staff should be trained to interact with patients in a professional manner. Although pharmacy services customarily are provided on demand (e.g., after a patient presents a prescription and waits for the pharmacist to find time to answer ques-

tions), diabetes management services are better offered at appointments (e.g., on certain "diabetes days") when the pharmacist can devote his or her undivided attention to the patient's needs at a time convenient for both parties. Most manufacturers of blood glucose meters provide kits with materials to help organize and promote diabetes days. Properly trained support staff can help change patients' expectations for on-demand services and encourage them to make appointments with the pharmacist for diabetes management services.

The pharmacist must tactfully avoid "turf battles" with other health care professionals. Establishing a rapport and maintaining open communications with other professionals (e.g., sending patient care progress reports and thank-you letters after consultations) and pharmacists' office staff can help to avoid these problems. Pharmacists should learn to use the terminology needed to communicate effectively about health care services (e.g., *International Classification of Diseases*, 9th edition, codes). They should offer solutions to problems rather than simply identify problems.

Pharmacists must innovatively market their services. For example, they might develop brochures or newsletters that can be mailed to patients or inserted into prescription bags. Pharmacists can gain visibility by speaking to community groups and groups of physicians and by participat-

ing in health fairs. Word-of-mouth referrals from satisfied patients and other health care professionals is often the most effective promotion for pharmacist services.

Finances must also be considered for the venture to be viable. Business plans should consider the value of services to a patient (i.e., the amount that a patient would be willing to pay for services). Profitability may be optimized by identifying niches (e.g., performing foot examinations and selling specialized footwear for patients with diabetes) or ways to bundle services.

Conclusion

The pharmacist can play an important role in diabetes care by screening patients at high risk for diabetes, assessing patient health status and adherence to standards of care, educating patients to empower them to care for themselves, referring patients to other health care professionals as appropriate, and monitoring outcomes. Providing diabetes management services requires marketing savvy, communication skills, and a commitment of time, effort, and resources. Pharmacists who obtain training in diabetes management may reap rewards in professional satisfaction and financial reimbursement.

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