DISEASE STATE MANAGEMENT IN HOME CARE

by Kenneth A. Wyka, MS, RRT, FAARC

Disease state management, or more simply disease management (DM) programs are not really new. In fact, the concept of disease management has been around since the mid-1990s when both employers and managed care organizations were looking to get a handle on escalating healthcare costs. The assumption was patients with certain specifically identified chronic health conditions could be more effectively managed by educating them about the specific disease process and guidelines pertaining to daily management, monitoring and routine follow-up. As defined by the Disease Management Association of America (DMAA), disease management is a "system of health care interventions and communications for populations with conditions in which patient self-care efforts are significant." It supports the physician/practitioner/patient relationship and each patient's specific plan of care.

In addition, disease management focuses on the prevention of exacerbations and complications by following evidence-based practice guidelines and strategies that empower patients to follow their individualized care plans. Evaluation of disease management efforts includes clinical, humanistic and economic outcomes. This article will look at ways in which DM programs could be implemented in the home environment for patients who have chronic obstructive pulmonary disease (COPD).

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For years, DM programs have involved patients with a number of commonly encountered diseases, namely diabetes, asthma and congestive heart failure (CHF). The basic goal of these programs has been to improve the overall health of patients through education, therapy, daily monitoring and empowerment strategies involving the patient and/or caregiver. These efforts have lead to a better understanding of the underlying disease process, improved patient care and follow-up and a more active lifestyle for these patients.

Consequently, the next logical question is can DM programs be designed and effectively implemented in the home for patients with chronic pulmonary diseases such as COPD? The answer is yes, although the effort to accomplish this is quite labor intensive. It is strongly recommended that these home care programs be designed, implemented and evaluated on an ongoing basis by respiratory therapists (RTs). In the face of constant reductions in oxygen and DME reimbursement along with a shortage of qualified home care RTs, this task might seem somewhat daunting. But the time, effort and commitment of resources to the development of such DM programs may prove to be a remedy that many home care companies are looking for and, in fact, need. DM programs for patients with COPD will enhance the delivery of home care provided and may result in some insurance payors taking a look at reimbursing RTs for home care services delivered. In order for this to occur, three things are needed: development and implementation of a DM program based on evidence-based medicine and accepted clinical practice guidelines, a study that evaluates program effectiveness and demonstrates positive outcomes and a way to sell this to insurance payors.

A DM program for patients with COPD should have the following objectives: reduce the number of complications associated with the disease, increase compliance with prescribed therapy, enhance the daily lifestyle of patients enrolled in the program and improve their overall quality of life. With a properly designed and implemented program, these objectives are definitely achievable and will result in reduced medical expenditures.

Any DM program for patients with COPD should be designed with RT input and involvement. The implementation of these programs should also involve RTs with scheduled patient visits and follow-up. Some programs nationwide have incorporated licensed practical nurses (LPNs) or other healthcare professionals. While this may be a cost saving measure on the part of the home care company, it does not provide a high quality of care and in some states may in violation of the RT and nursing practice acts. Because RTs have extensive training and experience with chronic lung disease assessment and therapeutic intervention, they are the most qualified to implement a DM program for COPD patients.

The number and scope of patient visits as a part of the program will vary from company to company, depending on personnel and financial resources available. There are three components of the home care visit performed by an RT. The first is patient evaluation involving a physical examination that should include inspection and auscultation plus the measurement of vital signs and pulse oximetry and an assessment of overall symptoms. Because of this patient contact, most states require a prescription that will enroll a patient in the DM program.

The second component of the patient visit will include a review and reinforcement of prescribed home care therapy that usually involves home oxygen delivery systems and/or aerosol therapy. Safe and proper use of all equipment along with routine cleaning and other infection control measures should be covered during each visit. Patient education is the third essential component of the home visit and therapists should use a variety of teaching methods incorporating booklets and other handout materials

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that may be developed by the home care company or obtained from a number of healthcare organizations such as the American Lung Association (ALA) or the AARC. Additional material that may be of value is available over the internet but source and validity should be checked before they are used for patient education. The COPD disease process, breathing techniques and exercises, respiratory-related medications, activities of daily living (ADLs) and nutrition are some of the program-specific educational topics that should be covered by the RT during patient visits.

Ongoing follow-up visits by the RT helps to insure that the DM program for patients with chronic lung disease will achieve its stated goals and objectives. However, state law often requires a physician or healthcare provider prescription authorizing these RT visits. Most physicians or healthcare providers will welcome patient reports generated during the home visits and will use them to follow-up on the overall status and progress of their patients. These reports should include a patient assessment plus a medication profile and patient history. The unfortunate part of DM programs, especially for COPD patients, is the lack of recognition and reimbursement by insurance payors. It is recommended that any home care company offering a DM program to their chronic lung patients plan on conducting follow-up patient surveys to demonstrate program effectiveness, especially in terms of treatment compliance, patient emergency department (ED) visits and hospitalizations. Data obtained from this type of study is useful in showing the effectiveness of RT involvement in the home and may one day lead to reimbursement for RT services in the home setting.

Recent studies prove the value and effectiveness of these services in terms of patient compliance, quality of life, improvement in respiratory-related symptoms, reduction in ED visits and hospitalizations due to cardiopulmonary related causes. The reasons for these positive patient outcomes is a result of the education received by the patient along with a better understanding of the need for using the home oxygen and aerosol treatments as prescribed. Patients also know what to look for when their condition adversely changes and when to contact their physician or healthcare provider. The result is better patient care and a reduction in overall medical expenditures for patients with COPD. Based on CMS data in 2006, the average cost of caring for a COPD in the hospital is just under $24,000. In conclusion, home care companies and related professional organizations must continue to promote DM programs as a way to control healthcare costs and to deliver the best home care possible.

The Balance of Acid and Base... *Continued from page 64*

of blood to it's normal pH if the academia is purely a metabolic dysfunction, assuming a normal PCO2 of 40 mmHg. These basic chemicals consist not only of bicarbonate but include other buffers in the body as phosphates, hemoglobin and sulfates, to name a few. Intuitively, base excess means a metabolic alkalosis and a base deficit means a metabolic acidosis. It is important to understand that this is a calculated value and not a direct measurement. Base deficit can also be used to direct bicarbonate therapy. Using the equation whereby the base deficit is multiplied by 10% of the patient's body weight in kilograms will result in the amount of bicarbonate needed to neutralize an equivalent amount of fluid, blood or extracellular fluid, in a compartment of one tenth the patient's body.

Another calculated value that can help shed some light on the metabolic component of acid-base imbalance is the standard bicarbonate level. This value represents the bicarbonate ion concentration in the fluid corrected to a normal PCO2 of 40 mmHg and, in much the same way as base excess, describes the metabolic component of a patient's acid-base balance. As described previously, this value in conjunction with the total CO2 can give information about pH.

As we know, oxygen also affects acid-base balance by combining with and thereby lessening the buffering capacity of hemoglobin. Conversely, acidotic environments affect the oxygen saturation of hemoglobin. This concept is of great importance because of the Hendersen-Hasselbeck concept. Acidemia "shifts the curve to the left" means that there is a lower affinity of oxygen to hemoglobin at a given oxygen level in arterial blood. This in turn means that there is a greater release of oxygen into the capillaries where there is a higher acid concentration. Alkalemia causes the hemoglobin to hold the oxygen more tightly and increases the hemoglobin's oxygen carrying capacity.

The human body is an amazing machine that contains many intricate mechanisms to maintain normal function. A great many methods to help a clinician differentiate the causative factors of chemical imbalance within their patients have been and continue to be discovered, fine-tuned and utilized to best treat our patients.