Drug Safety

Medication errors are among the most common medical mistakes, harming at least 1.5 million people every year. (1) According to a report from the Institute of Medicine (IOM), the extra medical costs of treating drug-related injuries occurring in hospitals alone conservatively amounts to $3.5 billion a year. (2) The Centers for Medicare & Medicaid Services (CMS) responded to this problem with a national drug safety initiative implemented at the state level by its Medicare Quality Improvement Organizations (QIO).

The Carolinas Center for Medical Excellence (CCME), the QIO for South Carolina, has joined with BlueCross BlueShield of South Carolina (BlueCross) in a Medicare-sponsored patient safety program focusing on medication prescribing errors. CCME works closely with physicians, pharmacists, and prescription drug plans throughout the Carolinas providing information and resources to reduce medication errors.

Medication errors occur commonly in the elderly population and among Medicare beneficiaries across all medical settings. CMS and CCME monitor rates of potentially inappropriate medication (PIM) use in older Medicare beneficiaries and potential drug-drug interactions (DDI) in the entire Medicare population using Medicare Part D administrative claims. In South Carolina, 24.5% (PIM) of persons 65 years of age and older were using potential inappropriate medications and 8.7% (DDI) were taking multiple potentially interacting medications in 2008.

Causes of inappropriate medication use are numerous and not completely understood. They are frequently the result of poorly coordinated and fragmented medical care delivered to patients seen in multiple settings by multiple physicians. The persistence and high prevalence of PIM and DDI in the Medicare population support the need for quality improvement projects to improve drug safety.

Medications can be considered inappropriate in the elderly when their risk outweighs their benefit. The Beers list (3) identifies medications that should be avoided in persons 65 years of
The elderly population generally uses more prescription medications, placing them at a higher risk of drug-drug interactions. The estimated incidence of drug interactions rises from 6% in patients taking two medications a day to as high as 50% in patients taking five a day. Inappropriate prescribing is common in the ambulatory setting, in nursing homes, and in emergency departments, and that exposure to inappropriate medications is associated with increased risk of adverse drug reactions and hospitalization.

The BlueCross / CCME drug safety program reduces medication errors through physician education and reminders. Data from administrative claims are used to identify physicians involved in the prescription of PIM and DDI. There are many classes of drugs involved in DDI and PIM. Drug-specific rates were reviewed by a team of pharmacists and physicians. Specific drugs with especially high impact were selected as the focus of this program. The team identified two drugs frequently prescribed with risks that typically exceed benefits - propoxyphene and clonidine.

Studies have suggested that propoxyphene is no more effective than acetaminophen or aspirin in reducing pain, and in most studies it was less effective. Propoxyphene’s side effects include dizziness, sedation, drowsiness and confusion potentially leading to falls and hip fractures. Propoxyphene’s active metabolite has a cardiotoxic and arrhythmic effect. Its long half-life of 30–36 hours poses a high risk of accumulation if given repeatedly, especially in the elderly who are prone to increased serum concentration levels or reduced elimination of propoxyphene. Clonidine, in combination a beta blocker, can have synergistic effects possibly resulting in AV block, bradycardia and hypotension. Hypertensive crisis and death can result on abrupt withdrawal of clonidine or beta-blocker when this combination is used.

Physicians prescribing these medications were reminded of their potential adverse actions in letters that included a list of patients receiving these prescriptions. The letters requested that physicians review the needs of their patients prescribed propoxyphene or clonidine and consider alternate therapy if possible. There are a number of other drugs currently being considered for
the next round of letters. This type of intervention has been performed in other states with great success. The success of this program in South Carolina will be evaluated using prescription claims data associated with physicians receiving the letters.

CCME’s care improvement staff is committed to preventing medication errors. CCME’s website offers new quality improvement tools, prescription safety information, and materials on topics such as potential drug-on-drug interactions and potentially inappropriate medications for older adults. We encourage everyone interested in this topic to visit this site: www2.thecarolinasc.org/drugsafety

BlueCross BlueShield of South Carolina is an independent licensee of the Blue Cross and Blue Shield Association.

(2) Institute of Medicine “Preventing Medication Errors.” July 2006.
(5) Rothberg, M.,MD, MPH; Pekow, Penelope, PhD; Liu, F., MS; Korc-Grodzicki, B., MD, PhD; Brennan, M., MD; Bellantonio, S., MD; Heelon, M., PharmD; Lindenauer, P., MD, MSc. “Potentially Inappropriate Medication Use in Hospitalized Elderly.” Medscape, May 2008.