



# Tracking Drug Use to Improve Care

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Residents in long-term care facilities take an average of six to 10 different medications, including prescription and over-the-counter drugs. Certain classes of medications, such as drugs to treat peptic ulcer disease, pain and cardiac disease, are the most common. Long-term care facilities need to take steps to ensure these drugs are being used for the right diagnoses and in the right doses. Consultant pharmacists can help by conducting Drug Use Evaluations (DUEs).

A DUE is a simple quality assurance tool designed to help evaluate how drugs are used for specific patients or populations — the diagnoses the drugs were applied to, the dosages administered and the therapeutic results. Most importantly, they help caregivers improve drug therapy outcomes by identifying what works and what causes problems. DUEs also are one element of the critical quality care measures the Joint Commission for the Accreditation of Healthcare Organizations (JCAHO) expects when accrediting nursing facilities and long-term care pharmacies.

Monitoring the utilization and effects of medications on residents is truly a collaborative effort among the consultant pharmacist, facility nurse and physician. While DUEs should be conducted in cooperation with others, they are primarily a responsibility of pharmacy, given the educational background and knowledge of consultant pharmacists.

When developing a DUE study, specific criteria are established to analyze drug utilization in the study group. These criteria can either be part of a nationally accepted standard published in medical literature or simply based on standards agreed upon by the facility's quality assurance committee.

DUEs range from simple, straightforward

studies focusing on a specific issue to expansive studies examining an entire class of drugs and drug utilization in a particular setting. They can be quantitative or qualitative.

A quantitative DUE typically measures drug use, misuse and abuse. For example, a quantitative DUE might be done to see how many residents are on appropriate medications to prevent strokes. These results can be compared to published national standards. The facility can use the comparison to determine whether it needs to conduct a stroke awareness and prevention project with medical staff.

A qualitative study might evaluate drug use based on specific, predetermined elements such as maximum daily dose, duration of therapy and accompanying conditions such as decreased renal function (described later in this article). Both quantitative and qualitative methods are used to identify potential problems in drug prescribing and use.

## CONDUCTING DUEs

Regardless of the type, these steps are used to develop and conduct DUEs:

1. Select the drug, drug class or disease state to be studied.
2. Select or establish a standard of care. (This is the goal for the facility to achieve).
3. Develop objective, measurable criteria against which to measure and compare collected data.
4. Present a proposal to the facility's quality assurance committee and obtain approval.
5. Implement ongoing, systematic monitoring of data.
6. Identify and document associated problems.
7. Summarize collected data.

8. Postulate corrective actions for any discovered problems.

9. Undertake corrective actions.

10. Assess the effectiveness or outcomes of the corrective actions.

11. Document the completion of the DUE and report corrective actions and outcomes.

12. Repeat the DUE in the future as a remeasurement tool.

Once utilization patterns have been determined, treatment criteria can be applied to an individual resident's drug therapy — positively affecting the quality and cost of pharmaceutical care. Examples of sources of DUE criteria range from the American Thoracic Society's treatment standards for the pharmacologic therapy for chronic obstructive pulmonary disease to facility-developed treatment standards for certain diseases, such as evaluations for all residents with anemia. Whatever the subject or format, DUEs provide facilities with invaluable information on the pharmacological treatment of residents.

## CASE STUDIES

Consider the case of a resident who began a new medication, metformin, to help control blood glucose levels. The resident had been diagnosed with dementia and was receiving a number of medications, one of which was haloperidol. Over the course of a few weeks, the resident's behavior worsened and the haloperidol dose was increased. Rather than showing improvement, the resident's condition quickly deteriorated almost to the point of unresponsiveness. The haloperidol was discontinued, but the resident remained extremely lethargic and experienced muscle pain and abdominal distress.

A chart review by a consultant pharmacist revealed the new blood glucose lowering agent as a possible cause of the nonspecific symptoms. A physician examination showed the resident was suffering from

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drug-induced lactic acidosis — a rare, but serious, metabolic complication. The new medication was immediately discontinued. After treatment for the lactic acidosis, the resident’s mental and physical status returned to the earlier state.

The consultant pharmacist’s ongoing investigation into the origin of the lactic acidosis showed that the resident’s decreased renal function contributed to the development of the condition. From this incident, a DUE was developed to identify residents taking the most common medications that might be affected by decreased renal function. Based on calculations of the creatinine clearance levels of residents receiving such medications, many medication levels were adjusted. This DUE benefited all parties by identifying possible adverse effects before they occurred, helping to prevent unnecessary hospitalizations and injury to residents and saving the health care system thousands of dollars in emergency care.

Consultant pharmacists with PharMerica concluded a nationwide DUE study of 1,300 nursing home residents taking antidepressants. The data collected included resident information such as age, disease state and current medications. The study investigated whether residents were prescribed appropriate antidepressant medications in conjunc-

tion with other prescriptions, if the dose was correct and if the use of antidepressants was warranted.

Through the DUE, consultant pharmacists identified residents taking inappropriate doses of antidepressants (usually too low), as well as residents experiencing side effects outweighing the drugs’ therapeutic benefits. Data gleaned from this study will help PCA consultant pharmacists and facility partners improve the future selection and use of antidepressant agents.

**CONCLUSION**

DUEs truly complement the drug regimen review process by moving drug utilization analysis to a more advanced level. Although DUEs usually focus on drug use and the prevention of drug-related problems, studies also can focus on disease states such as chronic heart failure, diabetes, urinary tract infections, anemia and pain management.

The benefits of conducting DUEs are many — prescribers select the most appropriate medications, facilities ensure the continuous safety and health of residents and, most important, residents receive proper care and treatment. DUEs are one of many important services a consultant pharmacist can perform to improve the quality of residents’ lives.

**Drugs and Disease States to Consider for DUE’s**

Description	Specific Drug/Disease
Drugs that have potential serious side effects for LTC residents	amitriptyline
	cimetidine
	digoxin
	doxepin
	theophylline
	warfarin
Drugs that have potential serious adverse effects for LTC residents	antiarrhythmics
	clozapine
	glucophage
	warfarin
Costly drugs, especially those with other accepted therapeutic alternatives	antibiotics
	antiarrhythmics
	SSRIs
Drugs with high rates of utilization	H2 antagonists
	fluoroquinolones
	laxatives
	psychoactives
Disease states with high drug utilization and/or high treatment costs	anemia
	asthma
	CHF
	COPD
	depression
	diabetes
	HTN
	peptic ulcer disease
	UTI

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