Nearly three decades after implementation of the federal drug regimen review mandate, DRR remains at the heart of long-term care pharmacy practice. Here, we’ll explore the past, present, and future of DRR: how it has evolved, the various types of medication review performed today, and how the DRR process is being refined and systematized for greater effectiveness in the years ahead.

The Early History and Evolution of DRR

How did you learn to conduct a drug regimen review (DRR)? Did you learn the process in pharmacy school, or at an ASCP meeting? Or did you learn it on the job from a colleague or supervisor?

For that matter, what is a DRR? What are the goals and purpose? And what process do you follow to achieve those goals? Is DRR a fairly standardized process, or does it vary substantially from one consultant pharmacist to another? What is the overall quality of DRR conducted by consultant pharmacists in nursing facilities?

This article—the first in a planned series—will explore those and other questions, while providing an in-depth look at the current state and future prospects of DRR in nursing facilities.

Since DRR is at the core of the important functions performed by the consultant pharmacist, the questions posed above are important. The federal regulation requiring DRR for nursing facility residents has been in place since 1974. Dramatic changes have occurred since then, including a rise in the overall acuity of the U.S. nursing facility population, an increase in the number of available medications, and heightened regulatory requirements. Has DRR evolved to keep up with those and other changes over the past three decades? Let’s begin with a look back at the origins of DRR.

The Early Days of DRR

In the early days of long-term care pharmacy, pharmacists generally began a career in long-term care with a background in other areas, such as hospital or community pharmacy practice. The background and clinical skills of the new consultant pharmacist strongly influenced the direction and scope of DRR in nursing facilities.

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beginning some innovative pharmacists worked actively to improve medication use in nursing facilities.

When DRR became a regulatory requirement in nursing facilities, state and federal surveyors were faced with the challenge of determining whether the DRR was actually being conducted by the consultant pharmacist. To facilitate this review process, the U.S. Health Care Financing Administration (HCFA)—renamed the Centers for Medicare & Medicaid Services (CMS) in 2001—developed Appendix N of the State Operations Manual (SOM), which describes the rationale for and objectives of the DRR process in broad terms. Included in Appendix N were federal indicators (also called survey indicators) to help guide surveyors. Examples of specific drug regimen “irregularities” were provided. Surveyors could look at the drug regimen of nursing facility residents to see if these irregularities were being identified by the consultant pharmacist.

In the 1970s, when Appendix N was developed, the survey indicators were helpful in providing direction to surveyors and consultant pharmacists. The indicators served to illustrate some of the goals of the DRR process, but they were provided as a long list of examples, in seemingly random order, and did not suggest any particular structure or process to the DRR. Because they were seldom updated, the indicators eventually became obsolete. Although still officially in force, these indicators have generally been supplanted by more recent guidance to surveyors found in Appendix PP of the SOM (i.e., the interpretive guidelines). Survey tags F329 (unnecessary drugs) and F429 (DRR) were updated in 1999 to include more extensive guidance relating to drug therapy for nursing facility residents.

In the early days, Appendix N may have served to “raise the bar” on pharmacy consulting services by defining minimum standards and expectations. In many cases, however, surveyors and consultant pharmacists became overly focused on the indicators: They often were the primary focus of the DRR, rather than just a guide to the kinds of problems consultant pharmacists were expected to identify and help correct through the DRR process. In that sense, the survey indicators may have become a “ceiling” rather than a “floor” with regard to DRR expectations. Many pharmacists were satisfied that if the indicators were addressed, even if only in a rote manner, the DRR was being successfully conducted.

Revisiting the DRR Process
Beginning in 1989, HCFA began issuing regulations and survey guidance relating to the use of antipsychotics and other psychotropic medications in nursing facility residents. Consultant pharmacists took a leading role in educating prescribers and assisting facilities with implementing changes to comply with these new guidelines. In 1999, HCFA further expanded the interpretive guidelines at tags F329 and F429 to incorporate more specific requirements relating to drug use in the elderly. These new guidelines were based on a 1997 article by Mark Beers, MD, presenting explicit criteria for identifying potentially inappropriate medication use in older adults (i.e., “the Beers criteria”). Once again, consultant pharmacists were leaders in working with prescribers and facilities to help implement these changes.

Because patient care in the nursing facility environment is heavily driven by regulations, facility staff expected the consultant pharmacists to focus especially on medication issues identified in the federal regulations. In response to these customer concerns, over the years consultant pharmacists have often focused to a great extent on regulatory issues, such as the survey indicators, use of psychotropic medications, and the Beers criteria. These “regulatory-focused” DRRs required the consultant pharmacist to become very familiar with the medication-related aspects of the SOM for nursing facilities, which included the survey procedures and interpretive guidelines. With these regulatory requirements being scattered in various places, with no clear pattern or framework, the DRR process was often not very well defined. The result was that many surveyors and consultant pharmacists focused on the details of the regulatory requirements rather than the ultimate goal or purpose of DRR.

Prospective vs. Concurrent DRR
In the early days of consultant pharmacy, DRR was an activity performed almost exclusively at the nursing facility. With the evolution of long-term care pharmacy, and the increasing use
of technology in pharmacy practice, medication review at the point of dispensing has become more sophisticated. As a result, DRR sometimes has two complementary aspects: a prospective component and a concurrent component. In 1999, the ASCP Board of Directors approved a revised version of the policy document “ASCP Guidelines for Assessing the Quality of Drug Regimen Review.” These guidelines include the following definitions:

Prospective DRR—Performed at the point of admission of a resident to a facility, or upon the initiation of a new medication order

Concurrent DRR—Performed while the drug therapy is in progress

Retrospective DRR—Performed after the medication order has been discontinued or after the resident has been discharged from the facility

Prospective DRR is especially useful in preventing misuse of antibiotics, or use of medications that are considered generally inappropriate for the elderly. The effectiveness of prospective DRR is often limited, however, by lack of access to comprehensive information about the resident, such as diagnoses and laboratory test results. Although it cannot replace concurrent (i.e., on-site) review, it is a useful complement of the medication review process.

Resident-Specific vs. Population Review

DRR has historically focused on one nursing facility resident at a time. In recent years, however, pharmacists have begun to look beyond the individual resident as patterns of care and medication use throughout the facility have come under increased scrutiny. The incorporation of quality indicators into the survey process in 1999, coupled with implementation of new consumer quality measures last year, has greatly fostered a facility-wide focus on quality issues. As a result, consultant pharmacists have been devoting greater attention to exploring the contribution of medication use issues—both positive and negative—to broader quality-of-care issues in nursing facilities, such as falls, urinary incontinence, and pain management.

When evaluating broad nursing facility patterns of care, the particular systems in use by an individual facility become especially important. These system issues include:

- Policies and procedures
- Clinical practice guidelines
- Standing orders (especially for immunizations)
- Screening practices, assessment forms, and other forms or tools
- Treatment algorithms

With a greater focus on population-focused medication review, DRR is increasingly used as a tool by consultant pharmacists to identify and track trends and patterns of care in the facility. The information collected is typically provided to the facility’s Quality Assessment and Assurance Committee (QAAC) for use in analyzing and improving the overall quality of care provided to its residents. Of course, the consultant pharmacist should be (and usually is) a member of this committee, even though that is not specifically required by regulation. Some state regulations, however, do require that state-mandated QAACs and comparable entities include a consultant pharmacist member.

Comprehensive vs. Focused DRR

The nursing facility regulations require that DRR be conducted for every resident every month. This implies that every resident gets the same level of attention. But in reality, some residents will need more time and attention than others. For example, DRR for a newly admitted resident taking 12 medications will require more time than DRR for a resident who has been in the facility months or years and is taking only two medications. New residents require a comprehensive review to identify and evaluate any potential or actual medication-related problems.

Although it is important for the consultant pharmacist to review medication-related issues in every nursing facility resident every month, the consultant pharmacist may select certain residents for a more targeted and focused review. If a facility has a high incidence of falls, for example, the consultant pharmacist may review the medication regimen of each resident who has fallen during the past month, with a special emphasis on the possible causal or contributory role of medications. Such focused review may mean that
more time and attention is devoted to certain residents so that facility-wide patterns of care in a particular area can be evaluated.

**DRR Time Requirements**

When Appendix N was written, one of the guidelines for surveyors stated that no more than 100 DRRs should be performed by one pharmacist in a single day. Despite advances in technology since that time, the number of DRRs that can be safely and effectively conducted by the consultant pharmacist today is much less than 100.

Adequate time must be allowed for the review of drug regimens. When arbitrary time restraints are imposed, the quality of DRR and, ultimately, patient care outcomes may suffer. The length of time required to conduct a DRR on an individual resident may vary according to a number of factors, such as:

- The complexity of the drug regimen
- Number of chronic conditions
- Medical acuity level of the resident
- Duration of residency in the facility (i.e., newly admitted versus long-term residency)
- Chronic care or post-acute care
- The pharmacist’s familiarity with a particular resident, or lack thereof
- The knowledge and experience of the consultant pharmacist
- The level of technology and data available to the individual consultant pharmacist

In general, nursing home residents have higher medical acuity levels and take more medications today than 25 to 30 years ago.

DRR is a process that has clearly evolved considerably over the years, with important changes in both the scope and performance of DRR since...
it first became part and parcel of pharmacy practice in the nursing home environment.

Goals of DRR

Just as the scope and process of medication review have changed since the early to mid-1970s, so have the goals of DRR. Why is DRR required for nursing facility residents? Why does federal regulation require that DRR be conducted by pharmacists?

In the mid-1960s to early 1970s, the period during which the concept of federally mandated medication review in nursing facilities was conceived and the first DRR regulations developed, drug therapy for nursing home residents was seriously deficient. Psychotropic medications were widely overused and often used inappropriately. Polypharmacy was widespread, with unneeded medications frequently prescribed and necessary medications often maintained long past the time they should have been discontinued. Few physicians had any training or expertise in principles of geriatric drug therapy. Medication doses were frequently excessive, as prescribers failed to recognize the need for lower doses of many medications in the frail elderly.

In the early years, the primary rationale for the DRR requirement was that regular medication review by pharmacists would help identify and, in turn, resolve many of the problems associated with medication use in the nursing facility population. Yet, the SOM did not even clearly define the term “drug regimen review,” much less provide clear expectations with regard to the desired outcomes of the DRR process. This lack of expectations and structure may have impaired the effectiveness of the DRR.

Today, most pharmacists would concur, in a general sense, that DRR should contribute to improved therapeutic outcomes for the resident. For most residents, those outcomes include:

- Improved quality of care and better control of chronic conditions
- Improved quality of life
- Maintenance or improvement of functional status
- Reduction of adverse drug effects and drug interactions
- Reduced health care costs through avoided hospitalizations, emergency room visits, and physician visits

Improved quality of care and quality of life, as well as reduced adverse effects of medications, should result when pharmacists assist prescribers with drug therapy selection, dosing, and monitoring.

Another implicit goal of DRR is to improve the medication-use process within the nursing facility. Potential or actual errors, such as prescribing or transcription errors, are often first identified through DRR. Errors and patterns of errors can be documented, and these reports can be used to improve medication management throughout the facility.

In addition to fulfilling the primary goals of DRR, consultant pharmacists are also frequently asked to address cost issues with a bearing on nursing facility residents’ medication regimens. When the resident is primarily responsible for the drug costs, the resident or family may wish assistance in minimizing medication costs to the greatest extent possible. When a third-party payer (e.g., Medicaid) provides prescription drug coverage, formulary restrictions, prior authorizations, and other payer-specific requirements may increase the need for interventions by the consultant pharmacist.

In order to determine a workable strategy for achieving the clinical goals of DRR while acknowledging time constraints and cost containment issues, an important question must be addressed: How does the consultant pharmacist achieve the multifaceted goals of DRR and continue to assist the nursing facility with rigorous regulatory requirements?

The answer to that question can only emerge once a framework or structure for accomplishing DRR has been established. That will be the focus of the second article in this series, which will explore the seminal work of Hepler and Strand to establish a framework for more effective and more meaningful medication review, the unique aspects of the nursing facility medication use process, and how DRR fits into the overall patient-care process. Part three of the series will present a framework or structure for the DRR process, with illustrative “case histories” to illustrate the various steps involved.