The number of new cancer diagnoses in the United States is estimated to be 1,665,540 (excluding basal-cell and squamous-cell skin cancers) in 2014.\(^1\) The study of tumor biology in drug development and as a guide for selecting therapy for the individual patient has translated into improved outcomes for many patients with cancer. Nearly all targeted therapies in oncology work by inhibiting cell signaling, which can make some cancers more of a chronic disease that can be managed for years, or, in some cases, for decades. However, targeted therapies are generally not curative, and optimal patient outcomes are typically achieved with long-term dosing that maintains therapeutic serum concentrations until disease progression.

One of the most notable targeted therapies is imatinib, which became the treatment of choice for chronic-phase (CP) chronic myeloid leukemia (CML) in 2001, when it gained US Food and Drug Administration approval. A recent analysis showed that 8-year survival for patients with newly diagnosed CP-CML was less than 20% before 1990, 45% between 1991 and 2001, and 75% since 2001.\(^2\) Despite an annual incidence of only 4800 cases of CML, the current prevalence is in excess of 70,000 patients.\(^3\) Other hematologic malignancies have also started to resemble chronic diseases, including multiple myeloma, which has a reported prevalence of 83,367 patients.\(^4\)

There are notable improvements in the subsets of patients with 1 of the 4 leading cancers (ie, breast, prostate, lung, and colorectal cancer), which constitute more than 50% of new diagnoses and deaths in the United States.\(^1\) Collectively, improved treatments have led to an estimated cancer prevalence of 13,397,159 in the United States in 2011, where a significant number of patients are receiving long-term treatment.\(^5\)

The number of oncology clinical specialists is growing, as reflected by the more than 1600 board-certified oncology pharmacists.\(^6\) However, most of these providers work at cancer centers and are focused on antineoplastic agents that are delivered in an inpatient setting or at a clinic. However, many new cancer drugs are oral targeted therapies that have caused a change in the drug delivery system. Targeted agents often have a limited patient population that will receive the treatment, similar to an orphan disease.

The business models that make this focus on new drugs for small populations feasible require charging large amounts of money for these drugs. In response to such high drug costs, payers have put in processes to ensure the drugs’ proper use (eg, prior authorization).\(^7\) Because of the high cost and relatively low use of the oral targeted agents, traditional outpatient pharmacies do not stock the agents, and generally do not have technicians or pharmacists who are proficient in solving issues related to prior authorization and copays.

Consequently, specialty pharmacies have become essentially the only place to obtain the expensive targeted therapies. They generally do a very good job helping patients solve their financial issues, which can take days. Because the time from receiving the prescription to a payment approval and obtaining the medication takes days, distribution is often accomplished by mailing the medications to patients.\(^8\)

A byproduct of this model is a forced polypharmacy, in which traditional supportive care drugs come from the local pharmacy. At this interchange, the pharmacist has the opportunity to provide face-to-face counseling and toxicity assessment, as well as obtain a medication history. Although the potential for such services exists, I believe they are uncommon with regard to most prescriptions.

Having said that, pharmacists, particularly community pharmacists, are still the most readily accessible health-care providers who are often sought out by patients for recommendations on drugs and/or disease-related symptoms.\(^9\) Many community pharmacists, however, do not have adequate training or knowledge to manage well the toxicities of cancer therapy. Without the anticancer drug prescription or the drug on the shelf, the pharmacist frequently does not even have access to the package insert.

Community pharmacists are well-positioned to impact the quality of life, and perhaps even the length of life (via compliance), of patients with cancer, by minimizing drug adverse events, yet these pharmacists...
arguably have the least amount of education on and resources for cancer treatments.

The scope of the problem is large and growing. For example, patients with lung cancer receiving oral afatinib daily will receive therapy for a median of approximately 11 months. Afatinib causes diarrhea in approximately 88% of patients, with the majority of cases being mild to moderate in severity (grade 1 or 2). Mild-to-moderate toxicity is historically a “sweet spot” for community pharmacists—problematic enough for an intervention, but not severe enough for patients to see a doctor.

This is a classic case where the patient would go to a community pharmacy and ask the pharmacist for advice about diarrhea. As a general rule, I would assume the pharmacist knows little about the patient’s disease; has an incomplete drug record; and has little baseline knowledge about the risks and side effects of afatinib, how to manage the toxicity, and whether a dose interruption or delay is recommended. Educating this group of pharmacists about cancer drug toxicities and how to manage them provides the opportunity to affect the quality of life of patients with cancer.

The optimal prevention and treatment of antineoplastic adverse events require knowledge of the adverse events, pathophysiology, risk factors, symptom presentation, as well as the methods to prevent and treat the toxicity. A traditional approach is to learn about toxicity on a drug-by-drug basis; however, many drugs can cause the same toxicities, and often the toxicities are managed in a similar fashion. Common toxicities include anemia, neutropenia, infection, neuropathy, diarrhea, mucositis, nausea, and vomiting. In fact, the American Society of Clinical Oncology and the National Comprehensive Cancer Network have established guidelines to help prevent and treat these adverse events. Because these guidelines are not focused on educating pharmacists, they often contain what could be viewed as superfluous information.

Beginning with this issue of the Journal of Hematology Oncology Pharmacy, readers will find a new section on adverse events that is written by pharmacists for pharmacists. The goal is to educate pharmacists on how to prevent and manage common toxicities associated with cancer therapy. The format is intended to be practical, focusing on risk factors, symptoms, as well as prevention and management approaches. Dr Bubalo’s inaugural article in this issue on chemotherapy-induced peripheral neuropathy achieves the intended goals of this section. The journal’s Editorial Board is excited about this new section and its potential impact on patients’ quality of life.

References