

# Are Patients on Oral Chemotherapy in Your Practice Setting Safe?

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The use of oral chemotherapy is expected to more than double in the next several years. With the increase in use of oral chemotherapy and in patient responsibility, the role of the oncology nurse must change to ensure proper management. Nurses must teach patients how to correctly and safely take oral chemotherapy, help manage side effects, and research and monitor complications such as medication and food interactions, cost issues, safety, and patient adherence.

Since 2005, 10 oral chemotherapy medications have been introduced into the market (see Table 1). This trend likely will continue, and the number of available oral chemotherapy medications is expected to more than double in the next several years (Weingart et al., 2008). In fact, 25% of the 400 cancer chemotherapy agents currently in development are oral medications (Bowers, Silberman, & Mortenson, 2002; Moore, 2007; Thomas, Cahill, Mortenson, & Schoenfeldt, 2000; Weingart et al., 2008). The growing use of oral chemotherapy has affected all aspects of oncology profoundly; it has created significant safety and adherence issues and shifted some of the traditional roles and responsibilities of oncologists, nurses, and pharmacists to patients and caregivers (Weingart et al., 2008). The shift in responsibilities has many oncology practice administrators scrambling to find new and better ways of utilizing nursing staff to manage and support patients.

From 1993–2002, 25 deaths and 26 cases of serious injury associated with errors in prescribing or taking oral methotrexate were reported to the National Patient Safety Agency in the United Kingdom. Most of the errors were attributed to patients not receiving sufficient information on how to properly take the medications (Mayor, 2003)

Many people incorrectly believe that oral chemotherapy medications are less toxic than IV chemotherapy medications. Chemotherapy medications, whether oral or IV, typically have a narrow therapeutic index, which places patients taking them at increased risk for harmful effects (Bartel, 2007; Birner, 2003; Griffin, 2003; Weingart et al., 2008). Because oral and IV chemotherapy medications have the potential to cause harm, nurses must be involved in the care of patients receiving either form. With oral chemotherapy, patients and caregivers must be thoroughly educated and understand the potential dangers associated with taking such medications. Having nurses designated to care for such patients is a way to ensure patient safety during oral chemotherapy treatment. Nurses designated to care for people taking oral chemotherapy can help patients and caregivers understand the importance of adhering to oral chemotherapy regimens, rec-

## At a Glance

- ◆ Patients taking oral chemotherapy are just as much at risk for harmful side effects as those receiving IV forms.
- ◆ Patient education is the key to successful treatment with oral chemotherapy.
- ◆ Having dedicated nurses caring for patients receiving oral chemotherapy may improve patient safety as well as adherence to oral chemotherapy regimens.

ognize side effects to report immediately, and safely administer and handle oral chemotherapy.

Nurses who are familiar with the characteristics of various oral chemotherapy medications are in a better position to communicate accurate and detailed patient education that will provide foreseeable benefits of oral therapy while minimizing risks associated with treatment (Birner, 2003). As Moore (2007) wrote, “Oncology nurses are uniquely positioned to step into new roles emphasizing patient and family education and support. Individualized patient support will be vital in providing quality patient and family education as well as side-effect management during oral chemotherapy” (p. 113). Oral chemotherapy requires a significant amount of nursing time for patient education, especially at the beginning of an oral chemotherapy regimen (Weingart et al.,

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Digital Object Identifier:10.1188/10.CJON.339-346

**Table 1. Oral Chemotherapies**

DATE	NAME AND MANUFACTURER	STRENGTH(S)	INDICATIONS	WEB SITE AND SOURCE
March 2009	Everolimus (Afinitor <sup>®</sup> , Novartis Oncology)	5–10 mg	Advanced renal cell carcinoma	<a href="http://www.afinitor.com/health-care-professional/index.jsp">www.afinitor.com/health-care-professional/index.jsp</a>
October 2009	Pazopanib (Votrient <sup>™</sup> , GlaxoSmithKline)	200 mg	Advanced renal cell carcinoma	<a href="http://www.votrient.com/index.html#">www.votrient.com/index.html#</a>
October 2007	Topotecan (Hycamtin <sup>®</sup> , GlaxoSmithKline)	0.25–1 mg	Relapsed small cell lung cancer	<a href="http://www.hycamtin.com">www.hycamtin.com</a>
October 2007	Nilotinib (Tasigna <sup>®</sup> , Novartis Oncology)	200 mg	Philadelphia chromosome–positive chronic myelogenous leukemia	<a href="http://www.us.tasigna.com/index.jsp">www.us.tasigna.com/index.jsp</a>
March 2007	Lapatinib (Tykerb <sup>®</sup> , GlaxoSmithKline)	250 mg	Breast cancer	<a href="http://us.gsk.com">http://us.gsk.com</a>
October 2006	Vorinostat (Zolinza <sup>®</sup> , Merck & Co., Inc.)	100 mg	Cutaneous T-cell lymphoma	<a href="http://www.zolinza.com/vorinostat/zolinza/consumer/cutaneous-t-cell-lymphoma-treatment.jsp">www.zolinza.com/vorinostat/zolinza/consumer/cutaneous-t-cell-lymphoma-treatment.jsp</a>
June 2006	Dasatinib (Sprycel <sup>®</sup> , Bristol-Myers Squibb)	20–50 mg 70–100 mg	Chronic myelogenous leukemia and Philadelphia chromosome–positive acute lymphoblastic leukemia	<a href="http://www.sprycel.com">www.sprycel.com</a>
January 2006	Sunitinib (Sutent <sup>®</sup> , Pfizer Inc.)	12.5 mg 37.5 mg 25–50 mg	Gastrointestinal stromal tumor and advanced renal cell carcinoma	<a href="http://www.sutent.com">www.sutent.com</a>
December 2005	Sorafenib (Nexavar <sup>®</sup> , Bayer Pharmaceuticals)	200 mg	Hepatocellular carcinoma and advanced renal cell carcinoma	<a href="http://nexavar.com/scripts/pages/en/index.php">http://nexavar.com/scripts/pages/en/index.php</a>
December 2005	Lenalidomide (Revlimid <sup>®</sup> , Celgene Corporation)	5–10 mg 15–25 mg	Myelodysplastic syndromes and multiple myeloma	<a href="http://www.revlimid.com">www.revlimid.com</a>

*Note.* See full prescribing information for each product for indications and recommended dosages.

2008). Accurate and detailed patient education about oral chemotherapy promotes patient safety, optimal dosing, and adherence to the treatment plan (Hartigan, 2003). Despite the importance of patient education, most insurance companies, including Medicare, do not reimburse for nursing time spent educating patients. Lack of reimbursement for patient education may discourage many practice administrators from employing nurses whose sole responsibilities are educating patients and monitoring adherence to oral chemotherapy regimens.

The purpose of this article is to describe the development of an oral chemotherapy nursing position as well as role implementation in an ambulatory medical oncology setting. The desired outcome for this position is to improve medication safety and adherence for patients taking oral chemotherapy medications.

## Literature Review

A literature search was conducted to identify published articles on the management of oral chemotherapy medications. Databases used for the literature search included CINAHL<sup>®</sup>, MEDLINE<sup>®</sup>, Health and Medical Complete, ProQuest Central, PubMed, Sage Journals Online, and Ovid Journals Online. The terms used in the search were *chemotherapy*, *oral chemotherapy*, and *nursing roles*. No date limits were specified. A total of 32 articles were retrieved and determined to be relevant. Articles were considered

relevant if the title mentioned safety, side effects, adherence, patient education, or nursing roles pertaining to oral chemotherapy. The key themes from the articles were specific drug information, safety, side-effect management, drug interactions, food interactions, medication adherence, and financial information. The importance of nurses educating patients regarding oral chemotherapy was discussed in several articles. Mention of an oral chemotherapy nursing role in the literature was scarce. An article by Barefoot, Blecher, and Emery (2009) explained a nursing model used in a clinic for patients on oral chemotherapy. The model described care provided by an advanced practice nurse (APN) for all patients prescribed oral chemotherapy. The APN was responsible for patient education, monitoring, and support in the defined patient population. At this time, no standard nursing models exist to guide the direct care of patients receiving oral chemotherapy. With the use of oral chemotherapy expected to rise, the idea of designated nursing support for patients taking oral chemotherapy requires further exploration.

## Creating the Oral Chemotherapy Nursing Role

Because of the increase in oral chemotherapy use, administrators and the five physicians at a hospital-based, not-for-profit clinic in central North Carolina decided to take a proactive

approach to the new paradigm in oncology treatment. The practice chose to implement the role of an oral chemotherapy nurse to ensure adequate education and support for patients prescribed oral chemotherapy. During the implementation process, the administrators decided to utilize an existing full-time nursing position from the infusion area for the role of oral chemotherapy nurse. Prior to implementation of the role, seven infusion nurses carried a patient load of four or five patients per day. Since role implementation, six nurses work in the infusion center, with an increase in patient load by one patient per day. The infusion nurses have taken on the additional patient responsibility willingly because they are acutely aware of and support the need to ensure patient safety during chemotherapy treatment, regardless of the route.

## Initiating the Role for Patients Currently Taking Oral Chemotherapy

Initially, the oral chemotherapy nurse reviewed charts to identify patients currently prescribed oral chemotherapy. Once they were identified, they scheduled an appointment with the oral chemotherapy nurse to review proper dosage, safe handling techniques, recognition of critical side effects to report, dietary restrictions, drug interactions, and medication adherence. For ongoing care, patients are seen by a physician and the oral chemotherapy nurse prior to each cycle, or monthly if medication is taken daily. After the initial visit with the oral chemotherapy nurse, the focus for subsequent visits includes review and documentation of adherence, assessment for side effects and interventions used to manage toxicities, and assurance that correct dose and schedule were followed. The nurse and oncologist collaborate to ensure appropriate follow-up care. Prior to completion of the office visit, patients are reminded to contact the oral chemotherapy nurse for any problems or questions regarding treatment.

## Care for Patients Prescribed Oral Chemotherapy for the First Time

One of the most important functions of the oral chemotherapy nurse is working with patients being prescribed oral chemotherapy for the first time. At the initial meeting, the nurse assesses the patient for ability and willingness to adhere to the prescribed regimen. According to Moore (2007), a strategy for promoting adherence is to assess a patient's or caregiver's motivation to follow instructions as well as perceptions of risks and benefits of oral therapy. The following questions may help facilitate the process.

- Is the patient a highly motivated person who can assume the increased responsibility that comes with self-administration of oral chemotherapy medications?
- Does the patient want to actively participate in his or her treatment?
- Is the patient mentally and cognitively able to be in control of his or her own oral chemotherapy regimen?

If the nurse determines that the patient or caregiver is able to handle the increased responsibility that comes with oral chemo-

therapy, then the nurse proceeds with planning the educational session. According to Moore (2007), the best way to effectively address the individual needs of patients and families is through well-planned and thorough patient and family education. When setting up a patient educational session, the oral chemotherapy nurse makes an appointment for the patient to return on a different day for a 60- to 90-minute educational session. To enhance the learning experience, the nurse schedules the teaching session on a day when the patient is not seeing a physician or receiving chemotherapy (Moore, 2007). Depending on patient preference, educational material may be given beforehand so that the patient or caregiver can prepare. In preparation for the educational session, the nurse orders the chemotherapy medication(s) through a specialty pharmacy, prepares a medication administration calendar, and obtains patient teaching information specific to the medication(s) prescribed. Studies support the use of individualized materials to help reinforce education presented by the nurse (Moore, 2007). Various resources are widely available to assist patients beginning oral chemotherapy ([www.UpToDate.com](http://www.UpToDate.com), [www.Chemocare.com](http://www.Chemocare.com), [www.cancer.gov/DRUGDICTIONARY/](http://www.cancer.gov/DRUGDICTIONARY/), and the American Cancer Society's "Guide to Cancer Care"). Healthcare providers should use those that provide simple, clear, and concise education. If the facility permits, and after careful review, use handouts developed by pharmaceutical companies. If forms are developed at the healthcare facility, limit the important information to a one- or two-page handout to be given to a patient during the educational session (see Figure 1). This handout should include medication name, dosage, frequency, side effects, when to call the physician, how to contact the oral chemotherapy nurse during clinic hours, and how to contact the physician when the clinic is closed. Having all of the important information on a short handout and placing it in a visible location allow patients to access the information quickly. At the completion of the educational session, the patient should be asked to reiterate the key points to confirm understanding of the education provided.

## Initial Educational Session

During the initial educational session, the oral chemotherapy nurse teaches the patient how to correctly take the oral chemotherapy medication(s). This includes special instructions such as whether the medication should be taken on an empty or full stomach. If the patient has a complicated oral chemotherapy regimen, the patient is instructed to double- and triple-check the dose each and every time he or she takes the medication. Oral chemotherapy calendars are especially important for patients who have complicated chemotherapy regimens. If used properly, calendars can help simplify complicated chemotherapy regimens, help patients remember whether they have taken their medication(s), and prevent or reduce errors in dosing. Figure 2 is an example of a medication calendar created in Microsoft® Excel®. Various Web sites are available to healthcare professionals and patients to help them manage medication administration. One such site, [MedActionPlan.com](http://MedActionPlan.com), allows healthcare professionals to create quick, easy, and simple medication calendars. In addition to the calendar, [MedActionPlan.com](http://MedActionPlan.com) allows nurses to create a one-page summary of a patient's current treatment

Take within 30 minutes of eating a meal with a full glass of water.

### Side Effects

Diarrhea, nausea, vomiting, mouth sores, abdominal pain, upset stomach, constipation, loss of appetite, dehydration, nail problems, minimal hair loss, tiredness, weakness, dizziness, headache, trouble sleeping, taste problems, joint pain, muscle pain, and red, dry, peeling, painful feet and hands

### Important Safety Information

- This medication is considered a chemotherapy medication and may cause harm. People other than the patient must not touch the medication. Medication can be transferred from the bottle, to a medicine cup, and then to the patient's mouth without contacting the skin.
- This medication should be kept in the original container marked with the medication's name and dosage.
- Patients should wash their hands immediately after touching the medication.
- Do not open, crush, break, cut, or chew this medication without talking to an oncology nurse or pharmacist. If the tablet is accidentally damaged, do not inhale the powder. If it comes into contact with your skin, wash right away with soap and water.
- Medication must be disposed of properly. Bring contaminated or unused medication to the clinic for proper disposal.
- Do not share your medication with anyone.
- Take your medication around the same time each day.
- Do not double dose. Take missed doses as soon as possible, but do not take it near the time that your next dose is due.
- Do not change your dose or stop taking this medication without talking with your physician.
- Store medication at room temperature, do not use it after the expiration date on the bottle, and keep it out of reach of children.

### Information Concerning Side-Effect Management

- Indigestion: You may take over-the-counter drugs for indigestion. Such drugs must be taken two hours before or two hours after capecitabine.
- Diarrhea: Inform your physician if you have four additional bowel movements beyond your normal pattern per day or diarrhea at night. If you are having six to eight loose stools per day, try eating bananas, rice, apples, and toast for 24 hours, then try re-introducing your normal foods back into your diet. Remember to drink plenty of fluids, especially sports drinks to replace the electrolytes you lose with diarrhea.
- Keep hands and feet clean, dry, and well moisturized with lanolin-based emollients or creams.
- Rinse mouth every three hours with the following mixture: one-quarter teaspoon baking soda, one-eighth teaspoon of table salt, and 1 cup of warm water. To make a larger batch, mix 1 teaspoon of salt, 2 teaspoons baking soda, and one quart warm water. Make a fresh batch every 24 hours.

### When to Call the Doctor

- If you have pain, redness, swelling, or sores in your mouth
- If you have pain, swelling, or redness on your hands or feet that prevents or interferes with normal activity
- If you have an additional four bowel movements each day beyond what is normal for you or any diarrhea at night
- If you vomit more than once in a 24-hour period, lose your appetite, or eat much less food than normal
- If you have a temperature of 100.5°F or greater or other signs of infection

### Contact Information

Clinic number and emergency number: \_\_\_\_\_  
Pharmacy name and number: \_\_\_\_\_

## Figure 1. Capecitabine Patient Education

Note. Based on information from Genentech, Inc. (n.d.). Figure used courtesy of Rex Hematology Oncology Associates.

plan. The form (see Figure 3), has a place for patient and nurse signatures that confirm that the patient understands all of the instructions. For patient use, MyMedSchedule.com is a companion Web site that patients can use to create and maintain lists of their medications. Unique features of the free Web sites are color pictures of the medications.

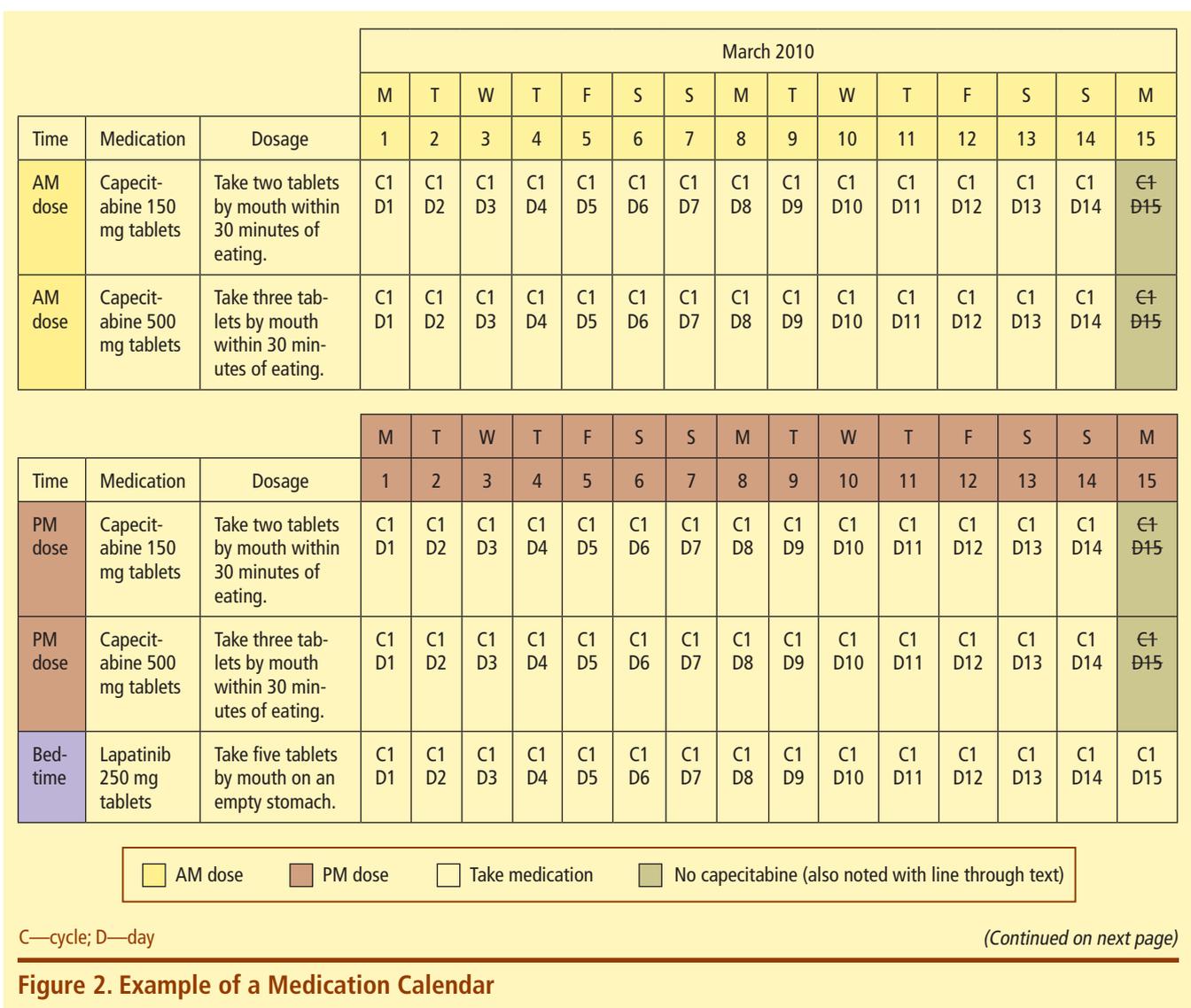
Once patients understand how and when to take their oral chemotherapy medication(s), make sure that no potential interactions exist between their current medications and the oral chemotherapy medication(s) being prescribed. Various electronic programs can check for drug interactions (e.g., First Data Bank at [www.firstdatabank.com](http://www.firstdatabank.com)). Potential interactions should be discussed with the physician and oncology pharmacist. Most of the time, dosage changes, more frequent monitoring of blood work, or medication substitutions are effective solutions to interactions. Potential side effects of oral chemotherapy and interventions that may help alleviate or control potential symptoms are discussed with patients. Once patients are comfortable with correctly taking the medication(s) and adhering to the prescribed regimen, the safety aspects of the medication(s) are discussed.

## Safety

Oral chemotherapy has been considered by many as a more convenient and less toxic form of cancer treatment. However,

the latter is false. The safety issues related to oral chemotherapy medications are just as important as those associated with IV chemotherapy. The lack of safety measures, potential problems with patient adherence, and relinquishing control of chemotherapy administration to patients are issues that need further exploration, development of standards, and patient as well as healthcare provider education (Weingart et al., 2008).

Patients should be taught to swallow oral chemotherapy whole. The medications should not be broken, crushed, chewed, or opened because of their biohazardous nature. Special equipment and time-consuming techniques may be required to manipulate oral chemotherapy. Check with a pharmacist who specializes in oncology before manipulating the medications in any way (Birner, 2003). The risk of exposure to those handling oral chemotherapy medications is unknown, but skin contact with chemotherapy medications has been linked to positive urine mutagenicity tests in people preparing IV chemotherapy. If gloves are not worn during handling of oral chemotherapy, the potential for skin absorption exists (Griffin, 2003; Labuhn, Valanis, Schoeny, Loveday, & Vollmer, 1998). Biologic agents are not considered cytotoxic in nature, but the possibility of absorbing the medications through the skin exists and could lead to adverse effects (Weingart et al., 2008). Bodily fluids, (e.g., urine, vomit, diarrhea) of patients on oral chemotherapy must be treated as biohazardous waste (Birner, 2003;



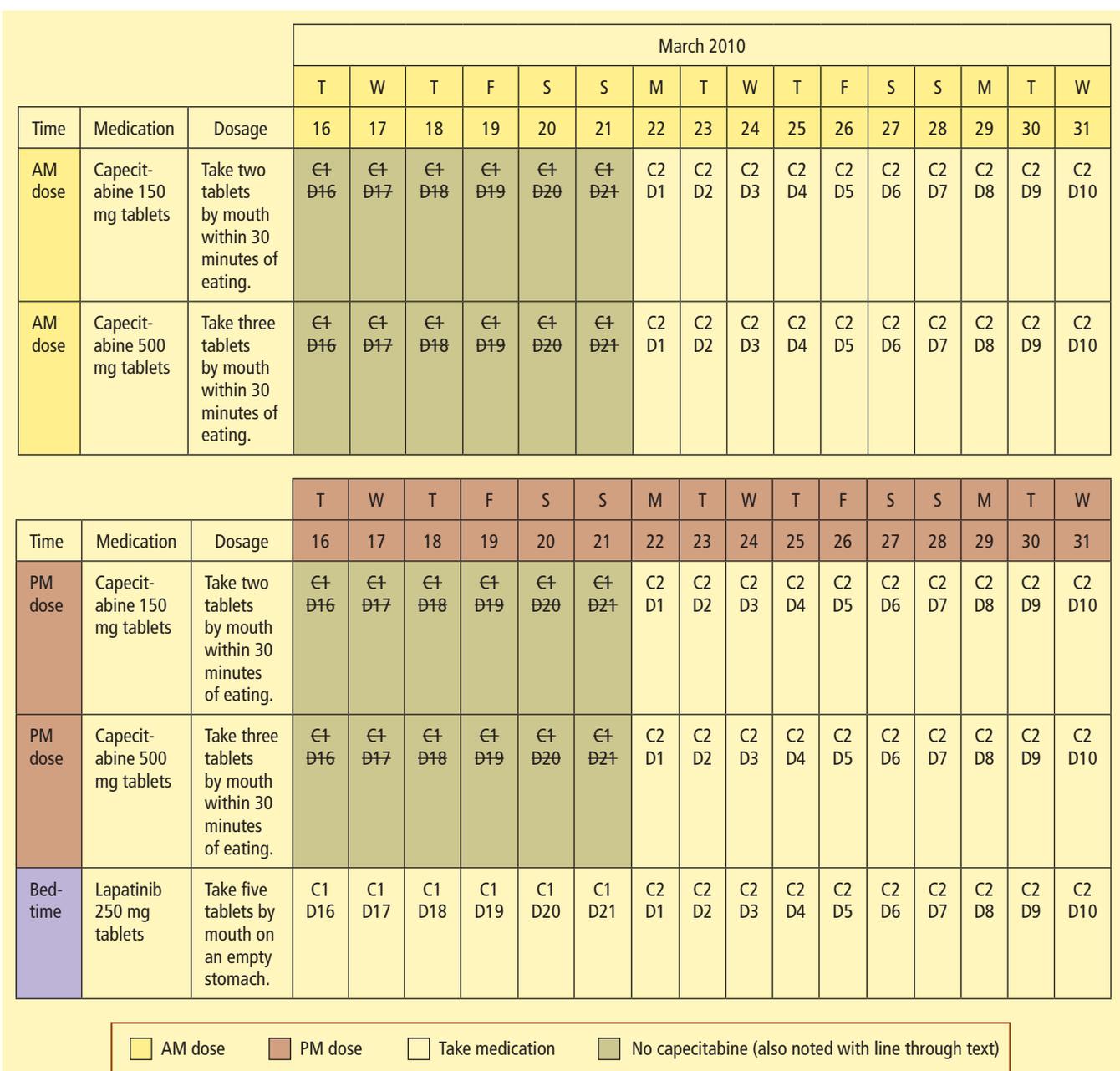
**Figure 2. Example of a Medication Calendar**

Weingart et al., 2008). Healthcare professionals and caregivers should wear gloves when handling all bodily fluids. Some oral chemotherapy medications remain in the body for five to seven days after the regimen is completed. Therefore, standard precautions should continue for seven days after the completion of oral chemotherapy (Griffin, 2003). Patients should be taught to return unused oral chemotherapy medications to the pharmacy or clinic for proper disposal. Patient should be advised not to throw oral chemotherapy medications in the trash or flush them down a toilet, so as not to contaminate the public water supply and landfills (Bartel, 2007; Moore, 2007). Patients should wash their hands immediately after touching oral chemotherapy medications, and people other than the patients should not handle them at all. If caregivers must handle oral chemotherapy medications, they should wear gloves or pour the proper amount of oral chemotherapy medication into a paper cup and hand it to the patient. Any gloves, paper cups, oral syringes, spoons, or other objects that come into contact with oral chemotherapy medications should be put into a resealable bag and brought to the clinic for proper disposal (Bartel, 2007; Moore, 2007). Other safety measures that should be discussed with the patients are as follows.

- Take oral chemotherapy medications around the same time each day.
- Do not make up missed doses, but make a note of them on the calendar.
- Do not share medications with anyone.
- Store medications in a safe place so that pets, children, and other people are less likely to touch them.

### The Importance of Adherence

Adherence is important to obtain the best therapeutic response. According to Birner (2003), if patients do not take their oral chemotherapy medications as prescribed, do not avoid medications and foods that interact with them, or do not report symptoms such as frequent diarrhea and vomiting, the chances of therapeutic failure are high. Oral chemotherapy must be present in systemic circulation in its active form to have efficacy approaching or equal to that of IV chemotherapy. To break down into a form the body can appropriately absorb, the medication must spend time in various portions of the gastrointestinal tract. If an oral chemotherapy medication is unable to spend the appropriate amount of time in the



C—cycle; D—day

**Figure 2. Example of a Medication Calendar (Continued)**

gastrointestinal tract, then the efficacy of the medication will be altered. Certain medications or physiologic conditions such as severe diarrhea alter normal motility and can indirectly affect the breakdown of drugs by altering transit time through the gastrointestinal tract, which then changes the efficacy of the medication. Patients must be made aware of the importance of taking oral chemotherapy medications and must understand that they are at risk for therapeutic failure if the medications are not taken as prescribed or side effects are not reported in a timely manner. Patients who understand the seriousness of their disease and the fact that adhering to the oral chemotherapy regimen may control or even cure their cancer will be more likely to adhere to oral chemotherapy treatment (Moore, 2007).

**Insurance**

The cost of oral chemotherapy can be a financial burden, and ability to pay may impede adherence. Verification of insurance coverage and use of financial assistance are very important. Most specialty pharmacies have support staff available to verify insurance, notify the office when prior authorization is needed, and find financial assistance or copay assistance for patients in need. Just like IV chemotherapy, oral chemotherapy is expensive. Cassidy et al. (2006) compared the total cost of treatment for two oral and two IV colorectal cancer treatment regimens with similar clinical profiles. Although the oral chemotherapy medications were more expensive than the IV chemotherapy medications, the money saved on administration charges and treatment

### My Daily Schedule

Name: Doe, Jane S.

Date of birth: 8/21/1948

Allergies: no known drug allergies

Take These Medications	At These Times	Purpose
Xeloda® (Capecitabine) 500 mg tablet(s) By mouth	Take 5 tablets by mouth every 12 hours on days 1–14 of a 21-day cycle. Take Xeloda within 30 minutes of a meal.	Xeloda is used to treat cancer.
Xeloda® (Capecitabine) 150 mg tablet(s) By mouth	Take 2 tablets by mouth every 12 hours on days 1–14 of a 21-day cycle. Take Xeloda within 30 minutes of a meal.	Xeloda is used to treat cancer.
Tykerb® (Lapatinib ditosylate) 250 mg tablet(s) By mouth	Take 5 tablets by mouth 1 time per day. Take Tykerb on an empty stomach (one hour before a meal or two hours after a meal).	Tykerb is used to treat cancer.

Only take the medications listed in your daily schedule. Check the date of your last schedule to make sure you have the most current medication list. The pharmacist may make a generic substitution for the medication shown in your daily schedule. The medication name, dosage strength, shape, color, and size may change as a result of this substitution. Please check dosage strength on your prescription bottle against the dosage strength shown on your daily schedule. Call your healthcare professional's office immediately if you receive medication that is different from what was prescribed or if you have questions about your medication.

Patient verbalized understanding of instructions/explanations regarding medications?  
\_\_\_ No \_\_\_ Yes

Healthcare provider/title: \_\_\_\_\_ Date: \_\_\_\_\_

[I, the patient] [We, the family] understand these medications and have received specific instructions for taking them from this healthcare professional.

Patient/family member: \_\_\_\_\_ Date: \_\_\_\_\_

Keep your med schedule updated on [www.MyMedSchedule.com](http://www.MyMedSchedule.com). Ask your healthcare facility to send your schedule to you so you can keep your schedule current.

### Figure 3. Example of Treatment Regimen

Note. From [www.MedActionPlan.com](http://www.MedActionPlan.com). Copyright 2009 by MedActionPlan.com, LLC. Used with permission. All rights reserved.

of adverse events made the oral regimen less expensive overall. The costs associated with a 28-day regimen of oral chemotherapy compared to IV chemotherapy for colorectal cancer are almost identical when you take into consideration the costs associated with IV administration, pump rental fees for continuous infusions, and IV disposable expenses (Moore, 2007).

Even though most insurance companies cover oral chemotherapy medications, sometimes the copays make the drugs unobtainable. For such situations, various copay and financial assistance programs are available to help patients afford oral chemotherapy. Wilkinson (2003) outlined financial aid available through patient assistance programs and pharmaceutical companies. In addition, [www.needymeds.com](http://www.needymeds.com) is an excellent resource to locate financial assistance. For patients who are insured through Medicare, Part B does not cover oral chemotherapy unless the oral chemotherapy medication is also available in IV form. Healthcare professionals may have to remind pharmacy personnel to file claims first with Medicare B and then file the re-

mainder of the balance with the patient's secondary insurance as long as it is not a Part D plan. Medicare will not pay for an oral medication under both part B and D plans. Patients who have Medicare are subject to what is called the doughnut hole, which basically means a gap in coverage where they have to pay full price for the oral chemotherapy medication for a period of time each year. Bartel (2007) provided an excellent overview of Medicare and the doughnut hole. Insurance is a complex issue; representatives in specialty pharmacies may be best equipped to handle the insurance process because they deal with it on a daily basis and have learned to understand the complex issues related to insurance verification and approval for oral chemotherapy.

## Conclusion

The oral chemotherapy nursing role was initiated in August 2008. Since that time, she has cared for as many as 112 patients at one time. Initial teaching was provided for 163 patients. Nursing assessment and interventions were provided for 1,710 patient visits prior to the start of the next cycle of chemotherapy (includes patients being seen multiple times). Telephone triage was provided for 2,410 patient calls. Time spent refilling prescriptions has not been evaluated. Since August 2008, three patients have altered from their prescribed doses of oral chemotherapy during one cycle. Of those three cases, two were taught while the oral chemotherapy nurse was on vacation. With a nurse following patients taking oral chemotherapy, patient safety has improved because patients understand how and when to take their chemotherapy medications, when to report side effects, and comply with appointments and medication. Patient documentation of side effects also has improved.

Many complex issues have been raised with the increased use of oral chemotherapy medications. We have only scratched the surface of this new paradigm in the treatment of cancer. The use of oral chemotherapy is expected to rise. As nurses, we must do our part to make sure that patients who take oral chemotherapy are safe. To do so, we must advocate for dedicated nurses (or other, equivalent models) to care for patients receiving oral chemotherapy in our practice settings.

*The authors take full responsibility for the content of the article. Jackowski received an honorarium from the Oncology Nursing Society for her role as mentor in the Clinical Journal of Oncology Nursing Writing Mentorship Program. The content of this article has been reviewed by independent peer reviewers to ensure that it is balanced, objective, and free from commercial bias. No financial relationships relevant to the content of this article have been disclosed by the authors, planners, independent peer reviewers, or editorial staff.*

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