Promoting Oral Therapy Adherence

Consensus statements from the faculty of the Melanoma Nursing Initiative on oral melanoma therapies

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BACKGROUND: Inhibitors of BRAF and the downstream signaling protein MEK have improved outcomes for patients with BRAF-mutant advanced malignant melanoma. Despite their ease of administration, these oral therapies pose adherence challenges.

OBJECTIVES: This article aims to increase awareness of causes of nonadherence to oral targeted therapies in advanced malignant melanoma and to provide oncology nurses with strategies to address these nonadherence issues.

METHODS: Members of the Melanoma Nursing Initiative explored issues related to adherence to targeted therapies in advanced malignant melanoma. The current literature and clinical experience were reviewed.

FINDINGS: The authors present a care step pathway focused on increased patient engagement and rapid identification and optimal management of toxicities to avoid toxicity-related nonadherence. Other causes for nonadherence and employment of individualized strategies to support patient adherence are addressed.

KEYWORDS
medication adherence; BRAF; MEK; targeted therapy; oral administration

DIGITAL OBJECT IDENTIFIER
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PROMOTING ORAL THERAPY ADHERENCE

The authors convened to discuss the current literature and their clinical experience regarding adherence to oral advanced malignant melanoma therapies and interventions to increase adherence, then drafted the care step pathway, which illustrates strategies to engage patients with BRAF-mutant advanced malignant melanoma and foster adherence to targeted oral therapy (see Figure 1). This article outlines interventions nurses can incorporate to improve adherence at each of the care steps in the patient treatment journey.

Findings and Recommendations to Improve Adherence

Pretreatment

Pretreatment assessment should include identification of patient- and disease-related factors that may affect the patient’s ability to adhere to the prescribed medication regimen. Cognitive ability, learning style, and family/social support should be evaluated (Schneider et al., 2011; Shinnick & Woo, 2015). Cognitive limitations owing to organic causes, such as brain metastases or dementia, or other learning barriers may hinder the patient’s ability to follow dosing instructions and/or to observe and report adverse events. Asking patients to verbally demonstrate their understanding by using the teach-back method can serve as a check on the patient’s comprehension (Agency for Healthcare Research and Quality, 2015).

Inadequate social support has been associated with nonadherence to oral medication (Partridge, Avorn, Wang, & Winer, 2002; Weingart et al., 2008). Family or friends can report adverse events, provide reminders to take medication, encourage patients to attend regular follow-up visits, and transport patients to those visits if necessary. Patient education is best delivered with a family member or caregiver present (Clay & Parsh, 2016). If the patient is not accompanied to a clinic visit by an involved caregiver, the nurse should ask the patient for a contact who can help with these issues. This question may prompt the patient to identify a supportive family member or friend. However, some patients are reluctant to ask family or friends for assistance. Others may not have individuals in their lives who can provide care and may be reluctant to share that information with the nurse or other members of the clinical team. A social worker, if one is available to the practice, should be engaged to connect such patients to local resources for services, such as transportation to medical appointments and assistance with medication cost.

Education

Patients’ knowledge, attitudes, beliefs, perceptions, and expectations about the course of the disease and their ability to manage their illness and treatment regimen affect adherence (Sabaté, 2003; Timmers et al., 2017). Patients may perceive oral medication as less important or effective or as safer and more forgiving of dosage and administration errors as compared to IV therapy (Weingart et al., 2008). Communicating key results from clinical trials, including risks, benefits, and expected treatment outcomes, may motivate patients to integrate the dosing schedule, follow-up appointments, and management of adverse events into their lives.

Adverse events affect adherence. In one study, one-third of those who discontinued oral anticancer medications reported side effects as a reason (Timmers et al., 2014). Prompt identification and management of adverse events are crucial for ensuring that patients are able to continue treatment (Welsh & Corrie, 2015). This point needs to be emphasized to patients before treatment initiation and throughout the course of therapy. Patients may not report side effects out of fear that therapy could be discontinued (Weingart et al., 2008). Some may choose to skip doses because of the discomfort or pain of particular symptoms (Schneider et al., 2014). Patients should be reminded about when to call the clinic or healthcare provider regarding adverse events.

Explaining that the clinical team shares the goals of continuing therapy and optimizing outcomes as long as the treatment is working and the patient is tolerating it is important. Those goals can be achieved safely. Prompt reporting of adverse events can allow for immediate intervention and possible dose modifications, as appropriate, in lieu of discontinuation of therapy. However, waiting until an adverse event has become severe may necessitate treatment cessation. Self-medicating to alleviate adverse events may lead to other problems, such as drug–drug interactions or worsening or development of additional adverse events. Of note, family members often provide valuable insight into the clinical situation and may report symptoms that patients minimize or fail to mention.

Patients receiving oral therapy instead of IV therapy may not adhere to the recommended schedule for follow-up appointments. Asking open-ended, nonjudgmental questions about the reasons for not keeping follow-up appointments and acknowledging the legitimacy of the issues the patient identifies are helpful communication techniques. Such dialogue may open a way to address those obstacles and serve as a teachable moment about the importance of periodic assessments (see Table 1). Stressing to patients that periodic assessments are crucial to evaluate toxicity and efficacy and maintain treatment safety is important.

“Prompt identification and management of adverse events are crucial for ensuring that patients are able to continue treatment.”
**CARE STEP PATHWAY TO OPTIMIZE ADHERENCE TO ORAL MEDICATIONS IN MELANOMA**

### General
- Assess patient’s ability to understand directions and follow treatment schedule, including asking about learning barriers or organic causes of cognitive deficits.
- Assess patient’s available family and social supports.

### Education
- Go over risks and benefits.
- Instruct patients on how to store and take medications.
- Emphasize the importance of follow-up visits.
- Remind patients to take medications at about the same time each day (go over dosing calendar).
- Provide instructions about what to do about missed doses.
- Discuss safe sex and birth control.
- Discuss common side effects.
- Discuss when to call the clinic.

### Pharmacy and insurance
- Assess whether patient has prescription benefits and what those benefits are (e.g., co-pay).
- Find out whether prior authorization is required.
- Determine whether medication has to be filled at a specialty pharmacy and whether that pharmacy is mail-order or local.
- Obtain medication reconciliation or at least the medication list.

### Relevant medical history
- Assess ability to tolerate oral medications (solids and liquids).
- Ask if patient can swallow pills.
- Ask about nausea/vomiting and absorption issues.
- Determine previous gastrointestinal toxicity from immunotherapy, bowel obstruction from tumor, etc.
- Ask about other comorbidities (e.g., diabetes, heart disease).

### Laboratory testing
- Repeat baseline laboratories at 1 month.
- Perform echocardiogram for left ventricular ejection fraction for any MEK-containing regimen and ECG for vemurafenib.
- Obtain CBC with differential and complete metabolic panel (with glucose for dabrafenib), as well as levels of alkaline phosphatase, ALT, AST, total and direct bilirubin, creatine kinase (for cobimetinib), and gamma-glutamyltransferase (for cobimetinib and vemurafenib).

### Cardiac
- Perform echocardiography at 1 month and every 2–3 months while on treatment.
- If ECG is performed on vemurafenib, repeat at 14 days, monthly for 3 months, and then every 2–3 months while on treatment.
- Perform ECG more frequently if on medications affecting QTc or as needed if patient starts new agents that may have QTc prolongation.

### Dermatologic
- Perform thorough skin assessment. Refer to dermatology provider if patient has not had a comprehensive dermatologic examination for 1 year or has a strong history of other nonmelanoma skin cancer.

### RED FLAGS
- High co-pay
- Crushing or breaking pills; altering the schedule to save money (once daily versus twice daily)

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Anticipatory guidance to help patients identify strategies to manage these complex regimens is an important component of nursing care. Available downloadable resources to support adherence are listed in Figure 4. Dosing calendars; pillboxes; smartphone alarms; and reminders on mirrors, doors, or laptop computers may help, depending on the patient’s lifestyle and preference (Schneider et al., 2011). However, a study by Choudry et al. (2017) found that three types of pillboxes with different reminder devices did not increase the odds of optimal adherence as compared to a standard pillbox. These findings suggest that behavioral interventions are needed in addition to technological reminders. The nurse should assess which techniques are likely to work for the individual patient, possibly by querying him or her about strategies that currently work as reminder systems for the patient in other aspects of life.

Patients with preexisting nausea and vomiting may find it challenging to swallow medications first thing in the morning after an overnight fast. In these situations, the nurse can advise patients to eat breakfast and then wait two hours to take dabrafenib or trametinib, providing an adequate fast period that is more tolerable than an overnight fast. Patients should also be instructed about what to do if they miss a scheduled dose. Dosing calendars can address this question for each regimen.

### Medication Storage and Disposal

Trametinib must be kept refrigerated and stored in the original bottle with the lid closed tightly to protect the pills from heat, light, and moisture (Novartis, 2016). The nurse should instruct patients to keep all medications with them when traveling and not to place them in a stored baggage area, where temperatures are not controlled. In addition, trametinib bottles can be kept in refrigerated lunch packs. If the patient inadvertently leaves an opened bottle of trametinib out of the refrigerator, temperature excursion data have shown that the medication is not damaged by storage outside the refrigerator for as many as 30 days if it is maintained at a temperature below 86°F (30°C) (Novartis, 2017). Therefore, the nurse can typically advise the patient who has inadvertently left the medication out to simply keep the medication cool and get it back in the refrigerator as soon as possible.

### Contraception and Family Planning

Before initiating any of the targeted therapies, patients must be counseled about pregnancy, fertility, and contraception. All four oral targeted agents approved for metastatic/unresectable melanoma can cause fetal harm. Some patients view themselves as sterile because of prior anticancer therapies or assume that they will be rendered sterile by targeted therapy. It is important to emphasize the need for effective birth control even in the face of these beliefs. Women of childbearing age must be advised to use effective birth control during treatment and for at least two weeks (for cobimetinib, dabrafenib, and vemurafenib) to four months (for trametinib) after treatment ends (Genentech,
What if you forget a dose of Zelboraf or Cotellic?

- For Cotellic, if 4 hours or less from scheduled dosing time, take the dose; if more than 4 hours, hold that dose and take the next scheduled dose at the normal time.
- For Zelboraf, a missed dose can be taken up to 4 hours prior to the next dose.
- Do NOT take a double dose to make up for a missed dose.

**Note.** Based on information from Genentech, 2016a, 2016b.

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Beyond immediate fertility and pregnancy effects, patients may have questions surrounding future family planning. Nurses should be prepared to discuss options for sperm banking and egg freezing and offer supportive counseling regarding the prospect of family planning in the setting of advanced melanoma. Prognosis and life expectancy should be considered. Such discussions may become more commonplace if targeted therapies become available for use in the adjuvant setting.

### Pharmacy and Insurance Issues

#### Cost and Access

Because most oral medications are covered under prescription insurance plans versus major medical plans (as with IV infusions), cost can be a significant barrier to medication initiation and refill...
(Schneider et al., 2014). To save money, patients with high out-of-pocket costs (i.e., co-pays or coinsurance) might delay treatment initiation or refills or dose less frequently than prescribed (Winn, Keating, & Dusetzina, 2016; Zafar et al., 2013). Patients covered by commercial, which must include prescription drug coverage, rather than government (e.g., Medicare, Medicaid) insurance have access to manufacturer co-pay cards that reduce patient financial responsibility. In addition, manufacturers of the targeted therapies for melanoma offer resources to reduce co-pays and connect patients on government insurance to foundations or other organizations that may offer assistance with the patient’s share of medication cost (see Figure 4).

Health system barriers to obtaining and refilling medication in a timely manner may affect a substantial number of patients (Schneider et al., 2014). Obstacles can include (a) a requirement to use a specialty or mail-order pharmacy, (b) delays while processing a prior authorization, and (c) a requirement for a signature if delivered to home. Of particular concern is expediting access to the initial prescription.

Patients and pharmacies may not understand the urgency of promptly initiating treatment in the setting of a life-threatening disease. Nurses should impress on patients and their family members that immediately returning pharmacy calls is crucial to starting and maintaining medication supply. Manufacturers of targeted therapies offer support to facilitate prior authorizations and otherwise speed access to therapy. The nurse or other healthcare team members should provide assistance with clearing the barriers to drug access as much as possible.
Current Medications
Patients receiving medications to manage comorbid conditions, control cancer symptoms, or manage toxicities of previous anti-cancer therapies may be at high risk for drug–drug interactions. As with any drug therapy, a pharmacist should ideally review the patient’s medications, identify absolute and relative contraindications, and suggest possible dose adjustments or alternate medications to prevent or reduce the risk of drug–drug interactions. The specialty pharmacy contracted with the patient’s insurer may be able to offer this reconciliation service (Weingart et al., 2008). Pharmacy departments at academic medical centers and comprehensive cancer centers may provide a pharmacy consultation for patients even if the insurer will not cover prescriptions filled at those centers. In the absence of these pharmacy resources, the nurse should obtain a list of current medications, which includes any over-the-counter medications, herbals, supplements, and vitamins. It is important to explain to patients that some of these substances can lead to drug–drug interactions, which can increase the risk for toxicities or render the targeted melanoma therapy less efficacious (Carrington, 2015; Genentech, 2016a; Welsh & Corrie, 2015).

Relevant Medical History
Toxicities associated with targeted therapies can affect organ systems that already may be compromised by comorbid conditions and/or previous melanoma therapies. The average age at melanoma diagnosis is 63 years (American Cancer Society, 2017). Cardiovascular disease, diabetes, and certain visual impairments become more common in older adults, and adverse events can exacerbate these conditions. Patients with these conditions

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**FIGURE 4.**
RESOURCES TO SUPPORT ADHERENCE TO ORAL TARGETED THERAPIES FOR ADVANCED MELANOMA

FOR PATIENTS
**DRUG ACCESS AND FINANCIAL RESOURCES**
Novartis (dabrafenib and trametinib): Co-pay assistance, insurance verification, covered pharmacy, free 30-day trial
- www.us.tafinlarmekinist.com/advanced-melanoma/patient-support/cost-support
Genentech ( vemurafenib and cobimetinib): Co-pay assistance foundations, financial assistance, coverage checks, and specialty pharmacy lists
- www.genentech-access.com/patient/brands/cotellic/how-we-help-you.html
Genentech ( vemurafenib and cobimetinib): Patient assistance tools for co-pays and assistance foundations
- www.genentech-access.com/hcp/brands/cotellic/find-patient-assistance.html

**ADHERENCE AIDS**
Novartis (dabrafenib and trametinib): Patient support for dabrafenib and trametinib with brochures, treatment diary, and dosing calendars
- www.us.tafinlarmekinist.com/advanced-melanoma/patient-support/patient-resources
Genentech ( vemurafenib and cobimetinib): Resources for vemurafenib and cobimetinib with patient guides, dosing calendars, and a nurse hotline
- 1-855-MY-COTELIC
- www.cotellic.com

**PATIENT ADVOCACY AND NURSE SUPPORT**
Speak with an oncology nurse at no charge.
- 1-877-246-2655
- www.aimatmelanoma.org/living-with-melanoma/nurse-on-call
Patient and caregiver resources from AIM at Melanoma Foundation
- www.aimatmelanoma.org/living-with-melanoma/patient-caregiver-resources

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FOR NURSES
**DRUG ACCESS AND FINANCIAL RESOURCES**
Novartis (dabrafenib and trametinib): Co-pay assistance, insurance verification, alternative funding sources, free 30-day trial
- www.hcp.novartis.com/products/tafinlar-mekinist/advanced-metastatic-melanoma/access
Genentech ( vemurafenib and cobimetinib): My Patient Solutions™
Genentech ( vemurafenib and cobimetinib): Patient assistance tools for co-pays and assistance foundations
- www.genentech-access.com/hcp/brands/cotellic/find-patient-assistance.html

**ADHERENCE AIDS**
Novartis (dabrafenib and trametinib): Patient support with brochures, treatment diary, and dosing calendars
- www.us.tafinlarmekinist.com/advanced-melanoma/patient-support/patient-resources
Genentech ( vemurafenib and cobimetinib): Resources library with patient guides and dosing calendars
- www.cotellic.com/hcp/support-resources/cotellic-patient-resources.html

**PATIENT ADVOCACY AND NURSE SUPPORT**
Toolkits for promoting adherence and managing adverse events, downloadable patient materials, and community nurse portal
- www.themelanomanurse.org
may take other medications, potentially raising the risk of drug–
drug interactions (Spoelstra et al., 2013). In addition, patients
with more comorbidities may report higher severity of adverse
events to oral anticancer medications, as observed in a study by
Spoelstra et al. (2015). Patients who have received prior antican-
cer regimens may have residual toxicities before starting targeted
therapy. A baseline assessment is important to identify patients
whose health is already compromised and to distinguish emerg-
ing adverse events from preexisting conditions.

Screening
Pretreatment screening should include assessment of vital signs,
laboratory values, blood pressure, oxygen saturation, and cardia-
c function testing. Combination targeted therapies can cause
fever, cardiomyopathy, arrhythmias, endocrinopathies, and hep-
atotoxicity (Genentech, 2016a; 2016b; Novartis, 2015, 2016; Welsh
& Corrie, 2015). Creatine kinase is measured before and during
cobimetinib administration because of risk of rhabdomyolysis
(Genentech, 2016a). Gamma-glutamyltransferase is assessed
for patients prescribed cobimetinib or vemurafenib because
these drugs can cause elevation of this specific liver enzyme
(Genentech, 2016a, 2016b). Liver function and kidney function
should be checked on a periodic basis.

BRAF inhibitors are associated with the development of non-
melanoma skin cancers (keratinocyte carcinomas, such as basal
cell and squamous cell carcinomas) and new primary melanoma
malignancies. Patients should undergo a skin examination before
treatment initiation and every two months during treatment and
for as many as six months after treatment cessation (Genentech,
2016a, 2016b; Novartis, 2015, 2016). The MNI advises that individ-
uals who have not had a comprehensive dermatologic examination
within the past year or who have a history of basal cell or squamous
cell carcinoma should receive a skin examination from a dermatol-
ist with expertise in cutaneous malignancies prior to starting tar-
geted therapy. Although the clinical trials using BRAF combination
therapies require baseline ocular examinations by ophthalmology,
oncology practices typically reserve these examinations for pa-
tients who develop symptoms of ocular toxicities. In addition, at
baseline, evaluation of ejection fraction is needed when using an
oral MEK inhibitor, and an electrocardiogram is recommended
with use of vemurafenib (Genentech, 2016a, 2016b; Novartis, 2015,
2016).

Anticipatory Guidance During Treatment
Ongoing Patient Counseling
Toxicity education and monitoring are key roles of the oncol-
y nurse. Monitoring between subsequent cycles promotes
early detection of adverse events or other obstacles to adher-
ence so that these issues can be addressed promptly. For ex-
ample, pyrexia occurring with dabrafenib-containing regimens
often requires active pharmacologic management and potential
dose reduction. In addition, visits or telephone calls represent
a chance to evaluate patient psychosocial status and offer emo-
tional support (Schneider et al., 2011). In a study by Schneider
et al. (2014), a nurse-coaching intervention delivered through
telephone calls was associated with higher pharmacy refill rates
compared with standard pretreatment education alone. During
the calls, nurses discussed factors that could affect adherence,
identified any issues interfering with the patient taking medica-
tion as prescribed, and brainstormed with the patient on strat-
eggies to address those issues. Such an approach is likely to be
helpful to patients receiving targeted therapy. Every visit should
include asking the patient about the routine employed for tak-
ing medication, any new symptoms or signs of adverse events,
new disease symptoms, changes in other medications, and visits
to other clinicians.

FIGURE 5.
COMMON ADVERSE EVENT CHECKLIST FOR
ORAL TARGETED THERAPIES FOR MELANOMA

FOLLOW-UP CLINIC VISIT TEMPLATE FOR PATIENTS
RECEIVING BRAF/MEK INHIBITORS
Stage: ____________________________

GENERAL ASSESSMENT
Pain
- Location: ____________________________
- Intensity: ____________________________
- Interventions: ____________________________

Fatigue
Appetite
Nausea
Headaches or visual changes
Lightheadedness or dizziness
Lymphedema
Cough or shortness of breath
Fever
Skin changes, rash, or pruritis

ADDITIONAL CLASS-SPECIFIC SIDE EFFECTS
Eye pain or dryness
Hand-foot syndrome
Bone or joint pain
Number of stools per day: ____________________________

ACTION PLAN
Assessment
Medical recommendations
Prescription refills
Documentation in note
Other

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Clinical Examination and Testing During Follow-Up
Anticipatory guidance should include explaining to patients that vital signs must be measured at every follow-up visit. Regular monitoring promotes early detection of any adverse events and facilitates early management. Laboratory measures should be evaluated at follow-up visits and more frequently if clinically indicated (Genentech, 2016a, 2016b; Novartis, 2015, 2016). Echocardiography should be followed as recommended.

Because cutaneous toxicity is common with BRAF/MEK inhibitors, frequent skin examinations during treatment are important to screen for new melanomas and keratinocyte carcinomas, as well as to detect rashes, papillomas, and calluses. Dabrafenib and trametinib each carry a warning about palmar-plantar erythrodysesthesia, also called hyperkeratosis or hand-foot syndrome. This toxicity is also reported with vemurafenib (Anforth et al., 2012; Genentech, 2016a, 2016b; Novartis, 2015, 2016; Vanneste, Wolter, Van den Oord, Stas, & Garmyn, 2015). Patients may not recognize the redness, swelling, and pain on the palms of the hands and/or the soles of the feet as a treatment side effect. Hyperkeratotic lesions also can develop in other areas of the body (Livingstone, Zimmer, Vaubel, & Schadendorf, 2014). Palmar-plantar hyperkeratosis can be managed by counseling patients to minimize pressure and friction on the areas; wear soft, broad shoes; and use topical keratolytic medications containing urea, salicylic acid, or, rarely, steroids. Frequent paring by a podiatrist can relieve pressure and pain (Livingstone et al., 2014).

Eliciting Adverse Events and Nonadherence
When probing for adverse events of therapy, specific rather than general queries are more likely to elicit informative responses. Patients may respond “no” when asked if they have experienced any adverse events, but asking about every possible side effect may uncover new symptoms. Open-ended questions (e.g., what bothersome symptoms have you experienced since your last visit?) also may elicit information. Patients may not detect some changes or may view them as insignificant and, therefore, not mention them to the nurse or others on the clinical team. The authors recommend use of a structured checklist to probe for adverse events (see Figure 5).

If nonadherence is suspected, the nurse should continue to connect with the patient while showing acceptance, empathy, and support, which can facilitate trust and foster communication (Komatsu & Yagasaki, 2014). Motivational interviewing is one strategy for building a connection. A technique developed by Miller and Rollnick (2013) in addiction treatment, motivational interviewing has been defined as “a collaborative conversation style for strengthening a person’s own motivation and commitment to change” (p. 10). It builds on the person’s motivation for change rather than leaving the individual feeling defensive or shamed for not engaging in a certain behavior (Miller & Rollnick, 2013). Techniques drawing on the principles of motivational interviewing have improved patient self-management in multiple disease states. A study applying these techniques to promote adherence to oral anticancer therapies is in progress (Spoelstra, Burhenn, DeKoekkoek, & Schueller, 2016).

Conclusion
Medication adherence issues associated with oral therapy for advanced melanoma differ from those observed with other treatment delivery routes. Responsibility for administration and self-management of potentially life-prolonging therapy shifts from the clinical team to the patient. The life-threatening nature of the disease, characteristics of the patient population, medication adverse events, insurance coverage, and access issues with oral medication create adherence obstacles in this setting. The assertive approach outlined in this article to elicit adverse events and address barriers to adherence should increase the likelihood of patients staying on these therapies and lead to improved outcomes.

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REFERENCES


