Essential oils can be a great adjunct to cancer care, aiding in the management of side effects, such as insomnia and nausea. Healthcare professionals should be knowledgeable about the quality and safety of essential oils when using them for clinical purposes. Using lesser quality essential oils and not understanding safety guidelines can negatively affect clinical outcomes. This article provides an overview of how nurses can help patients with cancer safely use essential oils as a supportive therapy.

**AT A GLANCE**

- Essential oils are a valuable supportive therapy for health and wellness.
- Oncology nurses should learn about essential oil quality and precautions to help guide patients using essential oils as part of their plans of care.
- Lavender, peppermint, and orange are common, affordable essential oils that can help support patients with cancer who experience insomnia, nausea, and anxiety.

**Keywords**

- chemotherapy; complementary/alternative therapies; quality of life; aromatherapy

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**Aromatherapy**

Using essential oils as a supportive therapy

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Aromatherapy (also referred to as “essential oil therapy”) is defined as “the art and science of utilizing naturally extracted aromatic essences from plants to balance, harmonize and promote the health of body, mind and spirit” (National Association for Holistic Aromatherapy [NAHA], 2016, p. 1). Essential oils are complex mixtures of organic compounds that have a basic carbon hydrogen framework with added “functional groups” (Buckle, 2015; Tisserand & Young, 2014), including alcohols, aldehydes, esters, ethers, ketones, and phenols (Buckle, 2015). Much of essential oil research is focused on chemical constituents and not on the entire oil complex. However, many aromatherapists maintain that essential oils are more than the sum of their parts and that the entire oil should be reviewed in relationship to its healing properties and clinical applications.

Several cancer centers in the United States are using clinical aromatherapy as a supportive modality (Buckle, 2015; Seely, Weeks, & Young, 2012). Giraud-Roberts (2009) advocated the use of aromatherapy in cancer care to aid a person’s quality of life and limit the side effects of cancer therapies. When using aromatherapy in a clinical setting, safety and oil quality are paramount. The purpose of this article is to provide an overview of how nurses can help patients with cancer safely use essential oils as a supportive therapy.

**How to Use Essential Oils**

Pharmacokinetics is the study of how essential oils are absorbed and excreted. According to Buckle (2015), essential oil components can be absorbed by four routes: inhalation, topical, internal (e.g., gargles, douches, suppositories), and oral (e.g., capsules, dilutions in honey).

Inhalation is a simple yet effective method to obtain an outcome in seconds. A simple method of inhalation includes putting a drop or two of oil on a tissue and breathing in the aroma. Diffusion is a process that disperses oils into the air, allowing for better absorption of microdroplets through the mucosa. Three ways to diffuse oils into the air include the use of heat, water, and atomizing, which is the preferred method (Stewart, 2005).

A variety of ways exist to apply essential oils to the body, including using lotions, salts, salt scrubs, bath solubles, and soaps. Essential oil dilution with a carrier oil, such as organic coconut oil or jojoba oil, is the preferred method for application on the skin (Schnaubelt, 2011). Patients should use essential oil internally or orally only under the guidance of a certified aromatherapist.

**Safety Guidelines and Essential Oil Quality**

Before using essential oils, patients must understand safety and quality. General safety guidelines are provided in Figure 1. According to Schnaubelt (1999), when using essential oils for healing purposes, patients should acquire oils through a company that shares the vision of healing versus a company whose primary focus is economic gain. Many factors can affect the quality of oil; therefore, consumers should buy essential oils from companies that use organic farming, monitor farming and processing...
Essential oils are flammable; they should be kept away from direct contact with flames, such as candles, fire, matches, cigarettes, and gas cookers.

Essential oils should not be diluted with water. If dilution is needed, use a carrier oil such as jojoba oil, sweet almond oil, or olive oil.

Essential oils should not be added directly to bathwater. Oil is not water-soluble and will float on top of the water, potentially causing burning or skin irritation. An emulsifier, such as a bath gel or bath salt, should be used as a carrier.

Essential oils should not come in contact with mucous membranes or sensitive skin. Some essential oils may cause skin irritation and should be diluted in a carrier oil. If an essential oil causes skin irritation, apply a small amount of vegetable oil or cream to the affected area and discontinue use of the essential oil or product.

When using essentials oils, keep a carrier oil, such as coconut oil, available. Use caution with people with allergies. Consider using a skin patch test and allow for good room ventilation.

Use caution when using essential oil near the eye area. If essential oil gets into the eyes, apply a cotton ball or cloth imbued with a fatty oil, such as olive or sesame, carefully over a closed eyelid.

Note. Based on information from National Association for Holistic Aromatherapy, 2015; Pénöel & Pénöel, 1998; Smith, 2005.

**General Essential Oil Safety Guidelines**

- Bottles of essential oil should be closed tightly after each use.
- Bottles of essential oil should always be kept out of reach of children and pets.
- Essential oils that contain high concentrations of menthol (e.g., peppermint) should not be applied to the throat or neck of children younger than 30 months.
- Essential oils should not be taken internally without appropriate aromatherapy safety education.
- Some essential oils are phototoxic (e.g., orange); therefore, skin exposure to ultraviolet light, both the sun and a tanning booth, should be avoided after application.
- Essential oils are flammable; they should be kept away from direct contact with flames, such as candles, fire, matches, cigarettes, and gas cookers.
- Essential oils should not be diluted with water. If dilution is needed, use a carrier oil such as jojoba oil, sweet almond oil, or olive oil.
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**Essential Oil Safety and Cancer**

Some essential oils may reduce or enhance certain drugs’ effectiveness, depending on the amount of oil used, the strength of the oil, and the method of use. Individuals with estrogen-dependent cancers should avoid essential oils with phytoestrogen-like activity, including aniseed (*Pimpinella anisum*), clary sage (*Salvia sclarea*), bitter fennel (*Foeniculum vulgare var. amara*), sweet fennel (*Foeniculum vulgare var. dulce*), myrtle (*Myrtus communis*) and star anise (*Illicium verum*) (Buckle, 2015). An in vitro study on rats indicated that the essential oils peppermint (type unknown) and eucalyptus (*Eucalyptus globulus*) should not be used topically near an IV catheter site administering 5-fluorouracil because of a potential increase in absorption of medication (Buckle, 2015).

During cancer treatment, skin changes may occur. Therefore, skin testing an essential oil, whether diluted or not, to observe for redness may be a prudent practice for topical application (Schnaubelt, 2011). Most skin reactions occur immediately, but some delayed reactions may not be observed for as long as 24 hours after application. In addition, essential oils or blends should not be applied to skin areas where topical medications have been applied. Information is not available on the combination of a chemical medication and organic essential oil on the same area of skin, which may cause an unwanted reaction (Buckle, 2015).

**Essential Oils for Supportive Care**

Lavender (*Lavandula angustifolia*), peppermint (*Mentha x piperita*), and orange (*Citrus sinensis*) are common essential oils that can be used as adjuncts to a supportive plan of care for patients with cancer. Lavender has been shown to help provide a calming sensation to promote sleep,
peppermint to help decrease nausea and vomiting, and orange to lessen anxiety.

**Lavender**
Lavender, also known as true lavender or English lavender, is made from flowers with a steam-distilled method. The primary constituents of lavender are linalool (monoterpenic alcohol) and linalyl acetate (ester). Monoterpenic alcohols can have a sedative effect, relieve discomfort, and support immune function. Esters have properties that are antispasmodic, relaxing, and balancing (Higley & Higley, 2012; NAHA, 2015).

Lavender has been extensively studied as a sleep aid. Patients with cancer often experience insomnia, which may be related to steroid treatment regimens, the inherent stress related to a cancer diagnosis, and psychosocial issues related to family and work. A systematic review of lavender’s effect on sleep (Fismer & Pilkington, 2012) included eight studies of lavender administered by inhalation. Study participants included hospitalized older adults, other hospital patients, college students, healthy individuals, and females. Although most of these studies were small, the findings suggest that lavender oil may have a small to moderate beneficial effect on sleep.

**PRECAUTIONS**
The labeling of lavender is a safety concern because adulterations of lavender are common and recognizing an adulterated lavender oil from a genuine lavender essential oil can be difficult (Schnaubelt, 1999). Lavandin (Lavandula x intermedia) essential oil is from a hybrid plant and can be labeled lavender in the United States; however, the chemical constituents are different and may cause skin irritation. Lavender is known to be calming; however, too much lavender can have a stimulating effect (Price & Price, 2012). Lavender should be used with caution if a person is on medication for anxiety or depression, as it may enhance the effects of these medications (Buckle, 2015).

**Peppermint**
Peppermint is steam distilled from leaves, stems, and flower buds. The main chemical constituents in peppermint are menthol (phenolic alcohol) and menthone (ketone). Phenolic alcohols enhance the immune system and strengthen the nervous system, and ketones assist the body with cell regeneration and liquefaction of mucous (Higley & Higley, 2012; NAHA, 2015).

Nausea is reported as the primary distressing symptom in patients undergoing chemotherapy, despite significant improvements in antiemetic medication. An estimated 70%-80% of patients receiving chemotherapy experience nausea and vomiting (Lindley, Bernard, & Fields, 1989). One study (Tayarani-Najaran, 2013) looked at ingesting oils to help with chemotherapy-induced nausea and vomiting, in which both peppermint (Mentha x piperita) and spearmint (Mentha spicata) were given orally by capsule (filled with two drops of oil and sugar) along with a normal antiemetic regimen. The essential oil capsules were administered 30 minutes before chemotherapy initiation, four hours after the first capsule, and four hours later at home. The researchers concluded that the patients who received either peppermint or spearmint capsules had a statistically significant (p < 0.05) reduction of nausea and vomiting in the first 24 hours compared to the placebo group, without any adverse effects. No significant differences existed between the two oils in controlling vomiting, and the reported cost of treatment was significantly lower than the antiemetic (Tayarani-Najaran et al., 2013).

**PRECAUTIONS**
Caution should be exercised when using peppermint on the skin, as some people have reported skin irritation (Price & Price, 2012; Smith, 2005). Peppermint should not be used by patients who have atrial fibrillation (Tisserand & Balacs, 1995) or on children younger than 30 months (Schnaubelt, 1999; Smith, 2005).

**Orange**
Orange essential oil is expressed from the peel (Price & Price, 2012). The main constituent in orange oil is a monoterpenic called d-limonene. Monoterpene oils are found in 90% of citrus peel oils and have energizing qualities and immune-supporting effects (Higley & Higley, 2012; NAHA, 2015).

Mood disorders, such as anxiety, stress, and depression, are often experienced by patients undergoing cancer therapy. An estimated 24%-59% of patients with cancer experience cancer-related distress, which can be caused by various factors (Chandwani et al., 2012).

The anxiolytic effect of the sweet orange aroma was studied in 40 healthy men (Goes, Antunes, Alves, & Teixeira-Silva, 2012). To elicit anxiety, the volunteers took the video-monitored Stroop Color and Word Test and inhaled either sweet orange (Citrus sinensis), tea tree (Melaleuca alternifolia) (aromatic control), or distilled water (nonaromatic control) before the test. Those who inhaled sweet orange showed less anxiety as measured by the State-Trait

"Essential oils can be a valuable supportive therapy, but nurses should be aware of quality and safety precautions."
Anxiety Inventory. These results may be beneficial to individuals experiencing anxiety in an oncology setting.

PREAMPTIONS

Many citrus plants are sprayed with pesticides; therefore, patients should know the source of oils and look for organic oils to ensure the best quality. Orange essential oil is photosotoxic and should not be used topically on any area of skin exposed to ultraviolet light (e.g., sun, tanning booth).

Implications for Practice

Essential oils can be a great supportive therapy for health and wellness. Oncology nurses should be aware that patients may use essential oils as supplements, which may be contraindicated with specific medications or conditions. They also should be knowledgeable about essential oil quality and safety to help guide patients in their plans of care.

Lavender, peppermint, and orange are well-known essential oils that have been included in many study methodologies. Nurses should understand essential oils when reviewing the literature, because not all studies provide the botanical/Latin name of oils, making it unclear which specific oils are used. In addition, some researchers use synthetic or altered essential oils as part of their methodology. The results of these studies could be questioned because of the additives in the essential oils, and many clinical aromatherapists would be concerned about patients with compromised immune systems inhaling or applying synthetic products. Because of clinical implications, researchers should clearly indicate which essential oils are used and ensure that oils are of therapeutic, organic quality and are from reputable sources.

Conclusion

The NAHA is a recognized leader in aromatherapy and promotes essential oil education for the public, and the Alliance of International Aromatherapists promotes the education of aromatherapists and healthcare professionals on the aspects of essential oils. To learn more about essential oil quality, safety, and uses, visit www.naha.org and www.alliance-aromatherapists.org.

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