

PHARMCON

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Overview of Canker and Cold Sores

0.25 HOUR CE



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Everyone knows that canker sores are caused by a virus...except they are not!! The herpes virus is defined by HSV-1 and HSV-2, but there is no virus implicated in canker sores.

I often wonder why we do not have a vaccine for type 1 and type 2 herpes. The World Health Organization has an interest in wiping out sexually transmitted infections, but little progress has been made on herpes vaccination.

Most of the STIs caused by bacteria are well handled by our current antibiotic therapy. The best we can do with herpes is to manage the outbreaks and provide suppressive therapy.

Canker Sores (Aphthous Ulcers)

Aphthous ulcers are painful, round, shallow lesions with a grayish base. Recurrent aphthous stomatitis (RAS) is the most common cause of mouth ulcers. Some patients may have only 2-4 outbreaks per year, while others may have almost continuous eruptions. Aphthous ulcers are seen most frequently in childhood and adolescence and decrease in frequency in adulthood. There seems to be a familial tendency. It is not caused by any infectious agent (virus or bacteria), and they cannot be spread through saliva. There seems to be an association between recurrent cases of canker sores and an overactive immune system, so topical immunosuppressant

medications (such as topical corticosteroids) are of benefit.

- Exacerbated by trauma, hormonal factors, and emotional stress
- Avoid trauma to mouth when brushing teeth by using a soft toothbrush
- Avoid eating "sharp" foods like nachos and chips to minimize oral trauma
- Cover sharp edges of braces with dental wax
- Sensitivity to chocolate, coffee, strawberries, eggs, nuts, cheese, or spicy/acidic foods might cause increased risk of canker sores
- Toothpaste containing sodium lauryl sulfate should be avoided in at-risk patients

Over the counter treatment options include:

- Benzocaine
 - o Zilactin-B® forms a protective film over the lesion and can be applied every 6 hours
 - o Benzocaine helps decrease the pain but should be avoided in kids under age 2 because of methemoglobinemia
- Peroxyl® rinse (peroxide) to cleanse the sores

- Deficiency in the "blood-building" supplements, such as folate (folic acid), vitamin B6, vitamin B12 or zinc
 - o Vitamin B12 sublingual 1000 mcg dissolved in the mouth may be effective in treatment/prevention of canker sores
 - o <http://emedicine.medscape.com/article/867080-treatment>

Home remedies are listed in **Figure 1**.

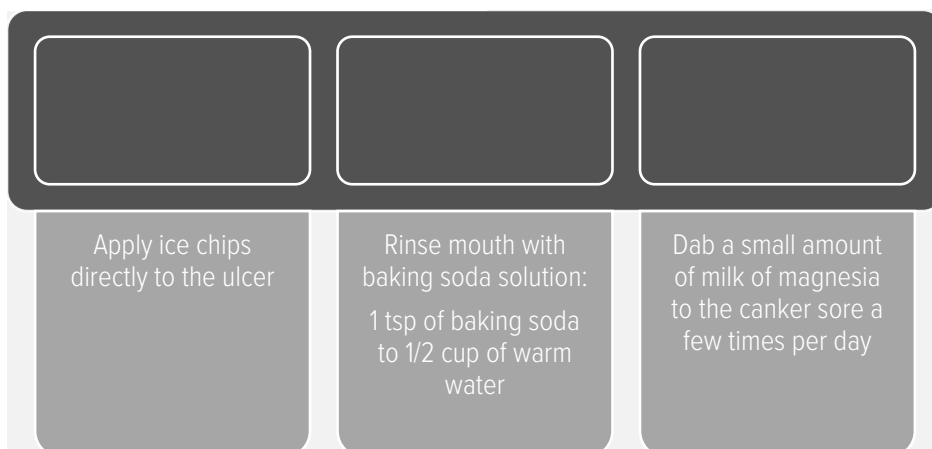
If all else fails, Rx treatment of canker sores:

- Because corticosteroids inhibit cell proliferation and are immunosuppressive, antiproliferative, and anti-inflammatory, they are the mainstay for treatment of aphthous ulcers
- Dexamethasone elixir 0.5 mg/5 mL
 - o Rinse and spit out
- Triamcinolone dental paste 0.1%
- Magic Mouthwash:
 - o Benadryl/Maalox/lidocaine2% viscous → equal parts
- Chlorhexidine gluconate mouth rinses reduce the severity and pain of ulceration but do not affect the frequency

Cold Sores

Cold sores are a quite common complaint year-round, but they seem to become more prevalent during the winter where low humidity levels and drying winds affect the facial skin. Cold sores, or herpes labialis, are caused by the type 1 herpes simplex virus, which is abbreviated as HSV-1. Recurrent herpes simplex labialis occurs in 20-40% of the US population. It is estimated that 67% of the population is affected by the virus. 8 of the more than 80 known herpesviruses are human pathogens. Although the disease is self-limiting in the immunocompetent, patients seek treatment because of the discomfort and visibility of a recurrent lesion.

Figure 1. Home remedies for canker sores



The Virus:

Reactivation of HSV-1 occurs in the trigeminal sensory ganglion. This leads to the occasional breakout of the virus where the site of infection is usually on the border of the lips. Patients with oral herpes infection should be informed that HSV-1 can be transmitted through oral sex to their uninfected partner, resulting in genital ulcers. 50% of new cases of genital lesions in the developed world are caused by HSV-1

Over-the-Counter Treatment for Cold Sores:

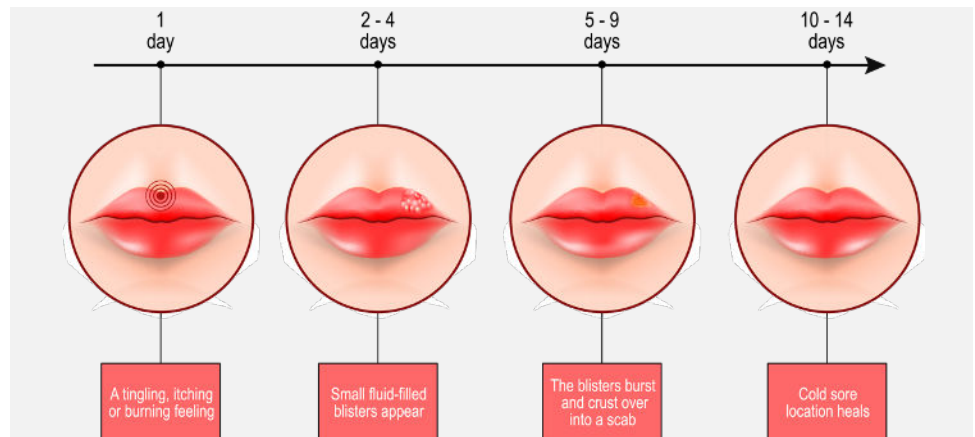
Zilactin® (benzyl alcohol 10%) contains hydroxypropyl cellulose, which is a bioadhesive that adheres to mucus membranes and may be used to protect lesions from irritants for up to 6 hours. Remind patients not to peel off the adhesive film. Also available as Zilactin-B®, which contains benzocaine 10% and is for use inside the mouth to help numb the lesions.

Abreva® contains docosanol. It needs to be applied 5 times daily for a maximum of 10 days. Complete treatment resulted in decreased duration of the lesion by only 18 hours. Must begin use at first sign of tingling (prodromal period) (**Figure 2**). By inhibiting fusion between the herpes virus and human cell plasma membrane, the end result is that the virus can't enter into the host cells and multiply.

Some patients will experience cold sores when they are exposed to large doses of ultraviolet light. **Sunscreens** are of great benefit to these patients. Sunscreen should be applied before direct UV exposure.

Emollients/protectants, like white petrolatum, zinc oxide, and cocoa butter, relieve cracking and dryness. They do nothing to speed up healing. Many OTC products are seen in combination with camphor, thymol, and benzocaine. Avoid any products that contain salicylic acid that can further break down the affected skin. Many of these products contain sunscreens as well.

Figure 2. Stages of cold sore development



Lysine, when dosed as 1000 mg 1-3 times daily, may show a decrease of frequency of recurrence and severity of the lesions.

Patient Care Points

- When applying medicine to cold sores, gently dab the medicine on with a clean cotton-tipped swab
- Comorbid conditions require treatment, as opposed to “just toughing it out”. Treatment is highly recommended if you get a cold sore and:
 - Have atopic dermatitis (also called eczema) → usually starts in younger children
 - Experience sores near the eyes
 - Have multiple cold sores
 - Experience significant pain
 - Have sores that spread to another part of the body, such as hands or genitals
 - Are diagnosed with HIV, AIDS, cancer, or another disease that weakens the immune system
 - Are a cancer patient or are receiving chemotherapy
 - Have to take immunosuppressive agents to control severe psoriasis or prevent organ rejection
 - Experience cold sores frequently
 - Experience an outbreak that lasts more than two weeks

But wait... there's more. Here are some other infections caused by the herpes simplex virus that are not related to the mouth or genitals.

- **Herpetic whitlow** refers to a topical herpetic infection at the end of the fingers. This condition can affect anyone, often affecting healthcare workers, children with primary oral herpes, and adults with genital herpes. It results from direct inoculation of the involved finger through the abraded skin by either HSV1 or HSV2
- **Herpes gladiatorum**, as the name implies, is a condition that affects athletes that participate in direct contact sports. Soccer players, wrestlers, and football players are at risk of getting “wrestler’s herpes”, which is caused by direct contact with infected lesions from other participants.
- **Eczema herpeticum** (KVE-Kaposi’s varicelliform eruption) occurs when the herpes virus bypasses the nerve endings and directly attacks the compromised skin. When oral or perioral HSV infection disseminates and spreads to the skin, this may appear as impetigo with ragged borders. KVE may complicate a cutaneous burn, preexisting atopic dermatitis, or cosmetic procedures in the head and neck region.

Have a great day on the bench!!

Test Questions Pharmacist, Pharmacy Technician

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- 1. Which of the following statements is/are TRUE regarding the etiology and treatment of aphthous ulcers (canker sores)?**
 - a. Canker sores are directly caused by an HSV-2 virus.
 - b. Acyclovir is an effective treatment regimen, if therapy begins within 72 hours of the onset of symptoms.
 - c. Canker sores may be exacerbated by trauma, hormonal factors, and emotional stress.
 - d. All of the above statements are true.

- 2. Which of the following statements is/are TRUE regarding the etiology and treatment of cold sores?**
 - a. Cold sores are caused by an HSV-1 virus.
 - b. Patients with an active oral HSV-1 infection need not be concerned about transmission during oral sex, as the two infections are not transmissible via this route.
 - c. Docosanol has been shown to shorten the duration of cold sores by up to 10 days, if therapy begins within 18 hours.
 - d. All of the above statements are true.
 - e. None of the above statements are true.

PHARMACIST LEARNING OBJECTIVES

1. Compare and contrast the treatment strategies for canker and cold sores

PHARMACY TECHNICIAN LEARNING OBJECTIVES

1. Compare and contrast the treatment strategies for canker and cold sores
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OVERVIEW

Micro-learning opportunities were created in response to evidence that learning is maximized when delivered in short and focused 'bursts.' In this session, canker and cold sores are compared and contrasted in terms of both etiology and treatment.

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TARGET AUDIENCE

Pharmacist, Pharmacy Technician

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