

## TREATMENT OF WARTS

Warts are caused by the human papilloma virus (HPV). Warts may spread on your skin or to someone else. Picking at warts may spread them to your fingers or under your nails. Warts can be very stubborn and difficult to treat. It usually takes multiple treatment sessions in the office to get rid of warts. There is no guarantee of response to any treatment. Rarely after treatment, a larger "donut" wart may form which is clear of wart in the center but has wart tissue at the edges.

Treatment of warts is considered a **procedure** by most insurance companies (billed under CPT codes 17110 and 17111), and the cost may be applied towards your **deductible** or **co-insurance**. There will be a charge for the initial treatment session and for any subsequent treatment sessions that may be required at later dates.

The following is a list of various treatment options offered in our office for warts.

1. **Paring** or thinning down your wart at home every few days with a clean blade, pocket knife, pumice stone, or nail file can be helpful. This works best after showering or bathing when the skin is soft. Paring enhances the ability of any treatment to penetrate to the base of the wart. You should try to remove the dead outer layer of the wart, which should not be very painful.
2. **Over-the-counter medications** generally contain salicylic acid. They are somewhat effective if used on a daily basis for a long time. You can also try wearing duct tape on top of the wart for many weeks. It is important to pare the wart as much as possible.
3. **Freezing with liquid nitrogen (LN2)** is the most common treatment. LN2 is safe and nontoxic but somewhat painful. Young children may not tolerate it. Typically a scab or blister forms after a wart is frozen. Treatment with LN2 can leave a permanent scar or white spot.
4. **Cantharidin** (extract of blister beetle, aka "beetle juice") is not FDA-approved in the U.S. but has been used safely for decades. It is applied topically and allowed to dry on the skin. It is particularly useful in children since it is not painful to apply, although a painful blister usually results. Cantharidin should be washed off after 4-6 hours and any blister can be popped with a sterile needle. Cantharidin can be combined with other topical medications.
5. **Pulsed dye laser (PDL)** is a common treatment for warts in our office. PDL destroys the blood vessels within the wart. High energies are used and treatment can be painful. We usually numb the skin first with injected anesthetic. The treated area will be sore and scabby for a few days afterwards. Treatment with pulsed dye laser can leave a permanent scar.
6. **Candida antigen** (yeast extract) is not FDA-approved for warts but can be injected into the wart to try to stimulate an immune reaction in the area. The area may get red, swollen, and tender after injection.
7. **Aldara cream** (imiquimod) is FDA-approved only for the treatment of genital warts, but it is sometimes used for other warts such as flat warts. It works by stimulating your body to locally produce interferon, which has antiviral activity.
8. **Veregen ointment** (sinecatechins) is a botanical medicine made from the extract of green tea leaves which is FDA-approved for the treatment of genital warts and is sometimes used to treat regular warts.
9. **Efudex** (5-fluorouracil) is a topical chemotherapy medication that is used off-label for warts because it inhibits DNA synthesis. It can be applied to the wart twice a day and covered with a bandage or duct tape. It has been reported to rarely cause abnormal nail growth when used around the nails. Efudex can cause significant irritation and is not for use in pregnancy.
10. **Bleomycin** is a chemotherapy agent and a powerful inhibitor of DNA synthesis. Persistent warts resistant to other therapy can be treated by injection of bleomycin into the wart. Although uncommon, Raynaud's phenomenon and nail abnormalities have been reported after treatment with bleomycin to the fingers. It is not for use in pregnancy.
11. **Tagamet** (cimetidine) is an over-the-counter oral medication that can be used off-label for the treatment of stubborn warts. There is some evidence that it can stimulate the immune system to fight the wart virus, particularly in children. It is generally safe, but some possible side effects include headache and diarrhea and it can interact with other medicines.