

HAND, FOOT AND MOUTH DISEASE

(also known as “HFMD”, “hand-foot-mouth disease”, and “enteroviral vesicular stomatitis with exanthem”¹; caused by various non-polio enterovirus serotypes; closely related to herpangina)

Is the initiation of non-invasive dental hygiene procedures* contra-indicated? Yes, if the patient/client is infectious and/or has significant morbidity.

- **Is medical consult advised?** Yes, if the diagnosis is uncertain (including differentiation from primary [herpes simplex](#) gingivostomatitis and [chickenpox](#)) and/or the patient/client is not already under medical care.

Is the initiation of invasive dental hygiene procedures contra-indicated** Yes, if the patient/client is infectious and/or has significant morbidity.

- **Is medical consult advised?**..... See above.
- **Is medical clearance required?** No.
- **Is antibiotic prophylaxis required?**..... No.
- **Is postponing treatment advised?** Yes, during the period of communicability (see below) or at least until after the first week of illness. There are no known adverse consequences for the fetus if a pregnant woman contracts HFMD.

Oral management implications

- **Mode of transmission** is primarily through direct oropharyngeal contact with virus-laden oral, throat, and nasal secretions (i.e., saliva, sputum, and mucus); vesicular fluid; feces; and contaminated objects such as surfaces and toys. Aerosol droplet spread may also occur via coughing and sneezing. As well, asymptomatic persons, especially adults, are a source of infection. Uncommonly, infection occurs upon swallowing fecally contaminated recreational water.
- This highly contagious disease occurs worldwide sporadically and in epidemics. 90% of affected persons are children younger than 5 years of age, and HFMD is common in childcare settings. In Canada and other temperate countries, peak incidence is during the summer and early autumn, whereas in the tropics occurrence is year-round.
- HFMD is most infectious during the first week of illness, which usually follows a 3- to 6-day incubation period (i.e., time from viral infection to illness). The period of communicability, however, may extend to 2 weeks after the onset of illness due to viral shedding in throat secretions and to 11 weeks due to viral shedding in stools.
- Once recovery occurs from HFMD, life-long immunity is generally conferred.
- No vaccine or specific antiviral medicine is available to protect against the enteroviruses that cause HFMD.
- Over-the-counter medications (such as acetaminophen or ibuprofen, avoiding aspirin in children) can be used to relieve pain and fever. Bland mouth rinses such as sodium bicarbonate in warm water may alleviate oral discomfort, as may numbing mouthwashes (e.g., benzydamine) or sprays in age-eligible patients/clients. In small children, viscous lidocaine may be applied to mouth lesions. A soft diet is often helpful.
- All healthcare providers and patients/clients should follow standard infection control practices to prevent enteroviruses from spreading in the workplace. Viral transmission can be reduced by isolating infected children and by promoting hand washing with soap and water and other hygienic measures. Contaminated surfaces and soiled articles should be appropriately cleaned or discarded.

¹ HFMD should not be confused with foot-and-mouth disease (also called hoof-and-mouth disease), which affects cattle, swine, and sheep. The two diseases are not related and are caused by different viruses. Human cases of the animal disease are extremely rare.

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Oral management implications (*cont'd*)

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Oral manifestations

- After the prodrome, multiple, painful mouth ulcers often develop in conjunction with palm and sole rashes. Pain from oral lesions is often the patient/client’s chief complaint.
- Oral lesions often begin as vesicles that soon rupture to become ulcers covered by a yellow membrane surrounded by a red halo. While lesions can occur anywhere in the mouth, the palate, tongue, and buccal mucosa are most commonly affected, with usual sparing of the gingiva and lips.
- Perioral papules,odynophagia (painful swallowing), and enlarged submandibular lymph nodes may occur.
- Children aged less than 5 years tend to have more severe oral lesions than older children.

Related signs and symptoms

- Hand, foot, and mouth disease is usually a brief, mild illness characterized by papulovesicular² rashes on the palms and soles, with or without mouth ulcers. Sometimes vesicles are absent, and the rash is maculopapular³. Sometimes the rash may occur on the dorsum of the hands and feet. The rash may also involve the buttocks, genital area, thighs, trunk, elbows, or knees, particularly in infants and young children.
- Following prodromal symptoms, skin lesions appear, last typically 3 to 5 days (and up to 2 weeks), and heal without scarring. The lesions are usually asymptomatic, but can be painful or itchy. Secondary bacterial infection is very uncommon.
- Low-grade fever, malaise, sore throat, cervical lymphadenopathy, and loss of appetite are common prodromal features. Nasal discharge, abdominal pain, vomiting, and/or diarrhea may also be present. These signs/symptoms tend to improve within 3 to 6 days.
- Dehydration may occasionally occur as a result of poor feeding and difficulty in hydrating due to painful mouth ulcers.
- While HFMD is usually considered benign and self-limited, rare complications such as aseptic meningitis, encephalitis, acute flaccid paralysis, pulmonary edema or hemorrhage, and myocarditis may occur, particularly in young children. Most deaths occur as a result of pulmonary complications.

2 A vesiculopapular rash is comprised of both papules and fluid-containing vesicles.

3 A maculopapular rash is a flat, red rash on the skin that is covered with small confluent bumps.

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References and sources of more detailed information (*cont'd*)

- Centers for Disease Control and Prevention (U.S.)
<http://www.cdc.gov/hand-foot-mouth/>
- Public Health Agency of Canada
<http://www.phac-aspc.gc.ca/id-mi/ev71-eng.php> (Hand-Foot-Mouth Disease related to Enterovirus 71)
- RDH Magazine, Dentistry IQ Network
<http://www.rdhmag.com/articles/print/volume-17/issue-6/columns/case-study/a-20-year-old-male-college-student-visited-a-dentists-office-for-evaluation-of-multiple-oral.html>
- WebMD
<http://www.webmd.com/children/guide/hand-foot-and-mouth-disease-topic-overview#1>
- Mayo Clinic
<http://www.mayoclinic.org/diseases-conditions/hand-foot-and-mouth-disease/basics/definition/con-20032747>
- PatientPlus
<http://patient.info/doctor/hand-foot-and-mouth-disease-pro>
- Canada Food Inspection Agency
<http://www.inspection.gc.ca/animals/terrestrial-animals/diseases/reportable/foot-and-mouth-disease/fact-sheet/eng/1330481689083/1330481803452>
- Heymann DL (ed.). Control of Communicable Diseases Manual (20th edition). Baltimore: American Public Health Association; 2015.
- Ibsen OAC and Phelan JA. Oral Pathology For The Dental Hygienist (6th edition). St. Louis: Elsevier Saunders; 2014.
- Regezi JA, Sciubba JJ, and Jordan RCK. Oral Pathology: Clinical Pathologic Correlations (6th edition). St. Louis: Elsevier Saunders; 2012.

* Includes oral hygiene instruction, fitting a mouth guard, taking an impression, etc.

** Ontario Regulation 501/07 made under the *Dental Hygiene Act, 1991*. Invasive dental hygiene procedures are scaling teeth and root planing, including curetting surrounding tissue.

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