

# INTEGRATED ORAL DISEASE PREVENTION AND MANAGEMENT

MODULES FOR PRIMARY HEALTH CARE WORKERS

2nd edition

**Good health begins  
with a healthy mouth**



MODULE 1  
CHILDREN  
**0-5**  
YEARS OLD



Pan American  
Health  
Organization



World Health  
Organization

REGIONAL OFFICE FOR THE Americas

## INTEGRATED ORAL DISEASE PREVENTION AND MANAGEMENT



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## Foreword

The Pan American Health Organization (PAHO), under its Community Free of Caries Initiative, is proud to present the Integrated Oral Disease Prevention and Management (IODPM) modules as a practical solution to facilitate the integration of oral health within primary health care. Integrating oral health prevention and management into the delivery of primary health care services is now one of the cornerstones of PAHO's oral health program.

The IODPM modules are geared to assist primary health care workers in the prevention of oral diseases and non-communicable diseases (NCDs) through various promotional activities. The resulting benefits serve to increase awareness of protective factors, such as appropriate oral self-care practices, the effective use of fluorides, and healthy lifestyle choices related to diet, nutrition, personal hygiene, and smoking and alcohol consumption. This integrated approach is a “best practice” model and reorients oral health care toward prevention, tackles common risk factors for NCDs and oral health and, facilitates early intervention.

I wish to take this opportunity to recognize the work of the oral health team at PAHO, particularly the strong support of Dr. Nancy Valencia, and the technical contributions of Dr. Gustavo Cruz, Dr. Dan Altman, Dr. Maritza Sosa, Dr. Yilda Rivera, Dr. Heriberto Vera, Ms. Dariene Lazore, Ms. Joan Lazore, Ms. Mary Beedle, MAMA Project Inc., and the Cleft Palate Foundation.

PAHO particularly acknowledges the support of Colgate-Palmolive Inc., which is renowned for its long-standing commitment to improving the oral health of the peoples of the Americas.

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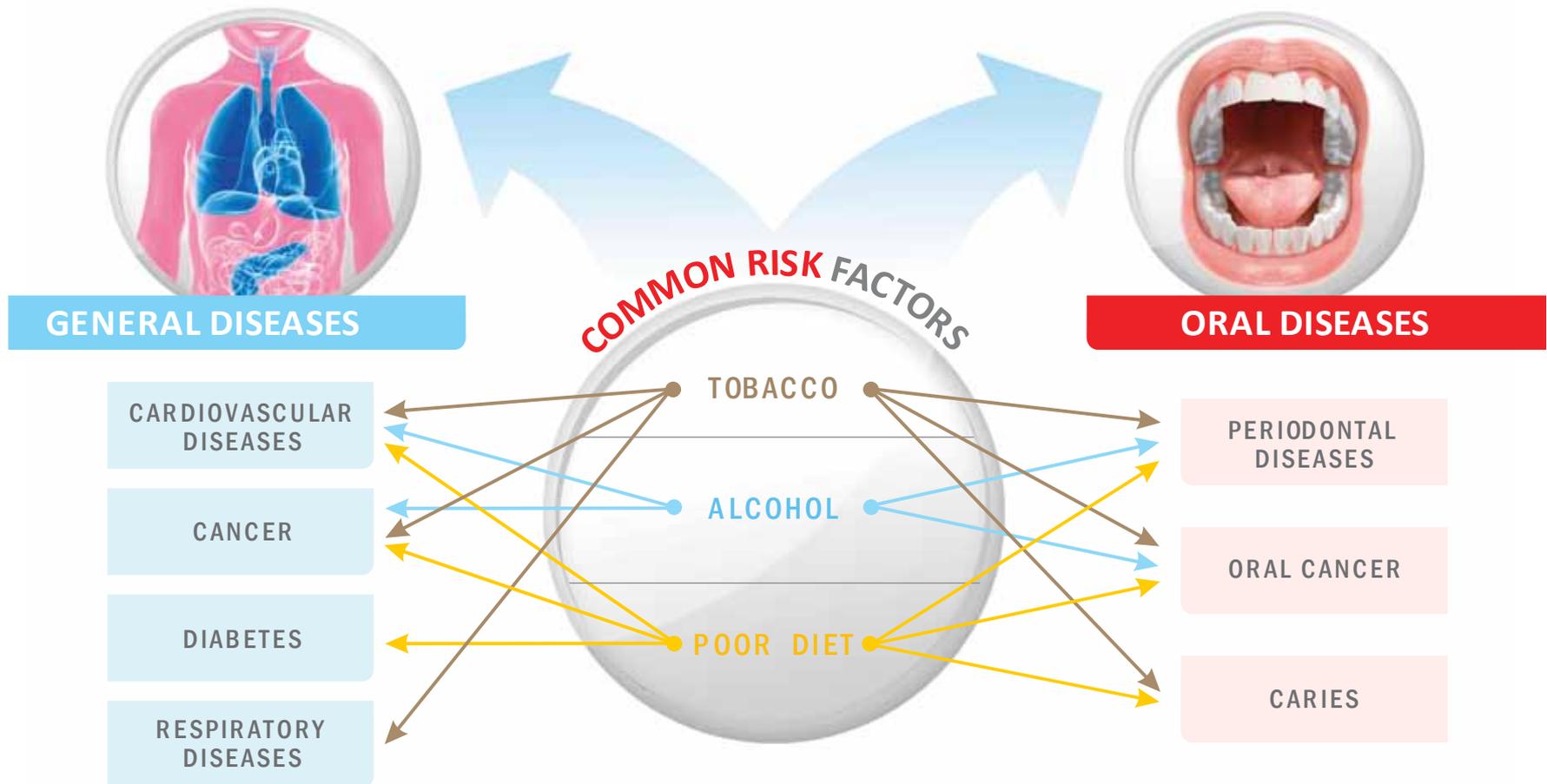
# ORAL HEALTH: A GATEWAY TO GENERAL HEALTH

The mouth consists of teeth, gums, mucous membranes, salivary glands, and bone. The mouth is the entrance to the body for nutrients, bacteria, viruses, and fungi. It is a part of the body's immune system and plays an important role in primary health. Taking care of the mouth and maintaining good oral hygiene is a part of being healthy. Poor oral health affects your ability to eat, speak, and be happy.

There is a link between oral health and general health. When general health is impaired, oral health will also be affected. For example, signs of diabetes, HIV/AIDS, hepatitis, and arthritis can be seen in the mouth. And when oral health

suffers, there is an increased risk for poor general health, including cardiovascular disease.

The risk factors contributing to poor general and oral health are very similar, as illustrated in the diagram below. Tobacco use, excessive alcohol use, and poor diet/nutrition are common risk factors for different systemic and oral diseases. Tobacco use and poor diet/nutrition, especially, are both risk factors for diabetes, cardiovascular disease, respiratory disease, dental decay (caries), cancer including oral cancer, and periodontal disease (gum disease). Eliminating these common risk factors will improve general and oral health.



# SOFT TISSUE DISEASES OF THE MOUTH AND FACE

## ASK

- Has child had a serious illness or been exposed to children that are sick?
- Difficulty speaking, eating or drinking?
- Fever?
- Pain in throat or mouth?
- Blisters or ulcers in the mouth or lips?
- How long have the symptoms been present?

## LOOK AND FEEL

- Soft tissue and bone destruction of the face
- Grayish-black discoloration of skin
- Loss of gums, dead or dying tissue
- Swelling of the face
- Injury to the face
- Pus, redness, warmth, pain in mouth (signs of dental infection)
- Red, swollen tonsils with pus
- Blisters on the lips
- White patches inside the mouth
- Ulcers in the mouth
- Red, swollen gums that bleed easily

## NOMA RISK FACTORS:

- Mouth infection or ulceration
- Malnutrition
- Previous systemic infection (i.e. chickenpox, rosella, typhus, CMV, measles, malaria, TB, HIV)
- Age 6 years or younger
- Poor hygiene
- Living in poverty
- Limited access to medical care and lack of vaccinations

In this context, mouth infections can be fatal.

	SIGNS/SYMPTOMS	CLASSIFY AS	TREATMENT
NOMA STAGES	<ul style="list-style-type: none"> <li>• Severe destruction of soft tissue and bone</li> <li>• Disfigurement of the face</li> <li>• Loss of function</li> <li>• Scar tissue formation</li> </ul>	<p><b>NOMA STAGE IV</b></p> <p><b>Scar Tissue</b></p>	<ul style="list-style-type: none"> <li>☞ <b>Perform all treatments for Stage I, II, and III</b></li> <li>☞ Keep cleaning the wound and changing bandages daily</li> <li>☞ Provide psychological care and counseling</li> <li>☞ <b>Refer URGENTLY to emergency hospital</b></li> </ul>
	<ul style="list-style-type: none"> <li>• Grayish-black discoloration of the skin</li> <li>• Grey line separates healthy and dead tissue</li> <li>• Destruction is beginning of soft tissue and bone</li> <li>• Mouth or skin ulcers may be present</li> </ul>	<p><b>NOMA STAGE III</b></p> <p><b>Gangrene Plaque</b></p>	<ul style="list-style-type: none"> <li>☞ <b>Perform all treatments for Stage I and II</b></li> <li>☞ Gently remove dead tissue with clean tweezers</li> <li>☞ Clean the wound with diluted peroxide or iodine, and bandage</li> <li>☞ <b>Refer URGENTLY to emergency hospital</b></li> </ul>
	<ul style="list-style-type: none"> <li>• Widespread or localized swelling of the face</li> <li>• Mouth or skin ulcers may be present</li> <li>• Fever, swollen lymph nodes</li> <li>• Difficulty speaking, eating or drinking</li> </ul>	<p><b>NOMA STAGE II</b></p> <p><b>Facial Swelling</b></p>	<ul style="list-style-type: none"> <li>☞ <b>Perform all treatments for Stage I</b></li> <li>☞ Use feeding tube if necessary to administer noma antibiotics and RUTF*</li> <li>☞ <b>Refer URGENTLY to emergency hospital</b></li> </ul>
	<ul style="list-style-type: none"> <li>• Loss of gums, dead or dying gum tissue</li> <li>• Painful ulcerations on gums</li> <li>• Grey tissue on gums or swollen gums that bleed easily</li> <li>• Bad taste in the mouth, bad breath, fever</li> </ul>	<p><b>ACUTE NECROTIZING ULCERATIVE GINGIVITIS (ANUG)</b></p> <p><b>NOMA STAGE I</b></p>	<ul style="list-style-type: none"> <li>☞ Administer noma antibiotics (see chart)</li> <li>☞ Administer RUTF* if child is malnourished</li> <li>☞ Clean mouth by rinsing with warm salt-water solution, repeat daily</li> <li>☞ Advise mother about oral hygiene and nutrition</li> <li>☞ <b>Refer URGENTLY to dental clinic</b></li> </ul>
	<ul style="list-style-type: none"> <li>• Widespread or localized swelling of the face</li> <li>• Caused by dental infection or tooth abscess: severe tooth pain accompanied by red, swollen gums that may contain pus</li> <li>• Caused by trauma: presence of burns, bruises, cuts and scratches, or puncture wounds in the area</li> <li>• Fever, swollen lymph nodes</li> <li>• Difficulty speaking, eating or drinking</li> </ul>	<p><b>FACIAL CELLULITIS</b></p>	<ul style="list-style-type: none"> <li>☞ Administer antibiotics (see chart)</li> <li>☞ Administer pain medication only IF needed (see chart)</li> <li>☞ <b>Refer URGENTLY to emergency hospital</b></li> </ul>

\* *Ready To Use Therapeutic Foods (RUTF)* are high energy, fortified ready to eat food suitable for treatment of severely malnourished children. Each country must follow national recommendations and guidelines for management of malnutrition in children.

Continued on next page

Severe Moderate Soft



## ASK

- Has child had a serious illness or been exposed to children that are sick?
- Difficulty speaking, eating or drinking?
- Fever?
- Pain in throat or mouth?
- Blisters or ulcers in the mouth or lips?
- How long have the symptoms been present?



## LOOK AND FEEL

- Soft tissue and bone destruction of the face
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### NOMA RISK FACTORS:

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- Malnutrition
- Previous systemic infection (i.e. chickenpox, rosella, typhus, CMV, measles, malaria, TB, HIV)
- Age 6 years or younger
- Poor hygiene
- Living in poverty
- Limited access to medical care and lack of vaccinations

In this context, mouth infections can be fatal.

# SOFT TISSUE DISEASES OF THE MOUTH AND FACE

SIGNS/SYMPTOMS	CLASSIFY AS	TREATMENT
<ul style="list-style-type: none"> <li>• Tonsils are red, swollen or have pus</li> <li>• Severe throat pain and swollen lymph nodes on neck</li> <li>• Small red spots on the soft or hard palate</li> <li>• Fever</li> </ul>	<b>STREP THROAT OR TONSIL INFECTION</b>	<ul style="list-style-type: none"> <li>☞ Administer antibiotics if pus present on tonsils (see chart)</li> <li>☞ Administer pain medication IF needed (see chart)</li> <li>☞ Advise that child gargle with salt-water rinse and eat bland foods</li> <li>☞ Advise mother about oral hygiene and nutrition</li> <li>☞ Refer to hospital IF: sore throat lasts longer than 48 hours and/or difficulty breathing/swallowing</li> </ul>
<ul style="list-style-type: none"> <li>• Painful blisters on lip or outer edges of mouth</li> <li>• Blister might be broken open or crusted over with a scab</li> <li>• Tingling, burning, or itching feeling before blister became visible</li> </ul>	<b>FEVER BLISTERS OR COLD SORES</b> <b>(Herpes Simplex Virus)</b>	<ul style="list-style-type: none"> <li>☞ Inform mother on how to prevent transmission of herpes (see picture chart). If possible, stop breast feeding.</li> <li>☞ Advise mother to keep child hydrated</li> <li>☞ Administer antiviral medications only if extensive blisters are present, with high fever, and inability to eat</li> <li>☞ Administer pain medication IF needed (see chart)</li> <li>☞ Place ice on area to help reduce swelling and pain</li> <li>☞ Advise mother about oral hygiene and nutrition</li> </ul>
<ul style="list-style-type: none"> <li>• White patches on inside of cheeks or lips, or on the surface of tongue or palate</li> </ul>	<b>ORAL CANDIDIASIS</b> <b>(Thrush)</b>	<p><u>If white patches can easily be wiped away to reveal a red area:</u></p> <ul style="list-style-type: none"> <li>☞ Administer antifungal (see chart)</li> <li>☞ Advise mother on disinfection of pacifiers, pacifiers, bottles, toys, etc (and nipples if breast feeding)</li> <li>☞ Advise mother about oral hygiene and nutrition</li> </ul> <p>If white patches can NOT be wiped off: <b>Refer to dental clinic for evaluation</b></p>
<ul style="list-style-type: none"> <li>• Single to multiple painful ulcers inside the mouth with whitish centers and red borders</li> <li>• Burning, tingling, and slight swelling of the mucous membrane</li> </ul>	<b>CANKER SORES OR STOMATITIS</b>	<ul style="list-style-type: none"> <li>☞ Apply Debacterol only to ulcers, not to surrounding tissues</li> <li>☞ If Debacterol is unavailable, administer pain meds IF needed</li> <li>☞ Advise mother to have child use salt-water rinses or baking soda rinses until ulcer heals, and to avoid irritating foods (salty, spicy, etc)</li> <li>☞ Advise mother about oral hygiene and nutrition</li> <li>☞ Apply fluoride varnish every 6 months (for prevention of dental caries)</li> </ul>
<ul style="list-style-type: none"> <li>• Small, ball-shaped, swelling that can form in salivary glands or mucosa, may contain clear fluid.</li> <li>• Usually painless. Can rupture, disappear, and reappear</li> </ul>	<b>MUCOSAL CYST</b>	<ul style="list-style-type: none"> <li>☞ Advise about oral hygiene and nutrition</li> <li>☞ Apply fluoride varnish every 6 months (for prevention of dental caries)</li> </ul> <p>If the cyst keeps growing, does not rupture, and/or is painful: <b>Refer to dental clinic for examination</b></p>
<ul style="list-style-type: none"> <li>• Swollen, soft, puffy, red gums that bleed easily accompanied by dental plaque build-up on the teeth</li> </ul>	<b>GINGIVITIS</b>	<ul style="list-style-type: none"> <li>☞ Advise mother about oral hygiene and nutrition</li> <li>☞ Apply fluoride varnish every 6 months (for prevention of dental caries)</li> <li>☞ Encourage a dental visit</li> </ul>

Severe Moderate Soft

# HARD TISSUE DISEASES OF THE TEETH



## ASK

- Toothache or sensitivity?
- Consume sugary food or drinks often?



## LOOK AND FEEL

- Pus, redness, warmth, swelling in the mouth (signs of infection)
- White, brown, or black spots on teeth (dental decay)
- Irregular enamel
- Plaque build-up

SIGNS/SYMPTOMS	CLASSIFY AS	TREATMENT
<ul style="list-style-type: none"> <li>• Spontaneous tooth pain that is severe</li> <li>• Long lasting tooth pain that is intense</li> <li>• Sensitivity to hot, cold, sweets, and/or chewing</li> <li>• Red, swollen gums near the hurting tooth with a possible abscess that contains pus</li> </ul>	<b>DENTAL INFECTION OR TOOTH ABSCESS</b>	<ul style="list-style-type: none"> <li>☺ Administer antibiotics (see chart)</li> <li>☺ If abscess is observed, a prick with a disinfected needle may allow pus to drain helping to relieve some of the pain</li> <li>☺ Administer pain medication only IF needed (see chart)</li> <li>☺ <b>Refer URGENTLY to dental clinic for treatment</b></li> </ul>
<ul style="list-style-type: none"> <li>• White, brown, or black spots on teeth (often seen on upper front teeth)</li> <li>• Tooth pain or sensitivity to hot, cold, or sweets</li> </ul>	<b>EARLY CHILDHOOD CARIES (ECC)</b>	<ul style="list-style-type: none"> <li>☺ Advise mother about oral hygiene and nutrition</li> <li>☺ Apply fluoride varnish once every 6 months (Do NOT apply on large cavities.)</li> <li>☺ <b>Refer URGENTLY to dental clinic for treatment</b></li> </ul>
<ul style="list-style-type: none"> <li>• Abnormal enamel that is soft, thin, pitted, or grooved and fractures easily</li> <li>• Teeth appear discolored</li> <li>• Tooth sensitivity to thermal or chemical stimuli</li> </ul>	<b>AMELOGENESIS IMPERFECTA</b>	<ul style="list-style-type: none"> <li>☺ Educate mother about disease (see picture chart)</li> <li>☺ Advise mother about oral hygiene and nutrition</li> <li>☺ Apply fluoride varnish every 6 months (for prevention of dental caries)</li> <li><b>Refer to dental clinic if:</b> tooth appearance and sensitivity are severe</li> </ul>
<ul style="list-style-type: none"> <li>• Plaque build-up but no dental decay</li> <li>• Frequent eating of starchy or sugary snacks, sweets, artificial juices, and soft drinks</li> </ul>	<b>TEETH AT RISK FOR CAVITIES</b>	<ul style="list-style-type: none"> <li>☺ Advise mother about oral hygiene and nutrition</li> <li>☺ Apply fluoride varnish every 6 months (for prevention of dental caries)</li> </ul>

Severe Moderate Soft



# MALFORMATIONS, ANOMALIES AND NEOPLASMS OF THE FACE AND MOUTH



## ASK

- Was the abnormality present at birth?
- Does milk or food come out of the nasal passage?
- Has the child seen a surgeon?



## LOOK AND FEEL

- Hole or slit in the lip and/or palate
- Abnormal red growths

SIGNS/SYMPTOMS	CLASSIFY AS	TREATMENT
<ul style="list-style-type: none"> <li>• Hole or slit in the lip and/or palate, immediately noticeable at birth</li> <li>• Difficulty feeding, which includes milk flowing out the nose</li> <li>• Recurrent ear infections and/or ear pain</li> <li>• Failure to gain weight, poor growth</li> </ul>	<b>CLEFT LIP/CLEFT PALATE</b>	<ul style="list-style-type: none"> <li>☞ Advise mother on feeding techniques. (see guidelines)</li> <li>☞ Administer RUTF* IF child is malnourished</li> <li>☞ Administer antibiotics IF ear infection present (see chart)</li> <li>☞ Advise mother to eat diet rich in green leafy vegetables and take folic acid supplements throughout her childbearing years, and especially before future pregnancies</li> <li>☞ Apply fluoride varnish every 6 months (for prevention of dental caries)</li> <li>☞ <b>Refer URGENTLY to hospital for evaluation by surgeon</b></li> </ul>
<ul style="list-style-type: none"> <li>• Bright red mark, varies in size from a tiny spot to large growth</li> <li>• Gradually increases in size and volume, then may start to slowly shrink over the years</li> <li>• Usually not present at birth but appears in infancy, most commonly in the face and neck area</li> </ul>	<b>HEMANGIOMAS</b>	<ul style="list-style-type: none"> <li>☞ Advise mother about oral hygiene and nutrition</li> <li>☞ Apply fluoride varnish every 6 months (for prevention of dental caries)</li> </ul> <p><b>Refer to clinic</b> only IF hemangioma is:</p> <ul style="list-style-type: none"> <li>• Growing rapidly</li> <li>• Obstructing vision, hearing, breathing, or speaking</li> <li>• Cosmetically deforming</li> </ul>

\* Ready To Use Therapeutic Foods are high energy, fortified ready to eat food suitable for treatment of severely malnourished children. Each country must follow national recommendations and guidelines for management of malnutrition in children.

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# TRAUMA TO THE MOUTH AND TEETH

## ASK

- How was the child injured?
- When did it happen?
- Where did it happen?
- Date of last tetanus shot?

## LOOK AND FEEL

- Injury to face or mouth
- Redness, warmth, or swelling around the injury
- Tooth pushed into or out of gum
- Broken, loose, or displaced teeth (Have patient bite down and assess each tooth if needed)

## REMEMBER:

- Do not confuse exfoliating teeth with injured teeth. Refer to eruption chart.
- Have patient bite down to assess teeth for injury.
- The main causes of dental trauma are:
  - Sports and related injuries
  - Falls and collisions
  - Automobile accidents
  - Child physical abuse (50% of injuries are to face and mouth)

Children repeatedly presenting with facial injuries may be victims of child abuse.

**Report** suspicions to the authorities if you suspect the child was intentionally harmed.

SIGNS/SYMPTOMS	CLASSIFY AS	TREATMENT
<ul style="list-style-type: none"> <li>• Severe mouth or face trauma</li> <li>• Broken or displaced bones</li> <li>• Multiple broken teeth</li> <li>• Difficulty moving the mouth</li> </ul>	<p><b>SEVERE TRAUMA</b></p> <p><b>(JAW FRACTURE, OPEN FACIAL WOUNDS)</b></p>	<ul style="list-style-type: none"> <li>☺ Remove any debris from the soft tissue</li> <li>☺ Clean the wounds and bandage them</li> <li>☺ Administer pain medication IF needed (see chart)</li> <li>☺ Administer antibiotics (see chart)</li> <li>☺ Determine if tetanus shot is needed and administer if possible</li> <li>☺ <b>Refer URGENTLY to emergency hospital</b></li> </ul>
<ul style="list-style-type: none"> <li>• Broken tooth: Injured tooth is broken off completely</li> <li>• Luxation: Injured tooth is displaced sideways or very mobile</li> <li>• Avulsion: Injured tooth is knocked out of gums</li> <li>• Intrusion: Injured tooth is pushed into the gums</li> </ul>	<p><b>MODERATE TRAUMA</b></p> <p><b>(BROKEN TOOTH, LUXATION, AVULSION, INTRUSION)</b></p>	<ul style="list-style-type: none"> <li>☺ Rinse with clean water</li> <li>☺ Use ice packs to reduce any swelling</li> <li>☺ Determine if tetanus shot is needed and administer if possible</li> <li>☺ Administer pain medications IF needed (see chart)</li> <li>☺ First Aid:                             <ul style="list-style-type: none"> <li><b>Broken tooth:</b> Cover tooth with gauze</li> <li><b>Luxation:</b> Gently push tooth back into place</li> <li><b>Avulsion:</b> Do NOT re-implant a baby tooth. Inform parent that it can damage the underlying adult tooth</li> <li><b>Intrusion:</b> Do NOT try to pull the tooth out. Inform parent that the tooth is will generally re-erupt on its own</li> </ul> </li> <li>☺ <b>Refer URGENTLY to dental clinic for treatment</b></li> </ul>
<ul style="list-style-type: none"> <li>• Enamel fracture: Injured tooth has small chip or shallow crack</li> <li>• Subluxation: Injured tooth is slightly mobile and be sensitive to touch, percussion, or chewing. May be blood around gumline of tooth</li> </ul>	<p><b>MODERATE TRAUMA</b></p> <p><b>(ENAMEL FRACTURE, SUBLUXATION)</b></p>	<ul style="list-style-type: none"> <li>☺ Rinse with clean water</li> <li>☺ Use ice packs to reduce any swelling</li> <li>☺ Administer pain medication IF needed (see chart)</li> <li>☺ <b>Refer to dental clinic for treatment</b></li> </ul>
<ul style="list-style-type: none"> <li>• Dental concussion: Injured tooth is not mobile, but is tender to percussion and often to biting</li> </ul>	<p><b>MILD TRAUMA OF TOOTH</b></p> <p><b>(DENTAL CONCUSSION)</b></p>	<ul style="list-style-type: none"> <li>☺ Rinse mouth with clean water</li> <li>☺ Use ice packs to reduce any swelling</li> <li>☺ Administer pain medication IF needed (see chart)</li> <li>☺ Inform caregiver that tooth may become discolored</li> <li>☺ Recommend that patient have soft diet for 1 week and avoid chewing on tooth</li> </ul>
<ul style="list-style-type: none"> <li>• Scratches, cuts, burns, or bruises to the soft tissues of the mouth or face</li> </ul> <p>(Soft tissue includes the hard and soft palate, mouth floor, cheeks, lip, and tongue)</p>	<p><b>MILD TRAUMA OF SOFT TISSUES</b></p>	<ul style="list-style-type: none"> <li>☺ Clean external wounds with hydrogen peroxide</li> <li>☺ Clean mouth wounds by having patient gargle salt water then rinse with clean water</li> <li>☺ Advise that patient use ice packs to reduce swelling</li> <li>☺ Administer pain medication IF needed (see chart)</li> <li>☺ Determine if tetanus shot is needed and administer if possible</li> </ul>

Severe Moderate Soft



# HABITS AND BEHAVIORS RELATING TO THE MOUTH AND TEETH



## ASK

- Does child grind teeth?
- Does child use pacifier or bottle after 1 year of age? Does child fall asleep with pacifier or bottle?
- Does child suck on thumb, finger, or lip?
- Chew or eat non-food items such as dirt or paint chips?
- Does child snore a lot when sleeping?



## OBSERVE:

- Are teeth worn, chipped or cracked?
- Is pacifier and bottle clean?
- Are lips red and irritated?
- Is child mouth breathing?
- Are fingernails irritated or bloody?

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SIGNS/SYMPTOMS	CLASSIFY AS	TREATMENT
<ul style="list-style-type: none"> <li>• Worn down enamel, dentin may be visible and teeth may be sensitive</li> <li>• Cracked, chipped teeth</li> <li>• Pain in the jaw in the morning or when eating</li> <li>• Headaches or earaches in the morning</li> </ul>	<b>TEETH GRINDING (BRUXISM)</b>	<ul style="list-style-type: none"> <li>☺ Inform parents that grinding is common in children and most outgrow the habit</li> <li>☺ Teach recommendations on how to deal with oral habits</li> <li>☺ Advise about oral hygiene and nutrition</li> <li>☺ Apply fluoride varnish every 6 months (for prevention of dental caries)</li> </ul> <p>In rare cases of excessive pain: <b>Refer to dental clinic</b></p>
<ul style="list-style-type: none"> <li>• Persistent use of pacifier or bottle</li> <li>• Child sleeps with pacifier or bottle</li> <li>• Child consumes sugary drinks through bottle</li> <li>• Pacifier and/or bottle are not kept clean</li> </ul>	<b>INAPPROPRIATE USE OF PACIFIER AND/OR BOTTLE</b>	<ul style="list-style-type: none"> <li>☺ Inform caregiver of risk for dental decay and malocclusion of teeth if child consistently uses or sleeps with pacifier and bottle</li> <li>☺ Discourage the use of pacifier and bottle past 1 year of age</li> <li>☺ Teach recommendations on how to deal with oral habits</li> <li>☺ Advise about oral hygiene and nutrition</li> <li>☺ Apply fluoride varnish every 6 months (for prevention of dental caries)</li> </ul>
<ul style="list-style-type: none"> <li>• Upper and lower front teeth do not come together when patient bites</li> <li>• Lipping or tongue thrusts out when talking</li> </ul>	<b>THUMB/FINGER SUCKING</b>	<ul style="list-style-type: none"> <li>☺ Inform caregiver that thumb/finger sucking is normal for infants but is inappropriate as the child gets older as it can cause speech and dental problems</li> <li>☺ Teach recommendations on how to deal with oral habits</li> <li>☺ Advise about oral hygiene and nutrition</li> <li>☺ Apply fluoride varnish every 6 months (for prevention of dental caries)</li> </ul> <p>If child has trouble eating or speaking because of malocclusion: <b>Refer to dental clinic</b></p>
<ul style="list-style-type: none"> <li>• Abnormal consumption of non-food items such as hair, paper, feces, dirt, etc.</li> <li>• Behavior lasts longer than a month and is NOT part of cultural or religious practice</li> </ul>	<b>PICA*</b>	<ul style="list-style-type: none"> <li>☺ Administer RUTF** if child is malnourished</li> <li>☺ Inform caregiver that it is normal for children to explore things with their mouth but that behavior becomes inappropriate as the child gets older</li> <li>☺ Teach recommendations on how to deal with oral habits</li> <li>☺ Advise about oral hygiene and nutrition</li> <li>☺ Apply fluoride varnish every 6 months (for prevention of dental caries)</li> </ul> <p>If child is suspect for developmental disorder: <b>Refer to hospital for evaluation</b></p>
<ul style="list-style-type: none"> <li>• Dry, cracked lips</li> <li>• Red, irritated skin around the lips</li> </ul>	<b>LIP SUCKING OR BITING</b>	<ul style="list-style-type: none"> <li>☺ Advise caregiver that this is common habit in children but should decrease with age because the habit can affect the way the teeth grow</li> <li>☺ Teach recommendations on how to deal with oral habits</li> <li>☺ Advise about oral hygiene and nutrition</li> <li>☺ Apply fluoride varnish every 6 months (for prevention of dental caries)</li> </ul>
<ul style="list-style-type: none"> <li>• Open mouth and dry lips, teeth may not be touching in the front</li> <li>• Difficulty breathing through nose, may be congested</li> <li>• Dark circles under eyes, may be sneezing and sniffing</li> <li>• Snores when sleeping</li> </ul>	<b>MOUTH BREATHING</b>	<ul style="list-style-type: none"> <li>☺ Explain to parent that the cause of mouth breathing could be related to malocclusion, enlarged adenoids, allergies, or sleep disorder</li> <li>☺ Instruct patient on breathing through the nose instead of the mouth</li> <li>☺ If allergies are suspected: Have patient use nasal spray and recommend avoiding dust, animals, pollen, etc.</li> <li>☺ Advise on oral hygiene and nutrition</li> <li>☺ Apply fluoride varnish every 6 months (for prevention of dental caries)</li> </ul> <p>If malocclusion suspected: <b>Refer to dental clinic for evaluation</b>. If enlarged adenoids, or sleep disorder is suspected: <b>Refer to hospital for evaluation</b></p>
<ul style="list-style-type: none"> <li>• Nails or cuticles are irritated and bitten</li> </ul>	<b>NAIL BITING</b>	<ul style="list-style-type: none"> <li>☺ Teach recommendations on dealing with oral habits</li> <li>☺ Advise about oral hygiene and nutrition</li> <li>☺ Apply fluoride varnish every 6 months (for prevention of dental caries)</li> </ul>

\* Eating disorder characterized by persistent and compulsive cravings for non-food items i.e. metal, coins, clay, coal, soil, feces, chalk, paper, soap, mucus, ash, gum, etc.

Practices are not part of cultural traditions or religious norms. Extreme behaviors are more common in children with autism and developmental disabilities.

\*\* Ready to Use Therapeutic Foods are high energy, fortified ready to eat food suitable for treatment of severely malnourished children. Each country must follow national recommendations and guidelines for management of malnutrition in children.

## ORAL HYGIENE - KEY MESSAGES

### Dental Plaque



- ☞ Plaque is a layer of bacteria that forms on the teeth. It can develop on any surface of the teeth, especially along the gum line
- ☞ The bacteria produces acid which dissolves the enamel of a tooth and leads to dental decay
- ☞ If dental plaque accumulates and is not removed, it can harden and turn into calculus or tartar which is a risk factor for gum disease
- ☞ Poor oral make easy large amounts of plaque build-up

### Toothbrushing



#### Toothbrushing for Infants and Toddlers

- ☞ Wipe infants gums after feeding with a clean washcloth
- ☞ When teeth start to erupt, brush the gums and teeth with a small soft bristled toothbrush
- ☞ Brush toddlers' teeth with a pea-size drop of fluoride toothpaste for at least two minutes, twice a day
- ☞ Teach children to spit out toothpaste, not swallow it
- ☞ Always clean children's teeth before going bed. The last thing that touches children's teeth before bedtime should be a toothbrush with fluoride toothpaste

#### Toothbrushing for Young Children



1. 2. Place a toothbrush to the teeth at a 45-degree angle and gently brush in a circular motion. Clean the outside surfaces of the upper and lower teeth
3. Clean the inner surfaces of the upper and lower teeth
4. Clean the chewing surfaces of the upper and lower teeth. Do not forget to brush the tongue!

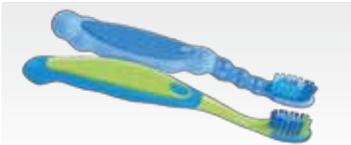
- ☞ Parents and caregivers should take an active role in brushing their children's teeth
- ☞ Brush children's teeth with fluoride toothpaste, or assist children with toothbrushing, at least twice a day

### Fluoride Toothpaste



- ☞ Use no more than a pea-sized amount of fluoride toothpaste
- ☞ Teach children that they do not swallow the toothpaste
- ☞ Toothbrushing with fluoridated toothpaste helps make teeth stronger teeth and protect against dental decay

### Toothbrush



- ☞ Make sure the bristles are soft to protect the child's teeth and tender gums
- ☞ Use a small size brush to fit toddler's mouth
- ☞ Change the toothbrush every three months or when bristles begin to wear

### Healthy Diet



- ☞ Only water or milk in baby's bottle. Do not put baby to bed with a bottle
- ☞ Wean child from bottle by 1 year of age
- ☞ Avoid sugary, starchy snacks or sugary drinks especially between meals. Prepare healthy snacks for your child and encourage more water consumption
- ☞ Eat a balanced diet rich in vegetables, fruits, dairy, meats and beans

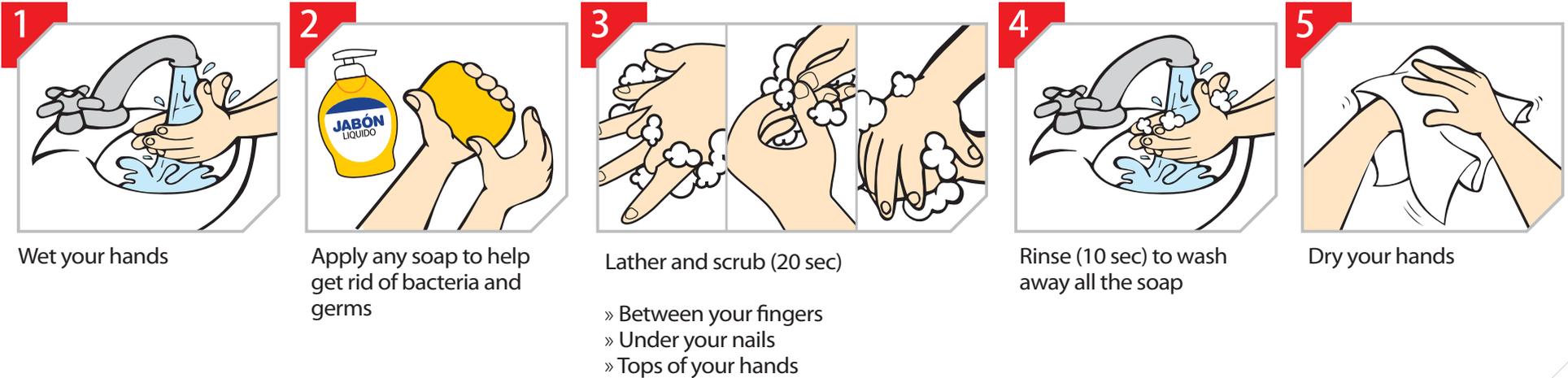
### Dentist Visits



- ☞ Recommend first dentist visit by age one
- ☞ Visit a dentist at least once a year for check-ups

## WASHING YOUR HANDS WITH SOAP IS THE BEST WAY TO STAY HEALTHY

### HAND WASHING



Washing hands with any type of soap and clean water is the best way to stop the spread of germs and disease

## WHEN SHOULD YOU WASH YOUR HANDS?

### BEFORE

- » Before, during, and after preparing food
- » Before eating food
- » Before and after caring for someone who is sick
- » Before and after treating a cut or wound

### AFTER

- » After using the toilet
- » After changing diapers
- » After cleaning a child who has used the toilet
- » After blowing your nose, or sneezing
- » After touching an animal
- » After touching animal feed or animal waste
- » After touching garbage

# HEALTHY EATING RECOMMENDATIONS

## 0 - 6 months Breastfeeding

The benefits to the infant include:

- Bonding with mother
- Ideal nutrition
- Enhanced immune system
- Reduced infections
- Physical and developmental growth benefits
- Improved intelligence
- Reduced risk of chronic diseases and allergy



### BENEFITS FOR ORAL HEALTH

- Suckling at the breast is good for a toddler's tooth and jaw development and prevents non-nutritive sucking habits

### HOW?

- A breast-fed infant exercises the orofacial (mouth/face) muscles substantially more than a bottle-fed infant, which is needed for proper orofacial development
- A breast-fed baby moves the lower jaw quite vigorously to get milk. This provides exercise and encourages well-formed jaws and straight, healthy teeth
- The bottle can produce an excessive flow of milk which encourages the infant to acquire an abnormal posturing of the mandible to avoid suffocation. Excessive bottle feeding can also lead to early childhood caries

## 6 months - 2 years

### Breastfeeding and complementary solid foods

At 6 months of age, the child starts to get introduced to solid foods such as porridge or mashed food. By 1 year of age, the child increases to different variety and texture of foods

## 2 - 5 years

### Solid foods

By 2 years of age, the child should be eating solid foods including most of the foods the rest of the family eats



### BENEFITS FOR ORAL HEALTH

The establishment of a healthy diet from an early age is the foundation of a healthy lifestyle and can prevent oral diseases and systemic diseases.

### HOW?

- Eat a balanced diet that includes cereals and grains, vegetables, fruits, dairy, and meats and beans
- Limit the consumption of foods high in sugar and starch, and sticky foods (raisins, dried fruits, potato chips, candies)
- Avoid soft drinks, juice, energy drinks or any type of sugary drink
- Prepare healthy snacks that are protective against dental caries (cheese, milk, vegetables)
- Put only water in a child's bottle or sippy cup. Avoid letting them sleep with a bottle

# ORAL HEALTH

## RECOMMENDATIONS



REGULAR DENTAL VISITS FOR CHILD AND FAMILY MEMBERS



HEALTHY DIET



BRUSH WITH FLUORIDE TOOTHPASTE AT LEAST 2 TIMES DAILY



NO BOTTLES FOR SLEEPING



ONLY WATER OR MILK IN SIPPY CUPS



AVOID SOFT DRINKS



AVOID SWEETS OR CANDIES



AVOID ARTIFICIAL JUICES



AVOID STARCHY SNACKS

### IMPORTANT:

THE LAST THING THAT TOUCHES YOUR CHILD'S TEETH BEFORE BEDTIME IS THE TOOTHBRUSH WITH FLUORIDE TOOTHPASTE.

# WORLD HEALTH ORGANIZATION (WHO) IMMUNIZATION SCHEDULE

Administering FV at the time of immunization would maximize the number of children receiving FV. The application of FV is a cost-effective prevention intervention for children at high-risk for dental cavities.

VACCINE	AGE OF VACCINATION						
	2m	4m	6m	12m	18m	24m	4-6yrs
<b>TBC</b> (Tuberculosis)	✓						
<b>OPV</b> (Polio)	✓	✓			✓		✓
<b>DTaP</b> (Diphtheria, Tetanus, Pertussis)	✓	✓	✓		✓		✓
<b>HEPATITIS B</b>	✓		✓	✓			
<b>HEPATITIS A</b>					✓	✓	
<b>MMR</b> (Measles, Mumps, Rubella)				✓			✓
<b>VARICELLA</b> (Chickenpox)				✓			✓
<b>YELLOW FEVER</b>				✓			
<b>HIB</b>	✓	✓	✓			✓	
<b>FLUORIDE VARNISH (FV)</b>			✓	✓	✓	✓	✓

The Pan American Health Organization recommends fluoride varnish every six months.

## FLUORIDE VARNISH (FV) APPLICATION

Fluoride varnish is a highly concentrated form of topical fluoride used to prevent tooth decay.



### READ

- FV must be applied every six months to be effective
- Do **NOT** use if child has an allergy to **pine nuts** or **colonphony/colonphonium**



### APPLY

- Dry the teeth by wiping them with clean, dry cotton. The teeth must stay dry throughout the FV application
- Apply a thin layer of varnish on all surfaces of the teeth according to the manufacturer's directions. Do NOT apply on large cavities
- Don't worry about saliva getting on the teeth after the FV is applied. The varnish dries very quickly



### ADVISE

- FV must stay on teeth overnight to be effective. The teeth may appear to have a yellow, sticky surface
- Have the child avoid hard, sticky, or crunchy foods for the rest of the day
- Do not let the child brush, floss, or use mouth rinse until the next morning. The sticky feeling and yellow color will disappear at this time

## PAIN MEDICATIONS

MEDICATION	INDICATIONS	DOSAGE	FREQUENCY	COMMENT
<b>IBUPROFEN</b>	Pain, fever, swelling	4 - 10 mg/kg/dose OR 1.8 - 4.5 mg/lb/dose	Every 6 - 8 hours (Maximum: 4 doses/day)	Take with food
<b>ACETAMINOFEN AND PARACETAMOL</b>	Pain, fever	10 - 15 mg/kg/dose OR 4.5 - 6.8 mg/lb/dose	Every 4 - 6 hours (Maximum: 2.6 grams/day)	

Notes:

- 1 kg = 2.2 lbs
- Dosages are based on United States standards. Contact your country's Ministry of Health to find out local regulations.
- Pain medications are not for long term use.

## ORAL ANTIBIOTICS

Antibiotic dosages are per day. The dosage must be divided up into equal parts and administered. Maximum dosage cannot exceed adult dose.

MEDICATION	INDICATION	DOSAGE	FREQUENCY	COMMENT	
amoxicillin	Mouth/face infection, Strep throat	Mild-to-moderate infection	20 mg/kg/day OR 9 mg/lb/day	Divided doses every 8 hours X 7 days	May be taken with food
			25 mg/kg/day OR 11.4 mg/lb/day	Divided doses every 12 hours X 7 days	
		Severe infection	40 mg/kg/day OR 18.2 mg/lb/day	Divided doses every 8 hours X 7 days	
			45 mg/kg/day OR 20.5 mg/lb/day	Divided doses every 12 hours X 7 days	
clindamycin	Take if allergic to amoxicillin	10-20 mg/kg/day in divided doses OR 4.5-9 mg/lb/day in divided doses	Divided doses every 6-8 hours X 7 days	May be taken with food	
metronidazole	Anaerobic orofacial infection/abscess	15-35 mg/kg/day in divided doses OR 6.8-15.9 mg/lb/day in divided doses	Divided doses every 8 hours X 10 days	Take without food (If upset stomach occurs than take with food.)	
co-trimoxazole	Ear infection	8-12 mg/kg/day in divided doses OR 3.6-5.5 mg/lb/day in divided doses (Dosage based on Trimethoprim content.)	Divided doses every 12 hours X 10 days	Take with 8oz of water	

Notes:

- Dosages are for children over 3 months of age that are under 40 kg, or 88 lbs. (1 kg = 2.2 lbs)
- Dosages are based on United States standards. Contact your country's Ministry of Health to find out local regulations.

# NOMA TREATMENT

MEDICATION	INDICATION	AGE & WEIGHT		DOSAGE	FREQUENCY	COMMENT
<b>amoxicillin</b>	noma	12 years and up	+40 kg (+88 lb)	1,000 mg	Every 8 hours X 14 days	May be taken with food
		5 – 11 years	20-40 kg (44-88lb)	750 mg		
		1 – 4 years	10-19 kg (22-42lb)	500 mg		
		2 – 12 months	5-9 kg (11-20 lb)	375 mg		
<b>metronidazole</b>	noma	12 years and up	+40 kg (+88 lb)	500 mg	Every 6 hours X 14 days	Take without food (May be taken with food if upset stomach occurs.)
		5 – 11 years	20-40 kg (44-88lb)	250 mg		
		1 – 4 years	10-19 kg (22-42lb)	125 mg		
		2 – 12 months	5-9 kg (11-20 lb)	62.5 mg		

- Begin antibiotic treatment at first sign of noma.
- Treat malnutrition with RUTF.
- Seek medical consultation as soon as possible.
- Continue antibiotic treatment while traveling to clinic/hospital. Upon arrival, inform medical staff of antibiotic treatment.
- Maintain emergency stock of amoxicillin and metronidazole (250mg) in Child Survival Kit in each village.

\*Information obtained from MAMA Project, Inc. Prevention and Control of Noma in Nigeria  
mamaproject@enter.net MAMAProject.org

## ANTIFUNGAL MEDICATIONS

For Candidiasis or Oral Thrush



### NYSTATIN DOSAGE

- 1-2 ml x 4 Times a day
- Avoid feeding for 5 to 10 minutes

### GENTIAN VIOLET

- Using a cotton swab, apply only the effected area every 1-2 times daily for 7 days
- Make sure the area is dry before using this medication
- Avoid swallowing any of the medicine

## ANTIVIRAL MEDICATIONS

To improve healing time and reduce symptoms of cold sores. Begin treatment when lesions first appear or as early as possible.



### TOPICAL APPLICATION

#### ACYCLOVIR 5% CREAM

Every 3 hours (6 times per day) x 7 days

#### PENCICLOVIR 1% CREAM

Every 2 hours x 4 days

#### VALACYCLOVIR CREAM

Every 3 hours (6 times per day) x 7 days

Contact your country's Ministry of Health to find out local regulations for antifungal and antiviral medications.

## RECOMMENDATIONS FOR PARENTS ON DEALING WITH ORAL HABITS

A bad habit is a behavior that is repeated and causes harm. Your child might not know he/she is performing the behavior. Don't use harmful punishment on the child. Instead, try to help the child stop performing the bad habit with kindness, education, distraction, and praise.

### Be kind

Don't get mad and punish the child. The punishment can be more harmful than the habit

### Talk to child

Explain to child that bad oral habits can introduce germs inside the mouth and cause problems with their teeth

Tell the child that "big" kids don't perform these behaviors

A child might be performing a behavior because of stress. Talk to the child and find out what might be bothering him/her. Comfort the child and encourage him/her to talk to you when feeling sad, stressed, anxious, or nervous

### Distract the child

Encourage the child to perform other behaviors like sing a song, read a book, breathe deeply, or relaxing exercises

### Praise the child

When the child is NOT performing the unwanted habit say positive things like "Your fingernails look so nice since you stopped biting them. I'm so proud of you!"

### Don't assume

Don't think the behavior is caused by a curse or evil spirit and pursue harmful or painful treatments

### Ignore the habit

Sometimes giving the child attention, even if it is negative attention, will cause the child to continue the behavior

### Be patient

Often times a habit will stop as the child gets older

### Seek medical attention

Sometimes habits are a sign of an illness such as allergies, malnutrition, hyperactivity, anemia, intestinal parasites, epilepsy, pain, anxiety, and neurological conditions. The child might need to be evaluated by a medical professional

## BOTTLE-FEEDING TECHNIQUE FOR CHILDREN WITH CLEFT LIP AND/OR CLEFT PALATE

A cleft lip/cleft palate is an opening in the lip and/or palate due to the incomplete fusion of the lip and/or palate when the baby is just a fetus. Babies born with cleft lip/cleft palate may not be able to breastfeed properly because the anatomy of the lip, plate, and nose can affect the baby's ability to suck milk and swallow it. Therefore, feeding with a bottle is usually needed for the mother and baby to have a successful feeding time.



### Preparing a bottle

- ☞ Turn the nipple inside out.
- ☞ Cut a small "X" over the hole with a clean blade.
- ☞ Turn the nipple right side out and clean before use.

If the infant gags frequently during feeding, the nipple opening may be too large and a smaller hole may be needed.



### Holding the infant

The mother should hold the baby in a upright position while supporting his/her head. Gravity will help the milk flow down the baby's throat.

It is important to establish the emotional bond between parent and child. The mother needs to be comfortable when holding the child and should be able to see the infant's face in case there are any problems.



### Feeding

On average, a baby will feed 6-8 times a day, taking around 30 minutes for 2-3 ounces of milk; otherwise the infant will use more calories than he/she takes in. It is important to provide the baby with enough calories to gain weight.

Gently squeeze the bottle in pulses to assist milk flow into mouth. Infants will periodically stop sucking to rest and breathe; do not squeeze the bottle at this time. If the infant gags, stop feeding and allow him/her to finish swallowing the milk already in the mouth.

Burp the baby after every ounce, since he/she may be swallowing large amounts of air during feeding.

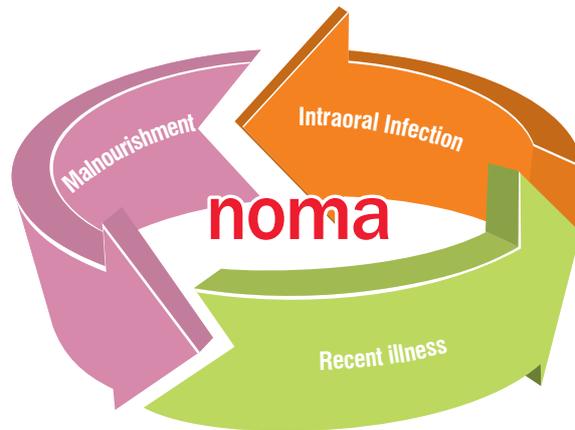
An average baby will lose weight immediately after birth but return to birth weight within a couple of weeks. If the baby does not gain weight appropriately, or if problems with feeding persist, **refer the infant to a medical center.**

This information was obtained from The Cleft Palate Foundation ([cleftline.org](http://cleftline.org))

## CLINICAL STAGES OF NOMA

**noma** is an infection that destroys the soft tissue and bone of the mouth and face. It starts with an intraoral lesion and within a matter of weeks develops into a life-threatening condition.

### MAJOR RISK FACTORS



**Additional risk factors:**

- poverty
- poor oral hygiene
- poor sanitation
- lack of access to medical care



### Stage 1

Intraoral Lesion



### Stage 2

Facial Swelling



### Stage 3

Gangrenous Plaque



### Stage 4

Scar Tissue formation

**REMEMBER:** noma is not a curse from bad spirits! noma is a disease that can be prevented and treated. Make sure children get a healthy diet, practice good oral hygiene, receive immunizations, and receive appropriate medical attention when needed.

## THE IMPORTANCE OF BABY TEETH

Baby teeth are essential for proper nutrition and chewing, speech, appearance and self-esteem, development of the oral cavity, and eruption of adult teeth.



### Speaking

Teeth assist in the formation of words and proper speech

In many cases, the importance of baby teeth (also called primary or milk teeth) is overlooked by parents and caregivers. Baby teeth start to erupt around 6 months of age and last until around 12 years of age. They serve many functions for a healthy child and should be cared for properly.



### Smiling and building self esteem

The appearance of healthy teeth and smile contributes to high self-esteem and positive relationships with others



### Eating

Teeth are needed for chewing and eating all the foods in a healthy diet



HEALTHY BABY TEETH



### Developing the oral cavity

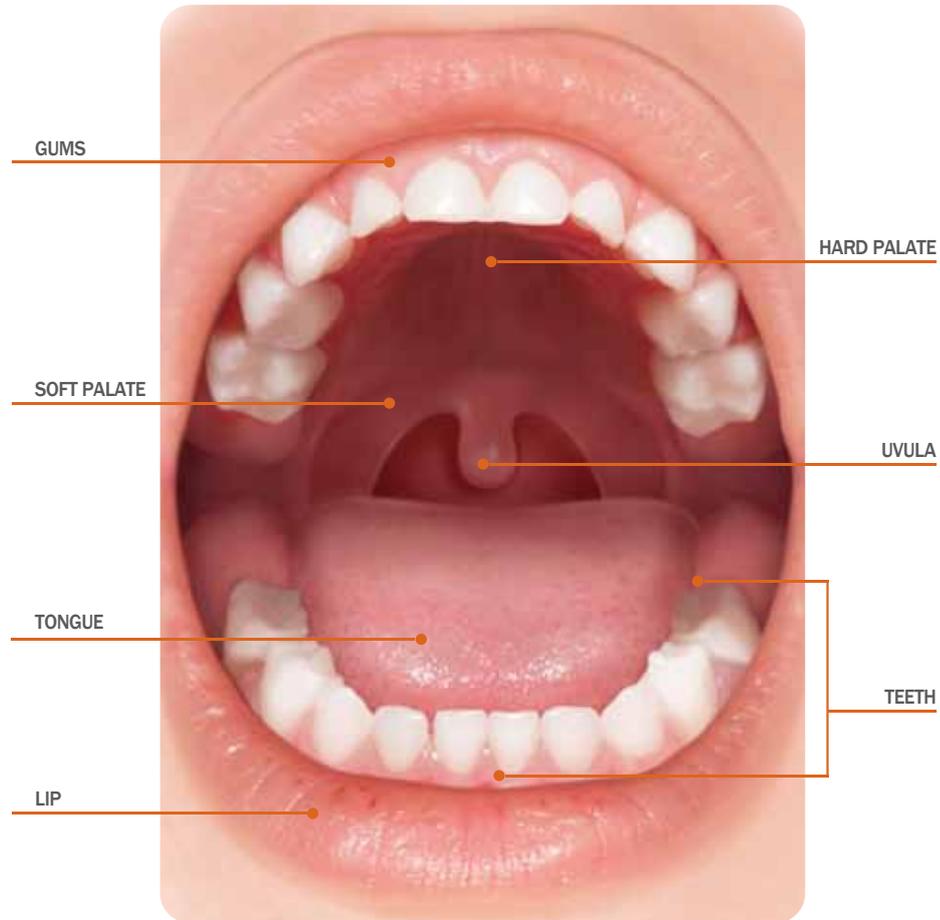
Chewing and speaking provides exercise to the muscles and bones of the oral cavity



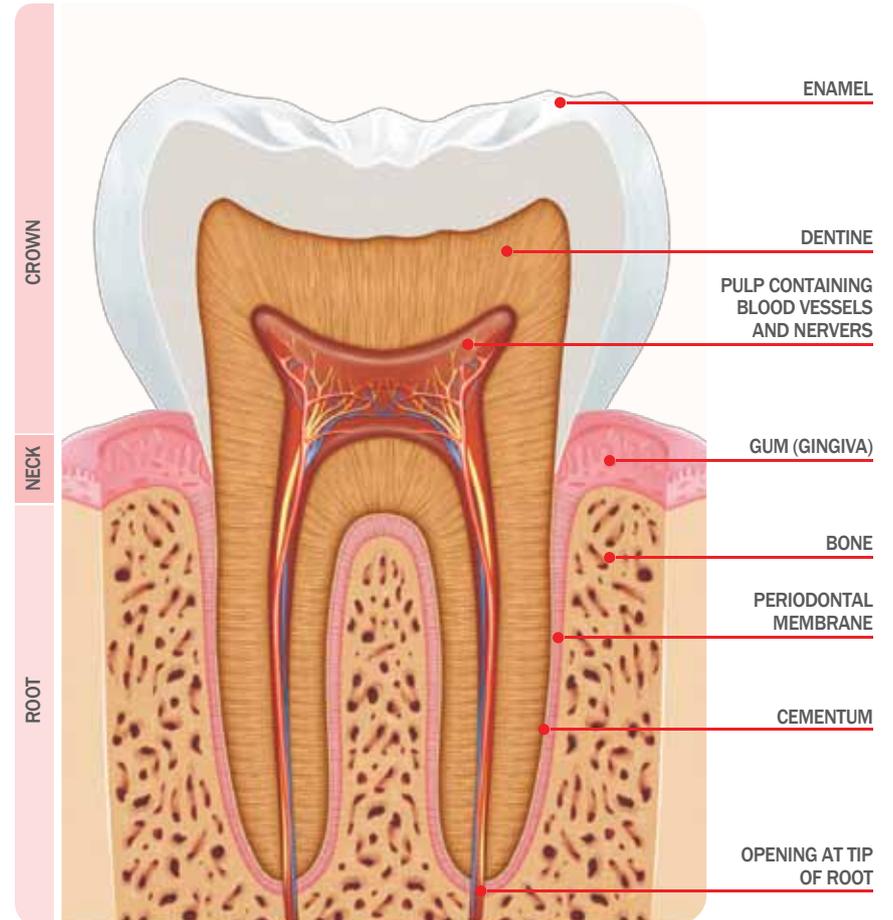
### Guiding the eruption of adult teeth

Baby teeth provide a path for erupting adult teeth to follow

## ANATOMY OF THE MOUTH



## ANATOMY OF A TOOTH

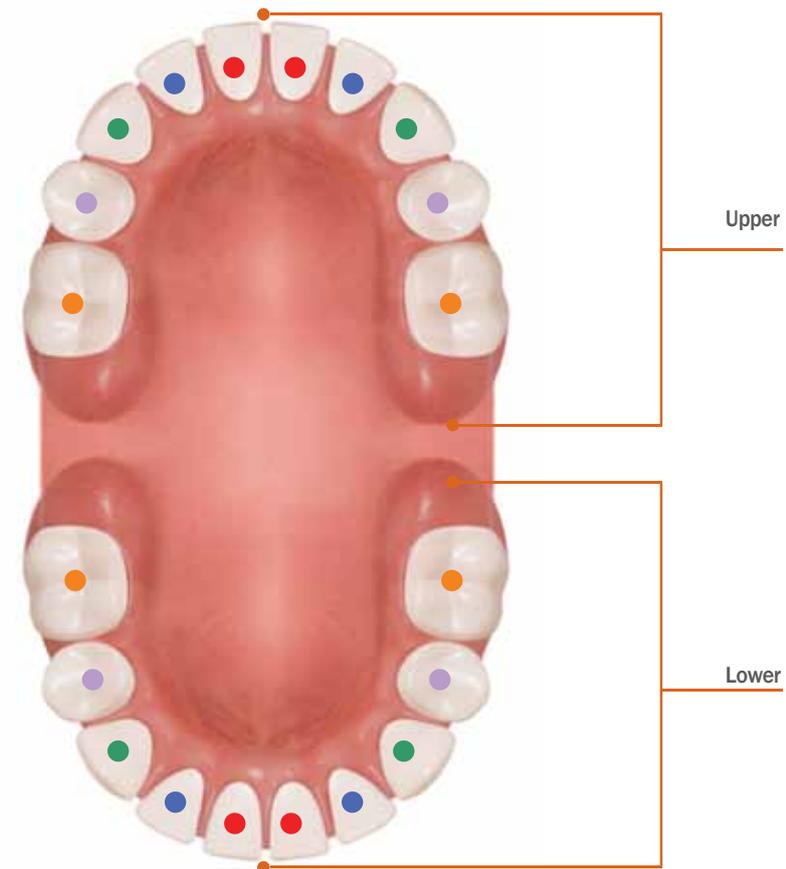


## ERUPTION SCHEDULE OF BABY TEETH

Baby teeth have a schedule of eruption and shedding. Permanent teeth will take the place of baby teeth after they have been shed. Do not confuse a shedding, or loose, baby tooth for injured tooth. However, if a baby tooth become loose immediately after an injury then it should be treated as an injured tooth. Refer to the Trauma Chart for treatment.

Upper Teeth	Erupt/Grow	Shed/Lose
• Central incisor	8-12 months	6-7 years
• Lateral incisor	9-13 months	7-8 years
• Canine (cuspid)	16-22 months	10-12 years
• First molar	13-19 months	9-11 years
• Second molar	25-33 months	10-12 years

Lower Teeth	Erupt/Grow	Shed/Lose
• Central incisor	6-10 months	6-7 years
• Lateral incisor	10-16 months	7-8 years
• Canine (cuspid)	17-23 months	9-12 years
• First molar	14-18 months	9-11 years
• Second molar	23-31 months	10-12 years



## PICTURE CHART TO DISTINGUISH BETWEEN SIMILAR ORAL CONDITIONS



### Herpes Simplex Virus

Herpes Simplex Virus infection (also called cold sores or fever blisters) causes painful blisters on the lips and outer edges of mouth. Blisters can be spread easily from person to person. They can also be spread to the genitalia. Do not share food, eating utensils, cups, or lipsticks



### Canker Sore

A canker sore is a painful ulcer inside the mouth, usually located on the cheek. The cause of canker sores is unknown but they usually heal within 7-10 days



### Amelogenesis Imperfecta

Amelogenesis Imperfecta is a disorder of tooth enamel. It can lead to discolored teeth, abnormal anatomy, weakened enamel, and easy breakage



### Bruxism

Bruxism refers to the grinding of teeth, which is usually caused by stress. This usually occurs at night when patient is sleeping. It can lead to jaw pain, morning headaches, and worn down enamel



### Strep Throat

Strep throat is a bacterial infection of the tonsils that causes red, swollen tonsils with white patches



### Oral Candidiasis

Oral Candidiasis (also called thrush) is a yeast infection inside the mouth. The white patches can easily be wiped off to reveal a red area



### Gingivitis

Gingivitis is a swelling of the gum tissue. The gums might appear red and puffy, and bleed easily when brushed. This condition can lead to periodontitis



### Periodontitis

Periodontitis is a gum disease caused by bacteria. It causes loss of gum tissue, destruction of bone surrounding teeth, loose teeth and eventually tooth loss. The risk factors for periodontal disease include tobacco, alcohol, and drug use



### Dental Caries

Dental caries (also called a cavity or tooth decay) is caused by bacteria. The bacteria release acid that demineralizes the enamel of a tooth and leads to decay. Good oral hygiene is important for removing these bacteria



### Dental Abscess

A dental abscess (also called tooth infection) is caused by a bacterial infection at the root of a tooth. Bacteria and pus build up below the tooth causing an abscess to form on the gum



**Pan American  
Health  
Organization**



**World Health  
Organization**  
REGIONAL OFFICE FOR THE  
**Americas**

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