Oral Irrigation

- Also known as hydrotherapy/ lavage

- Can be a valuable adjunct to helping to maintain oral cleanliness and health

- Oral irrigating devices force a steady or pulsating stream of water over the gingival tissue and teeth with the goal of removing unattached debris, loosely attached biofilm and reducing the concentration of bacteria, periodontal pathogens, and cellular end products that may be present.

- Irrigators are also used to deliver antimicrobial agents – such as chlorhexidine

Technique and Delivery Methods:

- Adjust the water stream to moderate the pressure; LOW settings are recommended

- Lean over wash basin/sink

- Direct the tip at a right angle to the tooth surfaces; the stream should move in a horizontal direction through the gingival embrasure

- Can increase water pressure slightly over time depending on tissue condition and comfort

- Follow a pattern around the mouth; apply for 4-5 seconds at each interdental area

Precautions:

- Keep fluid at low pressure (especially subging tip)

- Irrigation is only an adjunct NOT a substitute for regular brushing

- Can cause tissue punctures and reduce the height of the papillae if pressure too great or application too long

- Transient bacteria can be a concern for patients who have to be premedicated prior to dental treatment

Patient-applied Subgingival Irrigation:

- Can have soft rubber tip or tapered

- Soft rubber designed to place below gingival margin

- Tapered plastic tip designed to be placed at the gingival margin

- Thorough instruction must be given to the patient prior to home use

- Most common antimicrobials used include essential oils (full strength) & Chlorhexidine (dilute) but check manufacturer instructions (some may damage irrigator)
Benefits From Irrigation:

- reduction of gingivitis & bleeding NOT periodontitis  (controversial) but does reduce pathogens

- reduction or alteration of microbial flora/pathogens/inflammatory mediators

- penetration of the pocket beyond tooth brush alone but how far? pocket depth into sulcus is usually limited with home use

but depends on patient dexterity, type of tip used, etc. Note- Most favorable studies appear to be done by waterpik company

- studies show much better than simply rinsing  & therefore likely enhances delivery of antimicrobial agents

- overall oral disinfection

- studies have shown can be used as an effective alternative to flossing

- some data suggests professional subirrigation following rootplaning better & has synergistic effect over rootplaning alone-

but debated (many studies do not back this claim or very minimal difference)  See perio book

- greatest benefit is seen in patients who perform inadequate interproximal cleansing

- may be increased benefit with medicaments v/s water alone? (but debated)- some products recommend only water and some solutions should be diluted  (see manufacture’s instructions)

Advantages of Irrigation:

- patients participate “co-therapy”

- improved biofilm removal in difficult to reach areas

- care for special need areas, also can get orthodontic tips

Contraindications:

- physician should review patients who previously require antibiotic premedication for dental treatment prior to introducing oral irrigation (bacteremia)

- patients with periodontal abscesses or ulcerative lesions
Mouth rinses can be preventive, cosmetic or therapeutic

Functions of Chemotherapeutic agents

a. Antimicrobials to reduce or inhibit microbial activity-examples are quaternary ammonium compounds and phenol

b. Oxygenating agents to cleanse, debride and release oxygen-usually hydrogen peroxide/carbamide peroxide

c. Astringents to shrink tissues – zinc citrate

d. Anodynes to alleviate pain and soothe sore spots usually phenol derivatives

e. Buffering agents to reduce acidity and relieve soft tissue pain-example -sodium bicarbonate

f. Deodorizing agents to neutralize odors example –chlorophyll, zinc chloride

g. Oxidizing- neutralize VSC usually chlorine dioxide/zinc chloride

Types:

1. Chlorhexidine gluconate (Peridex/Periogard)

   a. Rx only - CHG or CHX

   b. .2 % not legal in US

   c. .12 % concentration containing 11.6% alcohol, pH 5.5 (*some available now alcohol free- GUM brand)

   d. Active against a wide range of gram-positive and gram-negative organisms and fungi – reduces mutans streptocci (caries)

   e. Alters cell wall of organisms

   f. Rapidly absorbed & binds to teeth and pellicle and released slowly prolonging effect- substantivity (8-12 hours)

   g. Many studies have been done establishing it as a stable, safe, and effective rinse in preventing and controlling bacterial plaque and reducing and inhibiting gingivitis; caries

   h. May be effective in controlling inflammation following scaling and rootplaning, prophylaxis, or periodontal surgery

   i. May cause formation of brownish-yellow stain (easily polished off)

   j. May cause slight increase in supracalculus formation (especially if poor OH)

   k. Unpleasant taste may hinder patient acceptance-and have temporary loss of taste
l. May cause minor irritation to lips, tongue, burning and soreness of the mucosa

m. Inactivated by dentifrice surfactants for short-term use-limit to 6 months

n. Use 2 times a day for 30-60 seconds (see instructions on bottle)

o. Antimicrobial/antigingivitis; used for “full mouth disinfection” See Mosby’s

2. Phenol-related essential oils (Listerine and many store brands “antiseptic”)

   a. Available without a Rx

   b. First OTC antiplaque and antigingivitis mouth rinse to be approved by the ADA; reduces mutans streptocci (caries); used widely for preprocedural rinse (94% reduction)

   c. Contains menthol, thymol, eucalyptol, menthol, and methyl salicylate “essential oils” and alcohol (some)

   d. Short acting; little substantivity (although company claims 12 hours)

   e. Microorganisms do not develop a resistance

   f. Patients are instructed to rinse twice daily with 1/2-2/3 oz of Listerine for 30 seconds

   g. Studies indicate efficacy in the inhibition of bacterial plaque and gingivitis by up to 34%

   h. Strong taste may hinder acceptance and adherence to 30 second rinse 2 x’s as recommended by manufacturer

   i. Can cause burning and bitter taste

   j. Newer brands can contain zinc chloride, whitening agent, less alcohol & “less intense”

   k. Not for children <12 or alcoholics

3. Fluoridated

4. Oxygenating- examples Peroxyl & Prevention (some contain carbamide peroxide, hydrogen peroxide and alcohol)- short term use recommended (especially if hydrogen peroxide- why?); effects are negligible

5. CPC- Quaternary Ammonium Compounds – Cetylpyridinium Chloride .05-.07%; new Crest Prohealth (contains NO alcohol- possible increase in calc, stain, and gingival burning/sloughing; some substantivity claimed but low—recommended typically for over 12 years); also in Scope, Cepacol, Viadent & Rembrandt brands though may be very low % CPC

6. Triclosan Contraversial-- some market as “triclosan free” but some MR contain triclosan

7. Prebrushing (efficacy not documented)-- not recommended
- Mouthrinses, sprays, or swab sticks contain moisteners; recommended for patients to relieve oral symptoms of xerostomia

–should be combined with fluoride due to increase caries; several have been accepted by ADA- Salivart and Xero-lube

- Oasis by Sensodyne moisturizing & binds to tissues up to 2 hours (mucoadhesion); radiation/chemo pts.

- alcohol often added to enhance flavor, aftertaste, increase solubility and NO definite link to oral cancer or drying tissues; However, if patient currently taking Flagyl (metronidazole) – an antibiotic- then products with alcohol NOT recommended

Inexpensive mouthrinses may be prepared by the patient:

a. Isotonic (normal) saline solution: ½ teaspoon of salt in 8 oz. of warm water

b. Hypertonic saline solution: ½ teaspoon of salt in 4 oz. of warm water *for edema/swelling (after SRP)

c. Sodium bicarbonate solution: ½ teaspoon of sodium bicarbonate in 8 oz. of water
Dentifrices

Dentifrice - substance used with a toothbrush on accessible tooth surfaces; can be cosmetic/therapeutic

Ingredients & function (See Wilkins) -- & substance used for each*

- surfactants/detergents (foam/cleanse)    SLS
- abrasive (clean/polish) Calcium/bio carbonate/salts/alum oxide/silica  20-40%
- binder (thicken/stabilize)    colloids/cellulose/alginate
- humectant (prevent drying/hardening)    xylitol/glycerol/sorbitol
- preservative (prevent mircoorg growth)    alcohol/benzoates/phenols
- flavor (sweetens)       xylitol/sorbitol/glycerol/essential oils/menthol
- water (maintains formulation)

Therapeutic effects:

- antibiofilm/gingivitis (triclosan;stannous fluoride; zinc citrate) - Colgate Total 1997
- anticalc (pyrophosphates; hexa)
- anticaries (fluoride)
- remineralization (ACP- Recaldent)
- antisensitivity (potassium nitrate/citrate/chloride; stannous fluoride)

Natural - One brand of natural toothpaste, Tom's of Maine, purchased by Colgate-Palmolive became the first natural toothpaste to receive the Seal of Acceptance from the American Dental Association (ADA).