ICCD - Best Practice Protocols for Head and Neck Cancer Patients

How can SLPs best help this population?
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Disclosures

• University of Iowa Health Care
  – We are staff employees and receive salaries
  – No personal, professional or financial matters to disclose

• Photos enclosed within this presentation were generated using AI technology and are not real patients.
Course Objectives

• Learners will:
  – Name 3 radiation toxicities and appropriate management strategies
  – Describe the role of SLP involvement in the HNC pathway
  – Describe anatomical and physiological changes after total laryngectomy
  – Describe the 5 alaryngeal communication techniques for total laryngectomy patients
What is Cancer?

• A disease caused by an uncontrolled division of abnormal cells in a part of the body

• A malignant growth or tumor resulting from division of abnormal cells

• A practice or phenomenon perceived to be evil or destructive and hard to contain or eradicate

Dictionary.com
What is Cancer?

- Damaged DNA or errors within cell (oncogenes)
- Cell growth out of control (hyperplasia)
- Out of control growth of cells forms a tumor...sometimes
- Tumors can be be benign or malignant (dysplasia)
- Tumor creates a “microenvironment”
- Can metastasize (spread) to other areas of the body
Statistics via National Cancer Institute (NCI)

- 2020: Estimated 1,806,590 new cases, 606,520 deaths
- Incidence: 442.4 per 100,000 persons per year (based on 2013-2017 cases)
- Mortality: 158.3 per 100,000 persons per year (based on 2013-2017 cases)
- Approximately 39.5% of persons will be diagnosed with cancer at some point in their lifetimes (based on 2015-2017 data)
Statistics & Info

• Accounts for ~4% of cancers in the US (NCI)
• 2020 Estimates (as of January 2020): 53,260 - 65,630 new cases, 10,750-14,500 deaths (NCI & cancer.net)
Classifications – 2 Types

- Solid Tissue Cancers
  - Carcinoma
    - Formed in epithelial cells
    - Most common type of cancer
  - Sarcoma
    - Develops in connective tissue or bone

- Liquid Cancers
  - Leukemia
    - Cancer of the blood – begin in bone marrow - blood cells grow out of control
  - Lymphoma
    - Cancer cells suspended in lymph fluid
  - Multiple Myeloma
    - Cancer cells suspended in plasma
Carcinoma- A Deeper Dive

- Squamous Cell Carcinoma (SCC)
  - Forms in epidermis’ top layer
    - Skin
    - Mucus membranes

Our three-part mission

**Education**
Teaching and training tomorrow’s health care providers

**Research**
Bringing new discoveries and new treatments

**Patient Care**
Providing high-quality primary and specialty care services
Risk Factors

- Alcohol and Tobacco (Dal Maso et al, 2016)
- Epstein-Barr Virus
- Occupational/environmental exposures
- Previous HNC
- Radiation Exposure
- HPV, especially HPV 16 (Marur et al, 2010)
  - Over last 1.5 decades, cases of HPV related cancers have significantly increased
  - Responsible for 70% of oropharyngeal cancers (CDC, 2020)
  - 61% lower risk of death, 62% lower risk of progression (Fakhry et al, 2008)
Cancer Staging

- Refers to tumor size and how far the tumor cells have spread
- TNM staging system is used for HNC
  - $T = \text{Tumor}$ – refers to tumor size
    - Larger size gets larger number (x, 0, 1, 2, 3, 4)
  - $N = \text{Node}$ – refers to lymph node spread
    - More spread gets larger number (x, 0, 1, 2, 3)
  - $M = \text{Metastasis}$ – refers to disease spread to other organ systems (x, 0, 1)
- E.g., T2N1M0; T1N1M0; T4N3M1
- HPV status can affect staging classification
TNM Classification - Tumor

TNM Classification: T (Tumor)

- T (tumor): refers to the size and extent of the main tumor
  - TX: primary tumor cannot be assessed
  - T0: no evidence of primary tumor
  - T1: $\leq 2$ cm in greatest dimension
  - T2: $\geq 2$ cm and $< 4$ cm in greatest dimension
  - T3: $> 4$ cm in greatest dimension
  - T4: Invades adjacent structures
TNM Classification: N (Nodes)

• N (nodes): refers to the number of nearby lymph nodes that have cancer
  • Important predictor of survival
  • An increase in nodes affected decreases prognosis incrementally
    • NX: Lymph nodes cannot be assessed
    • N0: No regional lymph nodes
    • N1: Single ipsilateral node, ≤ 3 cm
    • N2a: Single ipsilateral node 3-6 cm
    • N2b: Multiple ipsilateral nodes < 6 cm
    • N2c: Bilateral or contralateral nodes < 6 cm
    • N3: > 6 cm (single or multiple)
TNM Classification - Nodes
**TNM Classification - Metastasis**

**TNM Classification: M (Metastasis)**

- M (metastases): refers to whether the cancer has metastasized or spread from the primary tumor to other parts of the body
  - Rare at presentation
  - Lung is common site
    - MX: distant metastases cannot be assessed
    - M0: no distant metastases
    - M1: distant metastases
### Table 5. AJCC (8th Edition) Prognostic Stage Groups for Non-HPV-Associated (p16−) OPSCC

<table>
<thead>
<tr>
<th>T Category</th>
<th>N Category</th>
<th>M Category</th>
<th>Stage Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tis</td>
<td>N0</td>
<td>M0</td>
<td>0</td>
</tr>
<tr>
<td>T1</td>
<td>N0</td>
<td>M0</td>
<td>I</td>
</tr>
<tr>
<td>T2</td>
<td>N0</td>
<td>M0</td>
<td>II</td>
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<tr>
<td>T3</td>
<td>N0</td>
<td>M0</td>
<td>III</td>
</tr>
<tr>
<td>T1, T2, T3</td>
<td>N1</td>
<td>M0</td>
<td>III</td>
</tr>
<tr>
<td>T4a</td>
<td>N0, N1</td>
<td>M0</td>
<td>IVA</td>
</tr>
<tr>
<td>T1, T2, T3, T4a</td>
<td>N2</td>
<td>M0</td>
<td>IVA</td>
</tr>
<tr>
<td>AnyT</td>
<td>N3</td>
<td>M0</td>
<td>IVB</td>
</tr>
<tr>
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<td>Any N</td>
<td>M0</td>
<td>IVB</td>
</tr>
<tr>
<td>AnyT</td>
<td>Any N</td>
<td>M1</td>
<td>IVC</td>
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AJCC = American Joint Committee on Cancer; HPV = human papillomavirus; OPSCC = oropharyngeal squamous cell carcinoma.

### Table 3. AJCC (8th Edition) Prognostic Stage Groups for HPV-Associated (p16+) OPSCC (Pathologic)

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<tr>
<td>T0, T1, or T2</td>
<td>N0, N1</td>
<td>M0</td>
<td>I</td>
</tr>
<tr>
<td>T0, T1, or T2</td>
<td>N2</td>
<td>M0</td>
<td>II</td>
</tr>
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<td>T3 or T4</td>
<td>N0, N1</td>
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Cancer Grade

- Refers to how fast/aggressively the tumor is growing
- Determined by the pathologist evaluating the biopsy sample

- Stage AND Grade are important when determining likely prognosis and aggressiveness of management
Treatment planning

• Findings discussed between members of the oncology team - ENT, RadOnc, MedOnc, etc. and initial management plan discussed
  − At UIHC, weekly multidisciplinary tumor board
• Review case history, pathology results, establish initial POC
Management Options

- Surgery
- Radiation
- Chemotherapy
  - Systemic
  - Targeted
- Immunotherapy

- Definitive
- Palliative
Management Options

• Single Modality

• Multi-Modality
  – Concurrent – At the same time
    • E.g., Chemoradiation
  – Adjuvant – One at a time, one after another
    • E.g., Surgery then radiation
  – Neo-adjuvant – One at a time, one before another
    • E.g., Chemotherapy to shrink tumor, then surgery or radiation
Factors To Consider

• Treatment burden/Morbidity
• Functional outcomes/QOL

• Shift in treatment strategy focusing on organ preservation
  – Doesn’t always equate to preserved swallow function

• ANY management option is going to result in tissue change and need for rehab and/or establishment of “new normal”
The SLP’s Role in HNC Care
Cancer Care as a Team Approach

• The Multi-Disciplinary Team
  o The doctors:
    ▪ Otolaryngologist (surgeon)
    ▪ Radiation oncologist (radiation therapy)
    ▪ Medical oncologist (chemotherapy/immunotherapy)
  o The supportive staff:
    ▪ Oncology nurse
    ▪ Social worker
    ▪ Dietician
    ▪ Palliative team
    ▪ Dentist
    ▪ Radiation techs
    ▪ Speech Pathologists

• What is the focus of each team member?
Why are SLPs so important in HNC care?

- Consider the potential types of impairment or complication
  - Swallowing
  - Speech
  - Communication
  - Trismus
  - Voicing
  - Lymphedema
  - Pulmonary Health
  - Use of Percutaneous Endoscopic Gastronomy (PEG)
  - Tracheostomy Tube
Why are SLPs so important in HNC care?

• Consider timing of these side effects
  o Acute with significant changes day to day, week to week
  o Late-effect or delayed effects

"A comprehensive assessment and monitoring of HNC patients by specialized MDTs will result in better treatment adherence and tolerance, reduction in long-term side effects, improved quality of life and ultimately improved treatment outcome and survival."

Taberna et. al, 2020
# How Do I Establish Myself in My Facility?

<table>
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<tr>
<th>Educate</th>
<th>Pathway</th>
<th>Training</th>
<th>Materials</th>
</tr>
</thead>
</table>
| - Get to know the team members               | - Propose a pathway or role for SLP involvement in your facility | - Consider obtaining additional education & certifications  
  • HNC related courses/CEUs  
  • PMV courses  
  • Lymphedema  
  • TL courses (Atos, InHealth)  
  • Manual Therapy? | - Create handouts for patients and team members.  
  • SLP info sheet  
  • Exercise sheets  
  • Handout on side effects |
| - Educate the broader team HOW you can support the patients | - Help the team envision how YOU fit into their care plan | | |
| - Consider allies, establish a champion       |                                              |                                               | |

Department of Otolaryngology—Head and Neck Surgery
The Role of Speech Pathology During Your Treatment:

Treatment for head and neck cancer (HNC) can cause changes to your swallowing, speech, and voice. As part of your multidisciplinary medical team, the speech pathologists at the University of Iowa Hospital and Clinics (UIHC) will help you manage these changes. The HNC Speech Pathology team includes Erin Logan-Hillem, Brian Peterson, and Brandon Yett. Our team has advanced training and experience in head and neck cancer to help you maximize outcomes and manage side effects during and after your treatment.

Visits will focus on:
- helping you eat as safe and as varied as possible during and after treatment
- managing your radiation/chemotherapy side effects
- encouraging consistent completion of recommended exercises
- teaching strategies & therapies to manage possible post-treatment swelling, known as lymphedema

Speech Pathology Appointment Overview

<table>
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<th>When</th>
<th>Before Treatment</th>
<th>During Treatment</th>
<th>After Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>What</td>
<td>Clinical Swallow Evaluation or Instrumental Swallow Test (X-ray or Scope based Exam)</td>
<td>Meet with speech pathologists each week for check-ins</td>
<td>Meet with speech pathologists when returning for cancer team follow-ups or for therapy as needed</td>
</tr>
<tr>
<td>How Long</td>
<td>45-60 minutes</td>
<td>15-30 minutes</td>
<td>45-60 minutes</td>
</tr>
<tr>
<td>Where</td>
<td>Speech Pathology Clinic (within Otolaryngology clinic)</td>
<td>Radiation Clinic or Chemotherapy Suite (if applicable)</td>
<td>Speech Pathology Clinic (within Otolaryngology clinic)</td>
</tr>
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<td>If you have an X-ray swallow test, you will go to Fluoroscopy (Level 3, Elevator H)</td>
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Do I need to do anything to schedule these visits?
No. The scheduling staff will contact you to set up your initial evaluation. During treatment, your appointments will be scheduled close to your treatment time to minimize your wait time at UIHC. After your finish treatment, your visits will be on the same day as other follow up appointments to reduce travel time.

What if I experience difficulties eating years after treatment?
Some individuals experience changes in their swallowing years after treatment. They are encouraged to notify their physician who can arrange for an evaluation with the Speech Pathology department. Patients who are being seen by the Otolaryngology (Ear-Nose-Throat) team will follow up with the survivorship clinic every six months for five years after treatment. Any eating difficulties can also be mentioned during those visits. If additional assistance is needed, an evaluation with speech pathology will be scheduled.
Treatment Approach

Initial Evaluation

Weekly or Bi-Weekly Therapy During Treatment
4-7 sessions

Post-treatment Therapy
Pre-treatment evaluation

• Pre-operative intervention
  – Acquire as much information as possible about upcoming surgical procedure (i.e., procedure type, manner of closure)
    • Anticipated need for trach?
    • Need for enteral nutrition (NG or PEG)?

• Pre-C/RT intervention
  – Acquire as much information as possible about chemo/radiation plan
    • What are areas being targeted by radiation?
    • What is baseline speech/swallow function?
Impact of Surgery

- Extent of impairments after surgery depends on what/where/how much resected
- Depends on manner of resection
  - Open procedure
  - Robotic Surgery
  - Laser

https://www.lifespan.org/centers-services/urology/multidisciplinary-clinic/davinci-surgical-system
Impact of Surgery

• Depends on manner of closure
  – Mucosalizing
  – Primary closure
  – Reconstruction
    • Pectoralis flap
    • Anterolateral thigh flap (ALT)
    • Radial forearm free flap (RFFF)
    • Bone Graft
    • Skin Graft
    • AlloDerm - dermal matrix made of collagen, elastin, and laminin fabricated from human cadaver skin (Taufique, et al., 2018)
Impact of Surgery – Need for trach?

• Artificial airway placed through anterior neck into trachea

• Can negatively affect voice, communication, and swallowing
Tracheostomy Impacts

Pros-
• Allows for securement of airway
• Allows for bypass of supraglottic, glottic, subglottic narrowing
• Allow for pulmonary toileting and suctioning of secretions

Cons-
• Loss of airflow through upper airway
  – Changes to phonation, sensation, and subglottic pressure
Tracheostomy Management

- **Passy-Muir Valve**
  - One-way, bias-closed valve
  - Re-directs air up through larynx/pharynx
  - Re-establishes “closed system”

- **Trach cuff MUST** be deflated prior to placement
Open speaking valve

TrachPhone Heat and Moisture Exchanger (HME)

- Always in an open position
- Can be used with any tracheostomy tube dependent patient
  use a plastic trach with 15 mm hub or with adaptor ring (PMV)
- O2 port
- Suction port
- Finger depression of HME to voice
Trachphone

- One piece system **available from ATOS medical** to be worn 24/7
- Disposable – throw away the HME every 24 hours or if saturated
- Patient consent and prescription form required to obtain s/p discharge
Open speaking valve

Provox HME adaptor and HME

- any tracheostomy tube patient using a plastic trach with 15 mm hub
Impact of Surgery

• When assessing swallowing I’m asking myself:
  – Is this patient appropriate to initiate/continue PO intake
  – Is this patient appropriate to take PO alone?
  – Does this patient need/need to continue enteral nutrition?

• If the patient appears appropriate to initiate/continue PO intake:
  – Where is the area of impairment?
  – Does this patient need special equipment/maneuvers to achieve PO intake?
  – How can I assist in optimizing oral containment, oral transit, pharyngeal transit/safety?
  – What is included in my therapy plan?
Impact of Radiation +/- Chemotherapy

• Depends on the tissue(s)/area(s) in the radiation field

• Chemotherapy is a radiosensitizing agent

• Anticipate changes in each area to some degree for everyone
The UIHC Treatment Approach - Evaluation

• Initial Evaluation
  – Complete EAT10
  – Clinical bedside or instrumental evaluation
    • Which one? Review chart and consider factors like staging, radiation plan, other health history
  – Education!
    • Provide information packet
    • SLP's role throughout treatment process (Senchak et al, 2019)
    • Swallow strategies - safety and efficiency
    • Management of side effects (radiation toxicities)
    • Food options, as needed
  – Initial instruction of prophylactic oropharyngeal exercise program
Treatment Approach

Initial Evaluation

Weekly or Bi-Weekly Therapy During Treatment
4-7 sessions

Post-treatment Therapy
## Our Role During Treatment

- **Weekly/Bi-weekly visits during treatment**
  - Typically meet 5-7 times during treatment for 20-30 minutes

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<th>Description</th>
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Dynamic Dysphagia Therapy

• Changing function and tolerance means therapy needs to be dynamic
• What are they eating?
• Consider PO trials during session
• What kind of issues are they having?

Coughing?
- Bolus size?
- Maneuvers and positions?
- Alter diet and drink recs?

Food sticking?
- Alter diet recs?
- Maneuvers and positions?
- Alternate solids and drinks?

Anterior loss?
- Use/avoid straw?
- Head tilt?
Dynamic Dysphagia Therapy

- Aspiration may be unavoidable
- Encourage good oral cares
- Educate patients on the pillars of aspiration and how they affect risk
Dynamic Dysphagia Therapy

- What if they get a PEG?
  - Are they able to tolerate anything by mouth?

---

If strict NPO then focus on exercises

Sips of water/liquids throughout the day

Aim for 2x snacks by mouth each day

Eat what they can by mouth, supplement with PEG as needed
**Our Role During Treatment**

- Weekly/Bi-weekly visits during treatment
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<tr>
<td>Radiation Toxicities</td>
<td>Acute (during treatment and up to 3 months post)</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Thick saliva/ropey saliva (xerostomia)</td>
<td>Dry mouth (xerostomia)</td>
</tr>
<tr>
<td>Dysphagia</td>
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</tr>
<tr>
<td>Changing taste (dysgeusia)</td>
<td>Changing taste, sensory changes</td>
</tr>
<tr>
<td>Voice changes / hoarseness</td>
<td>Voice changes / hoarseness</td>
</tr>
<tr>
<td>Trismus</td>
<td>Trismus</td>
</tr>
<tr>
<td>Hearing loss</td>
<td>Hearing loss</td>
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<tr>
<td>Mucositis</td>
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<tr>
<td>Dermatitis</td>
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<tr>
<td>Fatigue</td>
<td></td>
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<tr>
<td>Soft tissue edema</td>
<td></td>
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<tr>
<td>Painful swallowing (odynophagia)</td>
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<tr>
<td>Nausea</td>
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<tr>
<td></td>
<td>Osteoradionecrosis</td>
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<td></td>
<td>Cranial Nerve Palsy</td>
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<td>Dental caries (cavities)</td>
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<td>Lymphedema</td>
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Timeline of Radiation Toxicities

**Weeks 1-2**
- **MILD**
  - Changes in taste, drier mouth, mild discomfort, fatigue, redness of skin, inflammation of tissue.

**Weeks 3-4**
- **HIGH VARIABILITY**
  - Side effects intensify, appetite decreases, oral intake decreases/changes, swallowing may become more difficult.

**Weeks 5-7**
- **WORSENING**
  - Increased mucositis and pain, increased pain with swallowing, increased risk of aspiration, voice changes, depression.

**Post-treatment**
- **WORSE THEN BETTER**
  - Remains challenging or even gets worse. Improvements begin 2-3 weeks later with decreasing odynophagia, mucositis, improving, xerostomia, taste.
Odynophagia (mouth pain/sores)

- Avoid hard, crunchy foods. Creamy, bland foods tend to be best tolerated
- Baking soda and salt rinse
- Good oral cares, using alcohol-free mouthwashes and soft bristled brushes
- Viscous lidocaine, Magic Mouthwash, Pain medications per MD

- Cryotherapy for chemotherapy patients (Al-Rudayni AHM et al, 2021)
- Honey
- Aloe Vera Juice?
- Healios?
Dry Mouth and/or Thick Saliva (Xerostomia)

- Increase water intake!
- Baking soda and salt rinses
- Sugar-free lozenges
- Artificial saliva products- Biotene, Xylimelts
- Avoid caffeine and alcohol
- Humidifier by bed
- Add moisture/sauces to food
- Spritz food with olive oil
- Good oral cares
- Suction machine may be needed
- Olive oil/coconut oil swish and swallow
- Gargle dissolved meat tenderizer in water
Dysgeusia

- Bland vs Bad
- Baking soda and salt rinse
- Avoid metal silverware and canned foods
- Avoid beef if taste is off or bad
- Avoid pungent or strong spices
- Pay attention to food/drink temperature
- Focus on creamy and high-protein foods (yogurt, pudding, cottage cheese, shakes)
- Maximize calories!
- Keep trying. Taste will vary
## What should I eat?

Choosing foods can be difficult when going through treatment for head and neck cancer due to lack of dentition, changing tastes/smells, dry mouth and oropharynx pain.

Below is a list of soft, moist, high nutrient foods that may feel easier and more comfortable to eat during this time.

### Proteins:
- Meatloaf
- Sloppy Joe meat
- Egg salad
- Ham salad
- Chicken salad
- Tuna salad
- Beans
- Fish (baked, broiled)
- Eggs in all forms
- Creamy soups (broccoli cheese, potato soup)
- Baked fillings (soft cooked meats and rice)
- Hummus
- Tofu

### Grains:
- Pancakes (with added butter and maple syrup)
- Muffins
- Soft breads (banana bread, zucchini bread, soft dinner roll, biscuits with gravy)
- Soft French toast
- Oatmeal or cream of wheat (with whole milk or heavy whipping cream)
- Pasta (aim for smaller shapes, cooked extra long for softer texture)
- Macaroni and cheese
- Rice pudding

### Protein Shake Ingredients:
- Ensure, Boost, Premier Protein, Muscle Milk
- Whey protein isolate powder
- Whole milk, heavy whipping cream
- Powdered peanut butter or regular peanut butter
- Avocado
- Frozen fruit
- Ice cream
- Full-fat Greek yogurt

### Dairy:
- Full-fat Greek yogurt
- Full-fat cottage cheese
- Ice cream
- Pudding
- Tapioca
- Whole milk
- Heavy whipping cream, half and half
- Custard

### Vegetables and Fruits:
- Soft fruits (bananas, peaches, pears, ripe berries, ripe melons)
- Canned fruits (look for plastic containers)
- Soft cooked vegetables (carrots, peas, sweet potato, green beans, beets, squash)
- Avocado
- Applesauce
- Mashed potatoes with gravy, butter

### General add ins (add to meats, fruits and vegetables to increase nutrition and calories):
- Butter
- Sour cream
- Heavy whipping cream
- Olive oil, avocado oil (can be related on foods)
- Guacamole
- Cheese
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Prophylactic Exercises for HNC Patients
Exercises/Maneuvers

• Swallowing exercise program targets areas of impairment and/or areas most likely to be affected in RT treatment plan.
• Impairments and instrumental findings will help choose exercise plan
• Number and frequency of exercises/maneuvers recommended may change as patients progress through treatment
  o Consider ways to motivate them to get desired number of reps in
• Focus may shift from eating AND exercise to eating AS exercise, particularly true if PEG is placed
Yeah, but why?!

• Less PO intake = less resistive load on swallow musculature, proactive swallow therapy aims to maximize use of swallow musculature during RT or CRT (Hutcheson, 2013)

• Use it or lose it

• Targeting swallowing habilitation vs rehabilitation
Exercises/Stretches

- Lingual ROM +/- resistance
- Jaw opening
- Pharyngeal strengthening
- Tongue base
- Laryngeal elevation
- Laryngeal vestibule closure
- UES opening
Exercises/Stretches

• Lingual Exercises
  – Is there weakness? A flap?
  – Lingual ROM
    • Out, back, up, down, left, right, trace around teeth/gums
  – Lingual ROM against resistance
    • Extend tongue out against tongue depressor/back of spoon
    • Place tongue depressor/back of spoon at labial corner, extend tongue and press against tongue depressor/back of spoon
    • Put fingers on cheek, press tongue inside cheek against fingers
Exercises/Stretches

- Jaw Opening Exercises- (≥35 mm or 3 stacked fingers=normal)
  - Goal is reducing risk of trismus
    - Open mouth as wide as possible to a point of stretch, but not pain
    - Manual assistance to maximize opening
    - Stacked tongue depressors
    - Therabite/OraStretch
  - Jaw side-to-side movement
  - Circular jaw movement ("exaggerated fake chew")
  - Manual Therapy (McMillan et al, 2022)
Exercises/Maneuvers

- Pharyngeal Strengthening Exercises
  - Masako "Tongue Hold" Exercise
    - Extend tongue tip out and hold between teeth, gums, or with gauze/paper towel
    - Swallow as many times as possible with tongue extended until you "hit a wall"

- Tongue Base Exercises
  - Tongue pull back
    - Leave tongue tip on FOM and pull tongue back as if trying to touch your spine
  - Gargle
  - Effortful swallow
Exercises/Maneuvers

- Hyolaryngeal Elevation Exercises
  - Mendelsohn Maneuver
    - Place finger on Adam's Apple, feel elevation and descent during a normal swallow
    - Next, try to hold elevation at its highest point using throat muscles for 3-5 seconds
    - Finish the swallow
    - Consider showing them VFSS videos to highlight movement
  - Falsetto
    - Glide on "eee" from low to highest pitch and hold for 2-3 seconds
Exercises/Maneuvers

• UES Opening
  – Shaker
    – Lie flat on flat surface (nothing under your head) with shoulders flat
    – Engage anterior neck musculature to pull your chin toward chest
      – Option 1: Hold for 60 seconds, rest for 30 seconds and repeat
      – Option 2: Make controlled repetitive movement 30 times
  – Mendelsohn Manuever
Exercises/Maneuvers

• Laryngeal Vestibule Closure
  – Super-Supraglottic Swallow
    • Take material into your mouth
    • Hold your breath and BEAR DOWN
    • Swallow HARD
    • Cough/throat clear immediately after
    • Swallow again
# UIHC Swallowing Exercise Log

**Updated 9/3/30**

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Our Role During Treatment

• Weekly/Bi-weekly visits during treatment
  – Typically meet 5-7 times during treatment for 20-30 minutes

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<tr>
<th>Assess</th>
<th>Assess current PO/swallow status, offering suggestions to maximize nutrition and safety. <strong>KEEP SWALLOWING.</strong></th>
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<td>Monitor</td>
<td>Monitor evolution of side effects. Provide strategies to reduce/minimize/support to maximize oral intake, adherence and mood.</td>
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<tr>
<td>Reinforce</td>
<td>Reinforce swallowing exercise program completion/adherence</td>
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<tr>
<td>Support</td>
<td>Provide emotional support. Remind them of their supports.</td>
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How can we support our patients and caregivers as health care professionals?

- Listen. “Sit on the feelings bench with them”
- Ask how they are doing
- Offer suggestions if they seem open to them
- Connect them to appropriate individuals for additional resources as appropriate
- Offer optimism/hope as appropriate
- Ask them about other aspects of their life
- Be a cheerleader
The UIHC Treatment Approach

- Initial Evaluation
- Weekly or Bi-Weekly Therapy During Treatment (4-7 sessions)
- Post-treatment Therapy
Post-Treatment Therapy

- Common appointment timeline:
  - 1 month fini
  - 3 months fini
  - 6 months fini
  - 9 months fini
  - 12 months fini

- VFSS/FEES
  - Frequently completed at 3 or 6 months fini
  - May be warranted at 1 month fini. Why?
Dysphagia Management – After Treatment

How do we keep progressing toward patient goals?

- Toxicity Status
- PO Status
- PEG Tube Status
- Exercise Status
- Lymphedema Status
Dysphagia Management – After Treatment

How do we keep progressing toward patient goals?

- Toxicity Status
  - Re-rank toxicities and provide management recs
  - Provide education re: longevity of toxicities
    - Odynophagia likely will resolve in the weeks/months following completion of C/RT
    - Dysgeusia may take as long as 18 mo. to resolve and may never be “normal”
      - Muted taste overall
      - Changed taste preferences
    - Xerostomia may improve, but will likely be a life-long side effect
Dysphagia Management – After Treatment

How do we keep progressing toward patient goals?

– PO Status
  • Rate intake level with FOIS
    – If not at general diet, what is/are barrier(s)?
  • Re-assess functional status with PO trials
  • Make recommendations for FEES/VFSS as indicated
    – Assess new level of function
    – Biofeedback for recommended strategies/maneuvers
Dysphagia Management – After Treatment

How do we keep progressing toward patient goals?

– PEG Tube Status
  • Estimate % of intake via PEG vs PO
  • What are the limiting factors?
  • PEG weaning "plan", including repeat visit with dietician if indicated
  • Keep in mind there are MANY reasons patients get a PEG

– Sample PEG weaning plan:
  • Replace 1 can/carton of formula with a calorically equal amount of PO. Continue for 3-4 days. If well tolerated, then remove a second can/carton. Repeat until all intake is by mouth.
Dysphagia Management – After Treatment

How do we keep progressing toward patient goals?

– Exercise Status

• Status of recommended post-treatment home exercise program
  – Continuation of aggressive exercise regimen until 1 month fini visit or until PEG is removed

• As diet level increases, aggressive exercises less indicated

• Once tolerating general diet, will typically switch to "maintenance mode"
  – Typically Masako, Mendelsohn, Effortful
  – 1 set of 10x reps daily
Dysphagia Management – After Treatment

How do we keep progressing toward patient goals?

– Lymphedema Evaluation if indicated
  • Referral by MDs or SLPs
  • Lymphedema is chronic and progressive
  • Evaluation by SLP with external measurements, internal measurements if available/appropriate, and photos
    • Implement home program with manual lymphatic drainage
    • Obtain compression garment and begin wearing daily for 3+ hours
    • Regular follow-ups with SLP for MLD review and to collect new measurements/photos
    • Tactile referral for Flexitouch?
Jobst JoViPak Standard Chin Strap with Pad

Flexitouch by Tactile Medical
Dysphagia Management – After Treatment

Some thoughts on Lymphedema Management

- Training is required as this is a very specific type of massage to decongest designated areas of the body and move stagnant lymph fluid
- CLT=Certified Lymphedema Therapist
- SLPs can receive specialized training in manual lymphatic drainage
  - Norton School of Lymphedema Management
  - Klose Training (for CLTs only?)
- Important to "get ahead" of the lymphedema as it can be the first steps toward fibrosis
  - “You get out of it what you put in it”
Dysphagia Management – After Treatment

• Provide ongoing dysphagia treatment as indicated
  – Compensatory strategies
  – Life-long swallowing maintenance program
  – Expiratory muscle strength training (EMST), as appropriate
    • Particularly in cases of weak cough and/or chronic aspiration
    • Maximize cough strength, potentially indirectly increase pharyngeal swallow strength (Hutcheson, et al 2018)

Try to give patient the best tools to maintain safe PO intake and meet their eating-related goals, while avoiding aspiration pneumonia and late-onset RAD
Late Dysphagia - Hutcheson et al, 2012

• 29 Patients with late dysphagia (>5 years s/p fini) w/dysphagia symptoms referred for VFSS
  – All patients showed pharyngeal stasis
  – 79% showed silent aspiration
  – 86% developed aspiration PNA
  – 62% developed recurrent PNAs
  – No patient demonstrated durable improvement with rehabilitative, non-surgical treatments
Why all adult SLPs should care

• Many of our HNC patients do very well in treatment and go on to live full lives

• SLPs are likely to encounter individuals on their caseload who have a history of chemoradiation for HNC

• These patients likely have an increased risk of dysphagia and aspiration
Total Laryngectomy
Anatomical Changes

• Changes to breathing, swallowing, communication

https://inhealth.com/educational-materials
Tracheostomy  ≠  Total Laryngectomy

Temporary, Semi-Permanent &/or Permanent disruption between upper and lower respiratory tracts

Permanent separation of upper and lower respiratory tracts

https://cme.design/work/tracheostomy/
https://inhealth.com/educational-materials
Total laryngectomy pre-surgical counseling

- "What do you understand about what will change?"
- "What are your ultimate goals after this procedure"
- Provide a framework for SLP involvement
- Start supplies acquisition process
Considerations for Expectations

• Depends on manner of closure
  – Primary closure
  – Reconstruction
    • Rotational pectoralis flap
    • Anterolateral thigh flap (ALT)
    • Radial forearm free flap (RFFF)

• Depends on functional status

• Depends on social situation
Total laryngectomy – Changes to breathing

- All breathing occurs through stoma
- Nose and mouth no longer involved in respiration

https://inhealth.com/educational-materials

https://dnibrook.blogspot.com/p/stoma-care.html
Total laryngectomy – Changes to breathing

- Need to stent stoma
- HME system
- Why is that important?

https://www.atosmedical.us/product/provox-larytube
https://inhealth.com/category_s/47.htm
HME System

Exhalation

Inhalation

ATOS Medical, n.d.
Heat-moisture exchange (HME) system

- Considerations:
  - Adjuvant RT
  - Neck topography
  - Patient needs/preference
Heat-moisture exchange (HME) system

- System is intended to be worn 24/7
- Filters need to be changed every 24 hours or if saturated
- LaryTube must be cleaned at least 1x/day
- Adhesive baseplate can be worn as long as it’s sticky
Total laryngectomy – changes to communication

- Does patient lose the ability to communicate?
- Does patient lose the ability to speak?
- Patient loses the ability to phonate
Total laryngectomy – changes to communication – 5 options

https://www.geektonight.com/types-of-nonverbal-communication/

https://inhealth.com/educational-materials


https://recruitingdaily.com/how-far-are-we-with-texting-as-a-candidate-engagement-driver/
Total laryngectomy – changes to communication – 5 options

• UltraVoice Speaking Device

https://www.ultravoice2.com/electrolarynx-speech-device-works/
Electrolarynx

- Vibrations travel through neck or into oral cavity
- Choose optimal placement – neck, cheek, oral adapter
- Work to optimize intelligibility
  - Strategies similar to dysarthria patients
- Work to achieve optimal phrasing
  - Group a couple of words together, then lift the activator button

- University of Kansas Laryngectomy- Electrolarynx Sample

https://inhealth.com/educational-materials
Esophageal speech

- Learn to inject or inhale air into the esophagus
- Injection Method – build up high pressure in the mouth and push back of tongue to force air into esophagus (make yourself burp)
- Inhalation Method – Air in oral cavity sucked into esophagus at same time as air inhaled into lungs
- University of Kansas Laryngectomy - Esophageal Speech Sample
Tracheoesophageal Voice Prosthesis

- Placed at time of TL or secondary procedure
- More natural sounding
- Not appropriate for everyone
- Patient preference

- [University of Kansas Laryngectomy - TEVP Sample](https://inhealth.com/educational-materials)
Changes to Swallowing

• Do we even need to worry about this?

• YES!!
  – But not like we “usually” do
Changes to Swallowing

• Risk of aspiration is eliminated*
• Manner of reconstruction
  – Most people able to return to normal diet
    • May need extra moisture
    • May need liquid wash
• Likely benefit from strengthening exercises
References


References


Questions? Comments?
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