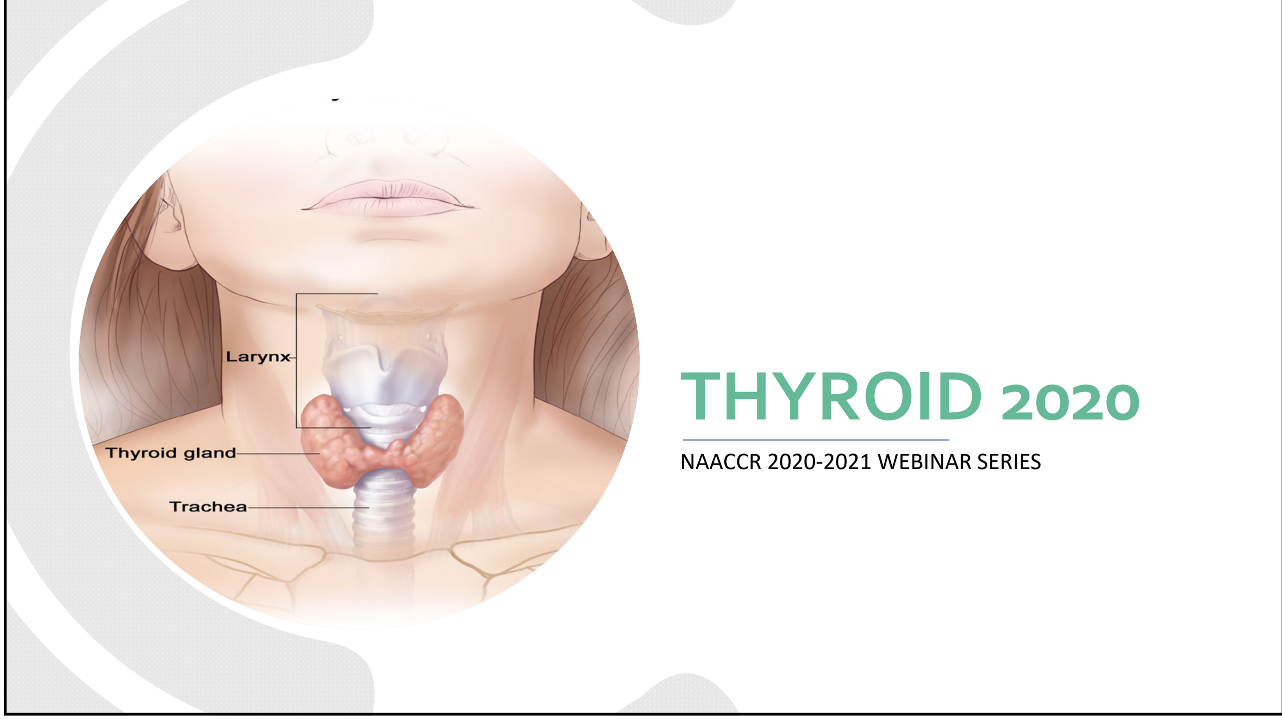

Q&A

- Please submit all questions concerning the webinar content through the Q&A panel.
- If you have participants watching this webinar at your site, please collect their names and emails.
- We will be distributing a Q&A document in about one week. This document will fully answer questions asked during the webinar and will contain any corrections that we may discover after the webinar.

2

FABULOUS PRIZES

3

GUEST PRESENTERS

- Recinda Sherman, MPH, PhD, CTR
- Melissa Riddle, CTR

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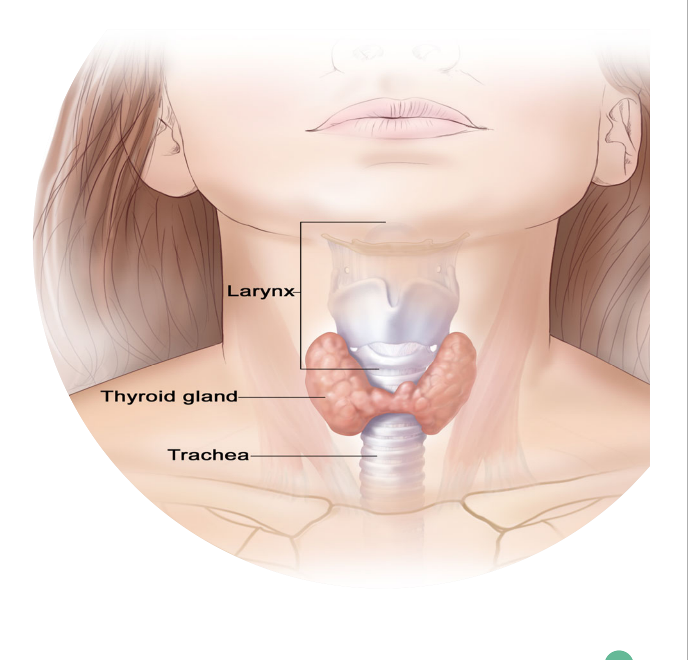
AGENDA

- Epi Moment
  - Recinda Sherman, CTR
- Anatomy
  - Melissa Riddle, CTR
- ICD O 3.2/Solid Tumor Rules
  - Jim Hofferkamp, CTR
- Staging
  - Jim Hofferkamp, CTR
- Treatment
  - Melissa Riddle



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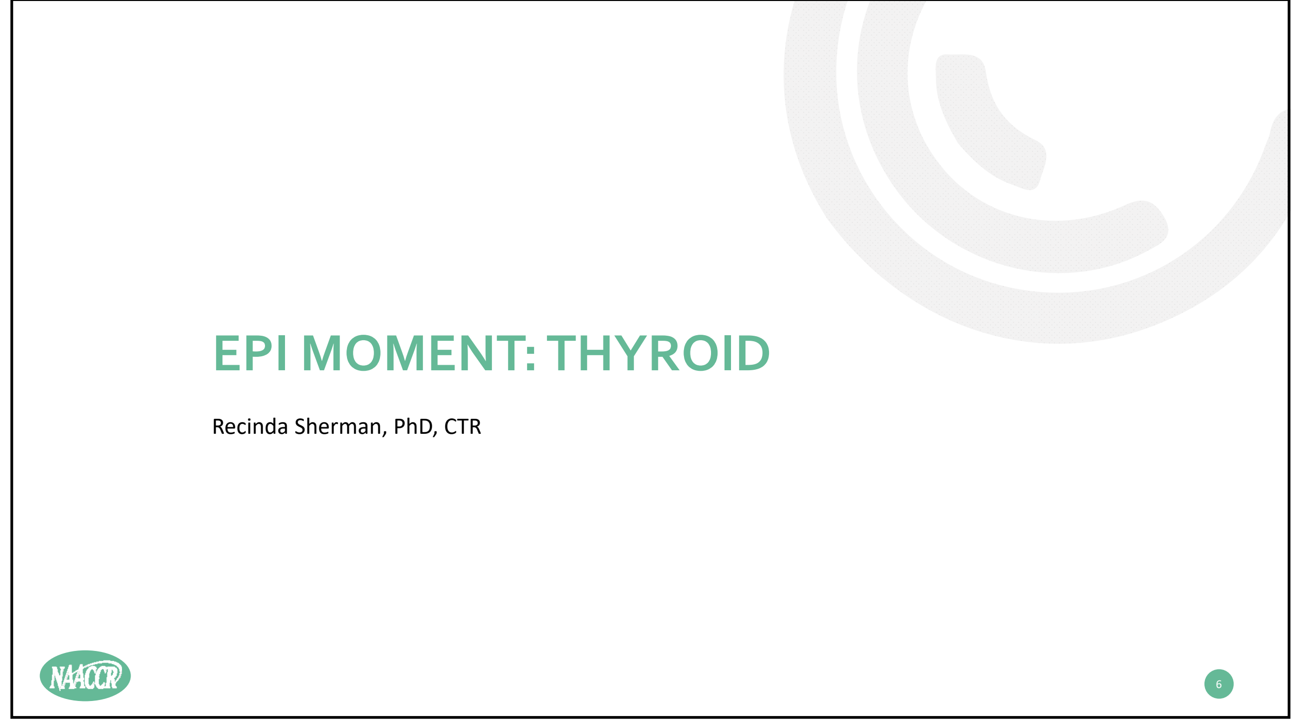


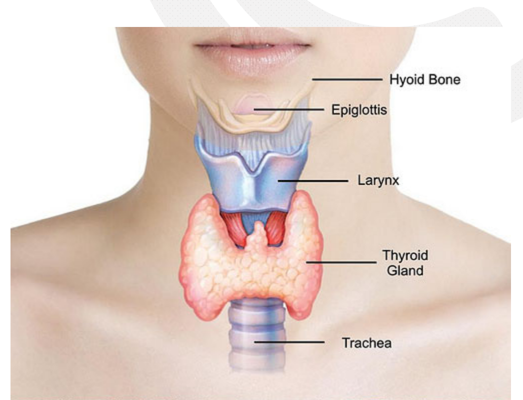
THYROID CANCER: SYMPTOMS & RISK FACTORS

- Symptoms
  - Lump/swelling neck
  - Pain neck & throat (often in front, up to ears)
  - Voice changes, trouble swallowing or breathing, constant cough
- Risk Factors
  - High dose ionizing radiation (rx tx may increase risk)
  - Low iodine diet, diabetes medication (MTC)
  - Benign thyroid or breast conditions, Hereditary conditions (MTC)
  - Women

7

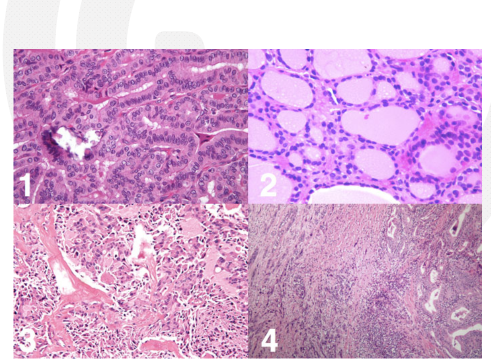
EPIDEMIOLOGY OF THYROID CANCER

- Analyzed alone
  - subsite of Endocrine System
- Rare
  - 14.7 per 100,000 incidence
  - 0.5 per 100,000 mortality
- Women
  - Incidence 3x higher vs men
  - 21.8 versus 7.4 per 100,000
- Young
  - 2/3 ages 20-55
- Survival high
  - 5-year survival 96+%



8

FOUR MAJOR HISTOLOGIES



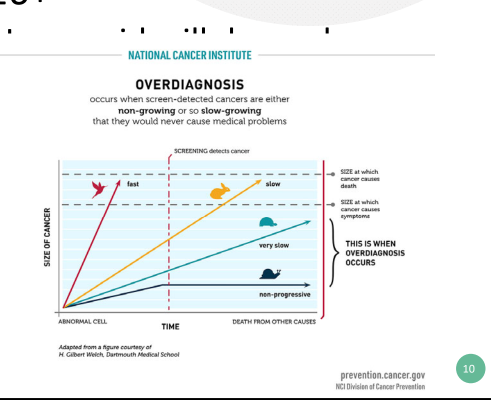
- Papillary 70-80%
  - 30 – 60 yo; more aggressive in older pts
- Follicular 10-15% (includes Hurthle cell)
  - 40 – 60 yo; may be more aggressive in older pts
- Medullary 5%- 10%
  - 40 – 50 yo; effects men & women equally; often familial
- Anaplastic—very rare (<2%)
  - aggressive, 65+
  - slightly more common among women than men

9

THYROID SCREENING & OVERDIAGNOSIS

- Encapsulated follicular variant of papillary thyroid carcinoma (EFVPTC) re-classed to non-malignant condition
  - non-invasive follicular thyroid neoplasms with papillary-like nuclear features or NIFTP
- Consensus-based, histopathologic diagnostic criteria to appropriately distinguish NIFTP from malignant thyroid cancer
- Paper: JAMA Oncology, August 2016 (Nikiforov)
  - **Nomenclature Revision for Encapsulated Follicular Variant of Papillary Thyroid Carcinoma** A Paradigm Shift to Reduce Overtreatment of Indolent Tumors

- We will see a decline in thyroid cancer incidence 2016+



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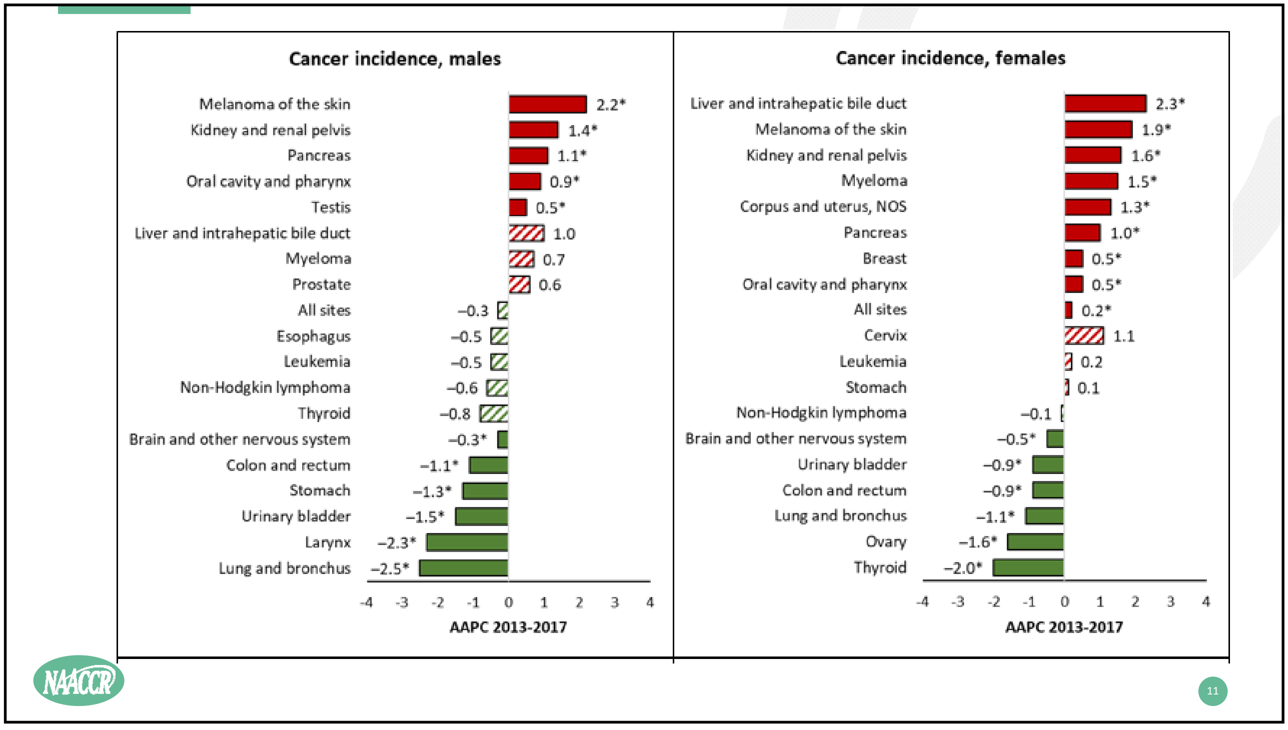
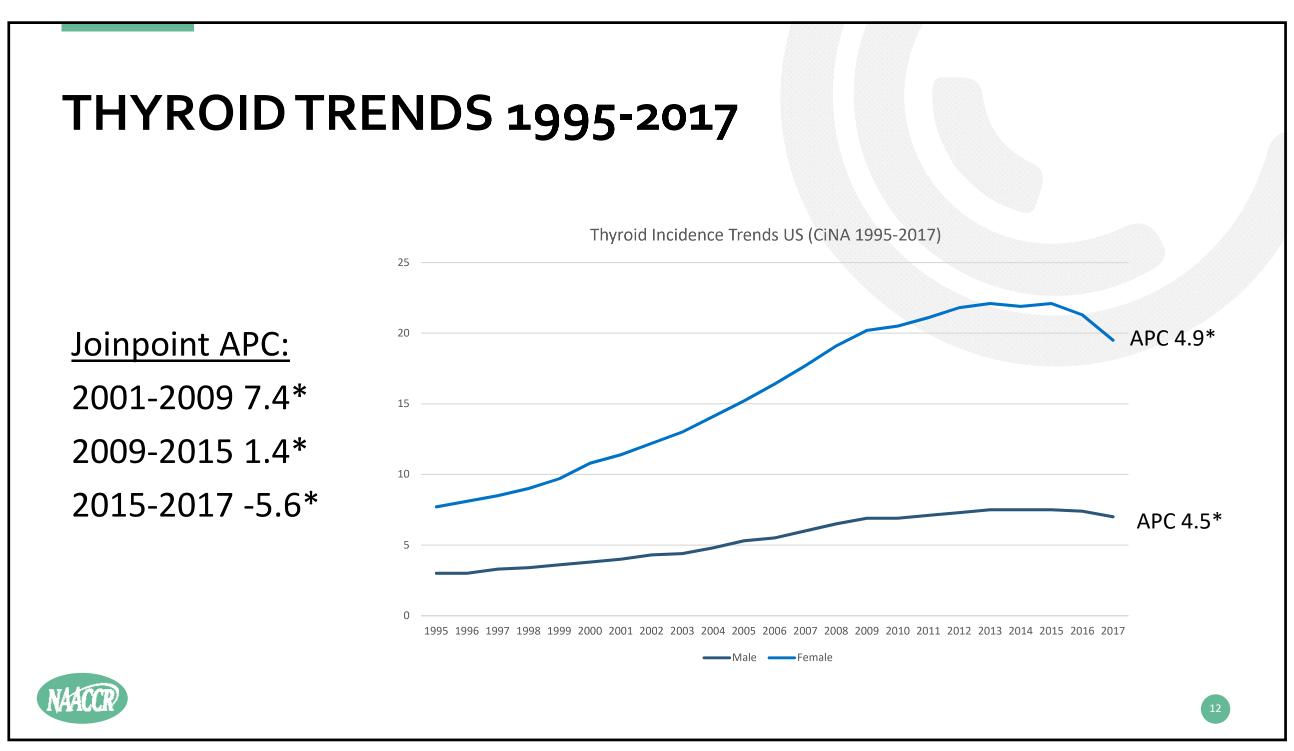
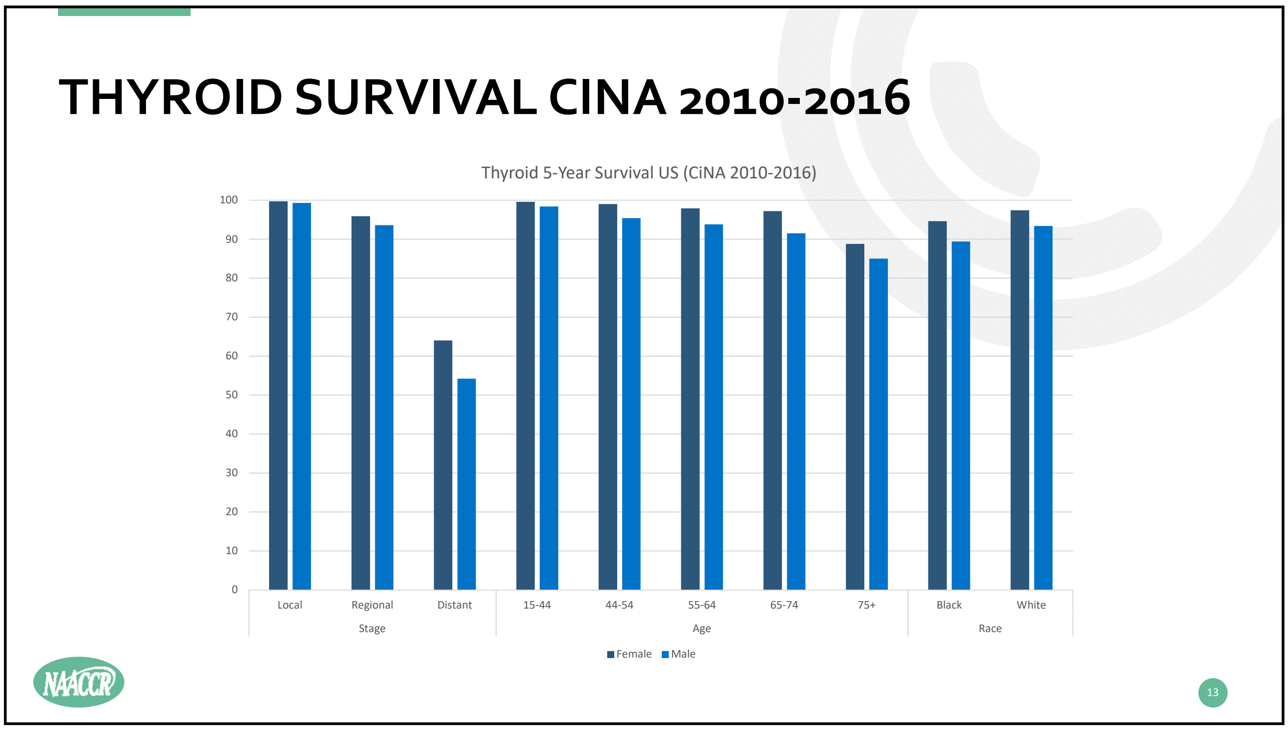
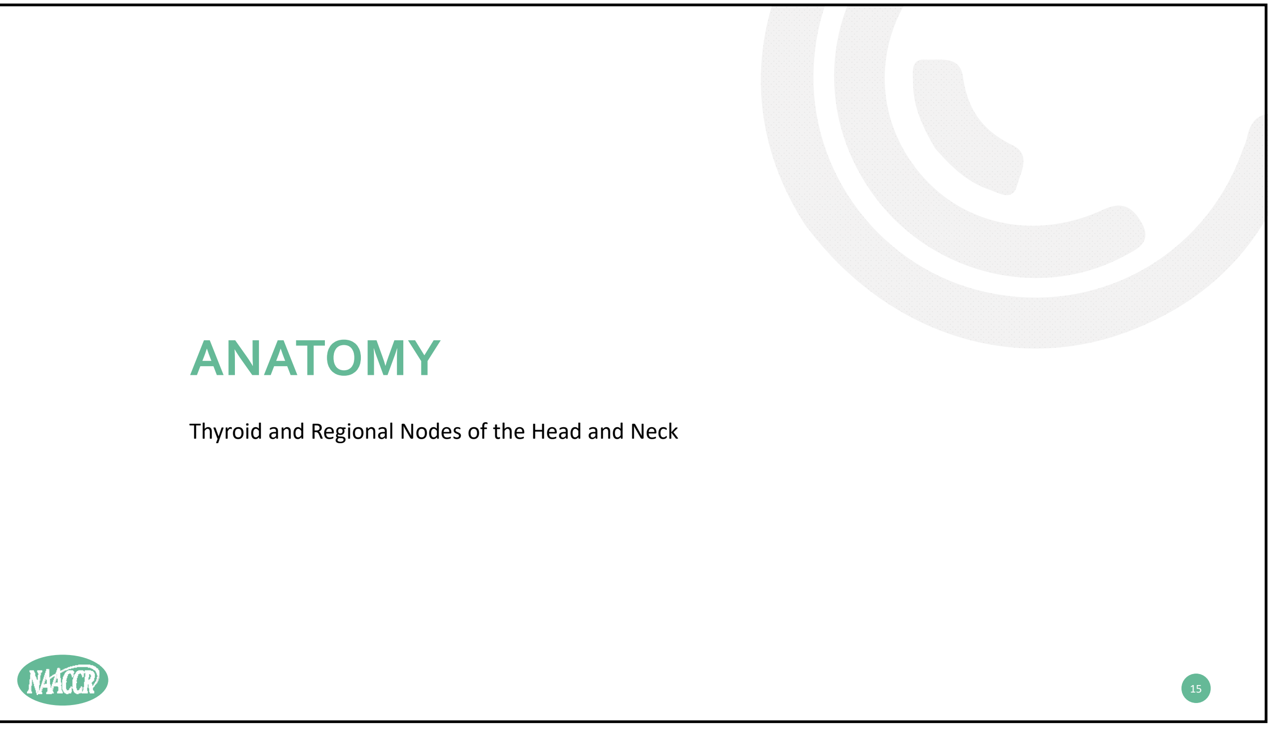

Cancer incidence, males
Melanoma of the skin 2.2*
Kidney and renal pelvis 1.4*
Pancreas 1.1*
Oral cavity and pharynx 0.9*
Testis 0.5*
Liver and intrahepatic bile duct 1.0
Myeloma 0.7
Prostate 0.6
All sites −0.3
Esophagus −0.5
Leukemia −0.5
Non-Hodgkin lymphoma −0.6
Thyroid −0.8
Brain and other nervous system −0.3*
Colon and rectum −1.1*
Stomach −1.3*
Urinary bladder −1.5*
Larynx −2.3*
Lung and bronchus −2.5*
AAPC 2013-2017
Cancer incidence, females
Liver and intrahepatic bile duct 2.3*
Melanoma of the skin 1.9*
Kidney and renal pelvis 1.6*
Myeloma 1.5*
Corpus and uterus, NOS 1.3*
Pancreas 1.0*
Breast 0.5*
Oral cavity and pharynx 0.5*
All sites 0.2*
Cervix 1.1
Leukemia 0.2
Stomach 0.1
Non-Hodgkin lymphoma −0.1
Brain and other nervous system −0.5*
Urinary bladder −0.9*
Colon and rectum −0.9*
Lung and bronchus −1.1*
Ovary −1.6*
Thyroid −2.0*
AAPC 2013-2017
11


THYROID TRENDS 1995-2017
Joinpoint APC:
2001-2009 7.4*
2009-2015 1.4*
2015-2017 -5.6*
Thyroid Incidence Trends US (CiNA 1995-2017)
APC 4.9*
APC 4.5*
Male
Female
12



THYROID CANCER: MTC STUDY

- Post-market surveillance of diabetes drugs
  - United BioSource
  - GLP-1 agonists (type 2 tx); mimic glucagon-like peptide 1 (GLP-1), a hormone that enhances insulin secretion; to reduce blood glucose levels.
  - Increased risk of MTC in animal studies
- MTC
  - Rare, C cells of the thyroid gland which make calcitonin
- Effect diabetes treatment
  - 10% of US population
  - FDA approved along with required surveillance
  - Registry data is an integral part of surveillance
- Additional information here: https://clinicaltrials.gov/ct2/show/NCT01511393


ANATOMY
Thyroid and Regional Nodes of the Head and Neck
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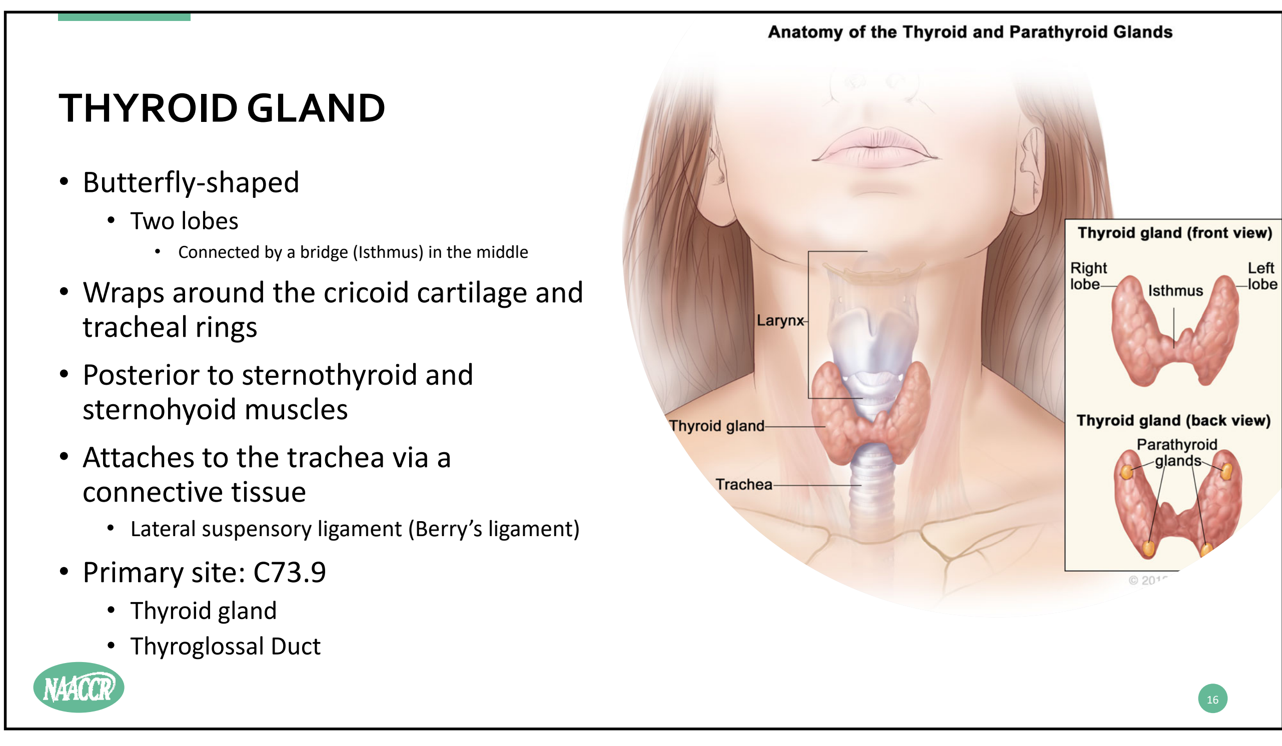
THYROID GLAND
• Butterfly-shaped
• Two lobes
• Connected by a bridge (Isthmus) in the middle
• Wraps around the cricoid cartilage and tracheal rings
• Posterior to sternothyroid and sternohyoid muscles
• Attaches to the trachea via a connective tissue
• Lateral suspensory ligament (Berry's ligament)
• Primary site: C73.9
• Thyroid gland
• Thyroglossal Duct
Anatomy of the Thyroid and Parathyroid Glands
Larynx
Thyroid gland
Trachea
Thyroid gland (front view)
Right lobe
Isthmus
Left lobe
Thyroid gland (back view)
Parathyroid glands
NAACCR
16

FUNCTION OF THYROID GLAND

- Endocrine Gland
  - No ducts and is a block of tissue
  - Secretes directly into the blood stream
- Thyroid hormones impact a host of vital body functions
  - Mainly regulates metabolism
  - Produce calcitonin – calcium
  - T3 and T4 control the rate at which cells and organs turn nutrients into energy and amount of oxygen cells use
- Works in conjunction with the pituitary gland
  - Regulates how much hormone is released by the thyroid

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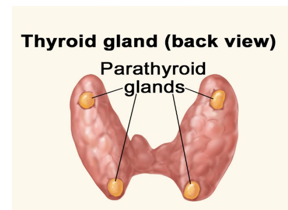
THYROID NODULES

- Cold nodule
  - Doesn't take up a lot of radioactive material
  - Best seen on ultrasound
- Hot nodule
  - Hyperfunctioning
  - Produces thyroid hormones – these will uptake radioactive material
- Indifferent aka Normal
  - Acts much like normal thyroid tissue
- FNA biopsy of thyroid
  - Performed to determine the need for thyroid surgery
  - Recommended for non-palpable, predominantly cystic or posteriorly located nodules

PARATHYROID GLANDS

- Four small masses of epithelial tissue on the posterior surface of the thyroid
  - Secrete parathyroid hormones
  - Which regulate blood calcium levels
- Play a role in bone health
- Cancers of the Parathyroid Glands are very rare
  - Discovered due to elevated blood calcium levels
  - Primary site: C75.0



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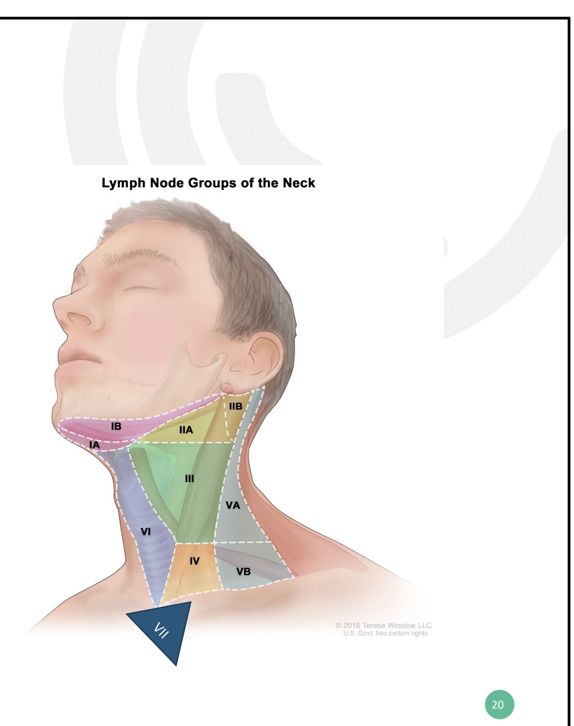
REGIONAL LYMPH NODES

- Lower deep cervical nodes
  - Isthmus
  - Inferior lateral lobes
- Prelaryngeal nodes
- Pretracheal nodes
  - Superior portions of thyroid
- Paratracheal nodes
  - Isthmus
  - Inferior lateral lobes



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SSDI – SCHEMA DISCRIMINATOR 1

- Used to differentiate between whether the cancer is arising in the thyroid gland itself or the thyroglossal duct
  - There is no AJCC Chapter for Thyroglossal Duct
- This discriminator ensures that the appropriate chapter and schema are used

Code	Description
1	Thyroid Gland; Thyroid, NOS
2	Thyroglossal Duct Cyst (no TNM staging)

SOLID TUMOR RULES/ ICD O 3.2

SOLID TUMOR RULES

2007 Other Sites

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2007 OTHER SITES

- 2007 General Instructions apply for cases diagnosed 2007 forward

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Multiple Tumors

Multiple tumors may be a single primary or multiple primaries.
Note 1: These rules are **NOT** used for tumor(s) described as metastases.
Note 2: Includes combinations of in situ and invasive

Rule M3 **Adenocarcinoma** of the **prostate** is always a single primary. *
Note 1: Report only one adenocarcinoma of the prostate per patient per lifetime.
Note 2: 95% of prostate malignancies are the common (acinar) adenocarcinoma histology (8140). See Equivalent Terms, Definitions and Tables for more information.
Note 3: If patient has a previous acinar adenocarcinoma of the prostate in the database and is diagnosed with adenocarcinoma in 2007 it is a single primary.

Rule M4 Retinoblastoma is always a single primary (unilateral or bilateral). *

Rule M5 **Kaposi sarcoma** (any site or sites) is always a single primary. *

Rule M6 **Follicular and papillary** tumors in the **thyroid** within 60 days of diagnosis are a single primary. *

....

Rule M17 Tumors with ICD-O-3 **histology** codes that are **different** at the first (xxxx), second (xxxx) or third (xxxx) number are multiple primaries. **

Anaplastic	8020
Follicular	8330
Medullary	8345

Single Tumor: Invasive Only
(All parts are invasive)

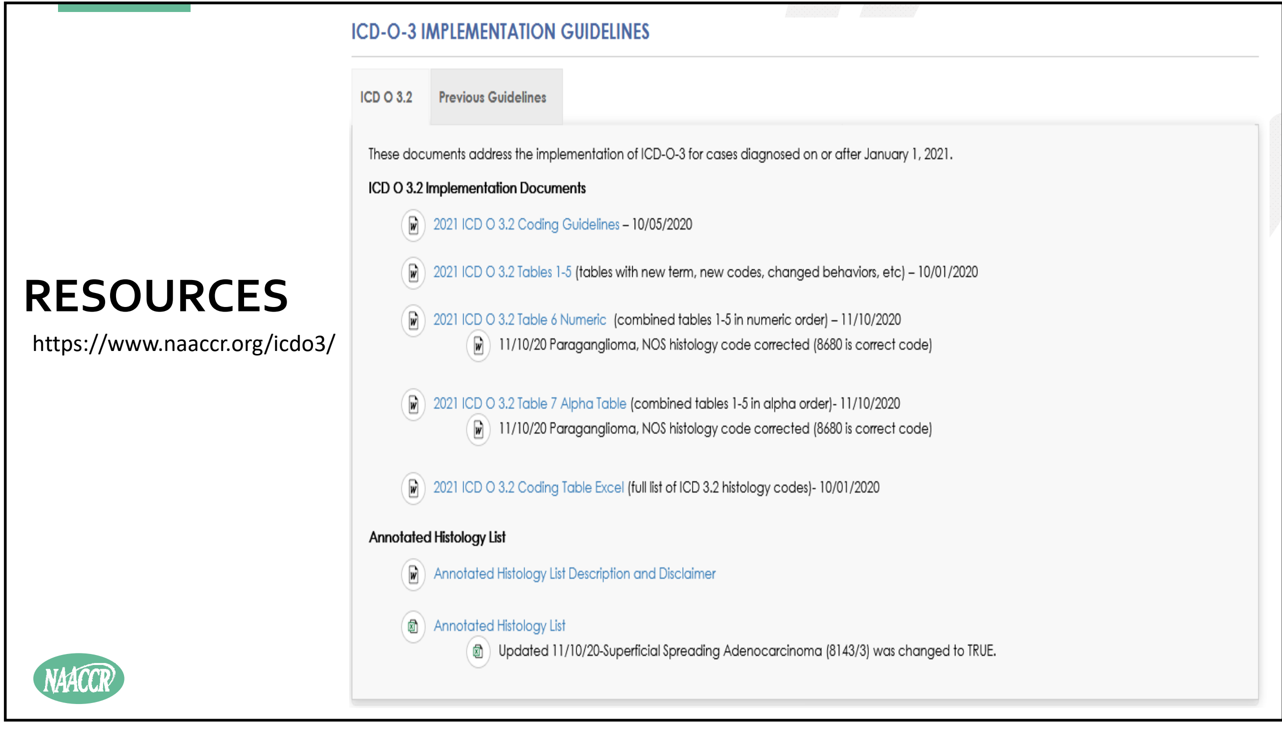
Rule H14 Code papillary carcinoma of the thyroid to papillary adenocarcinoma, NOS (8260).

Rule H15 Code follicular and papillary carcinoma of the thyroid to papillary carcinoma, follicular variant (8340).

Rule H16 Code the appropriate combination/mixed code (Table 2) when there are **multiple specific histologies** or when there is a non-specific histology **with multiple specific histologies**
Note: The specific histologies may be identified as a type, subtype, predominantly, with features of, major, or with ___ differentiation.

Other Sites Equivalent Terms and Definitions
Excludes Head and Neck, Colon, Lung, Melanoma of Skin, Breast, Kidney, Renal Pelvis, Ureter, Bladder, Brain, Lymphoma and Leukemia

Column 1: Required Histology	Column 2: Combined with Histology	Column 3: Combination Term	Column 4: Code
Gyn malignancies with two or more of the histologies in column 2	Clear cell Endometrioid Mucinous Papillary Serous Squamous Transitional (Brenner)	Mixed cell adenocarcinoma	8323
Papillary and Follicular		Papillary carcinoma, follicular variant	8340
Medullary	Follicular	Mixed medullary-follicular carcinoma	8346
Medullary	Papillary	Mixed medullary-papillary carcinoma	8347
Squamous carcinoma and Adenocarcinoma		Adenosquamous carcinoma	8560
Any combination of histologies in Column 2	Myxoid Round cell Pleomorphic	Mixed liposarcoma	8855
Embryonal rhabdomyosarcoma	Alveolar rhabdomyosarcoma	Mixed type rhabdomyosarcoma	8902
Teratoma	Embryonal carcinoma	Teratocarcinoma	9081
Teratoma and one or more of the histologies in Column 2	Seminoma Yolk sac tumor	Mixed germ cell tumor	9085
Choriocarcinoma	Teratoma Seminoma Embryonal	Choriocarcinoma combined with other germ cell elements	9101



ICD O 3.2 CHANGES FOR THYROID

Status	ICD-O-3.2	Term(s)	Reportable
Syn	8330/3	Follicular adenocarcinoma (C73.9)	Y
PT	8330/3	Follicular carcinoma, NOS (C73.9)	Y
Syn	8337/3	Insular carcinoma (C73.9)	Y
PT	8589/3	Intrathyroid thymic carcinoma (C73.9)	Y
NC/T	8349/1	Non-invasive follicular thyroid neoplasm with papillary-like nuclear features (NIFTP) C73.9)	N *
NC/T	8349/1	Non-invasive FTP	N *
PT	8342/3	Papillary carcinoma, oncocytic variant (C73.9)	Y
Syn	8342/3	Papillary carcinoma, oxyphilic cell (C73.9)	Y
PT	8337/3	Poorly differentiated thyroid carcinoma (C73.9)	Y

* This term was previously coded to 8343/2 and was reportable.
This term has changed both ICD-O and behavior codes and is no longer reportable for cases diagnosed 1/1/2021 forward.

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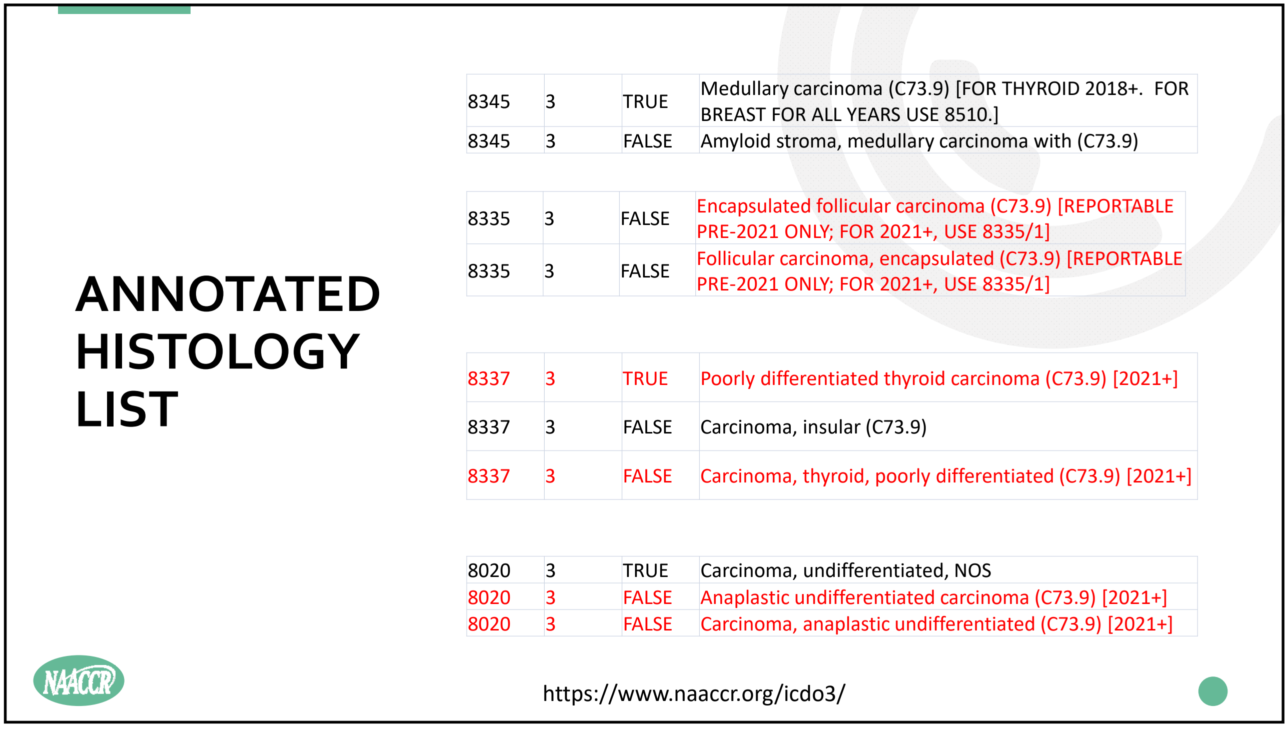

CASE SCENARIOS 1-4

Scenario	Number of Tumors	Histology (ies)	MP Rule	H Rule	Final Histology
Scenario 1	Multifocal: number not stated	Papillary carcinoma	M18-Single primary	H23	8260 Papillary
Scenario 2	Two tumors:	• Medullary carcinoma • Papillary carcinoma	M17-Multiple primaries	H11 & H11	8345 Medullary 8260 Papillary
Scenario 3	Single tumor	Anaplastic thyroid carcinoma	M2 Single primary	H11	8021 Anaplastic
Scenario 4	Single tumor	Poorly differentiated carcinoma (insular type).	M2	H11	8337 Insular/poorly differentiated thyroid carcinoma

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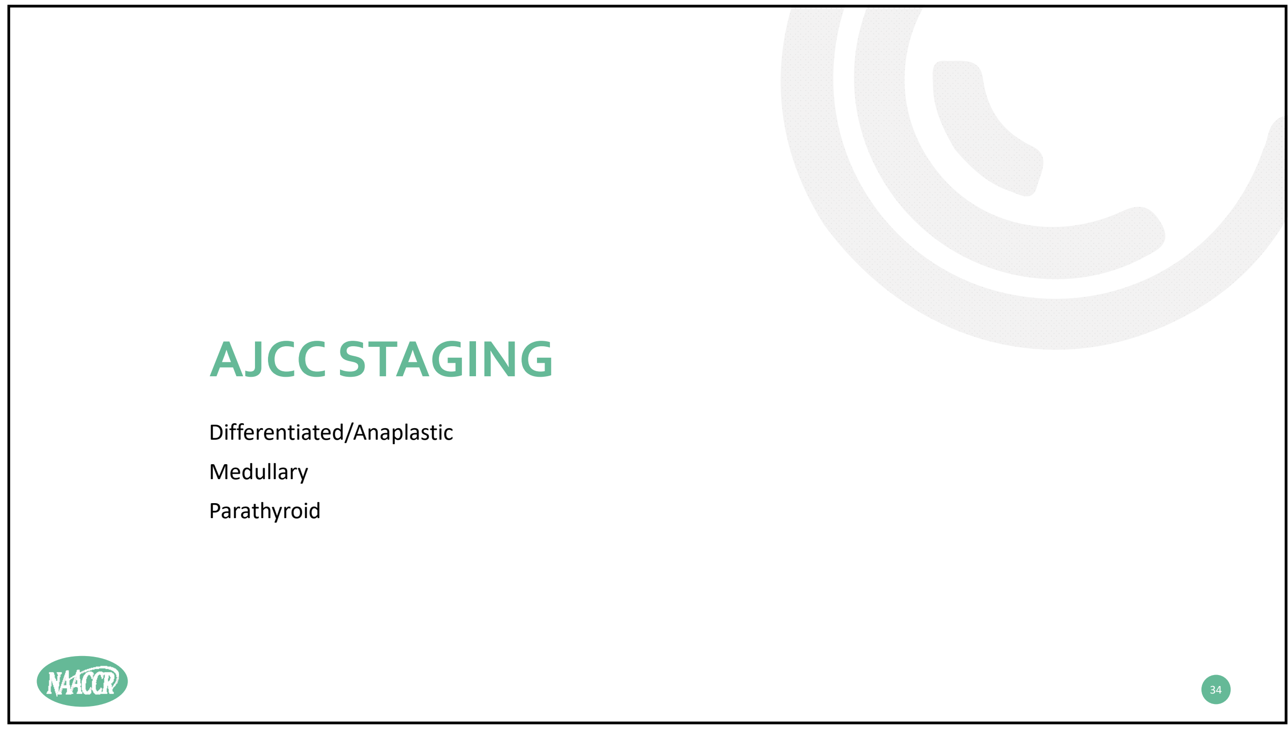
STAGING
AJCC
EOD
Summary Stage
NAACCR
33


AJCC STAGING
Differentiated/Anaplastic
Medullary
Parathyroid
NAACCR
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CLINICAL CLASSIFICATION

- Preoperative neck ultrasonography useful for evaluating tumor size/lymph node status
- Non-specific cervical lymphadenopathy is common. FNA should be peformed on suspicious lymph nodes.
- Non-specific lung nodules are also common. Biopsy should be performed to confirm suspected metastasis.
- Radioactive Iodine (RAI) may be helpful when identifying metastasis.

Please follow along (page 885)

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PATHOLOGICAL CLASSIFICATION

- Surgical resection of the primary tumor is required for pT
- Pathological Stage may be assigned even if no lymph nodes surgically removed
- Assessment of nodal or distant metastasis may not occur until after surgical resection of the primary tumor. Metastasis identified during the pathological time frame, may be used to assign pathological stage.

Please follow along (page 886)

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PROGNOSTIC FACTORS

- Age at diagnosis-55
- Extrathyroidal extension
  - Minimal vs Gross extrathyroidal extension
  - Minima extrathyroidal extension does not impact T value.
- Histology
  - Papillary/follicular carcinoma have a better prognosis than more aggressive histologies
    - Poorly differentiated carcinoma
    - Tall cell variants
    - Anaplastic carcinoma

Please follow along (page 887)

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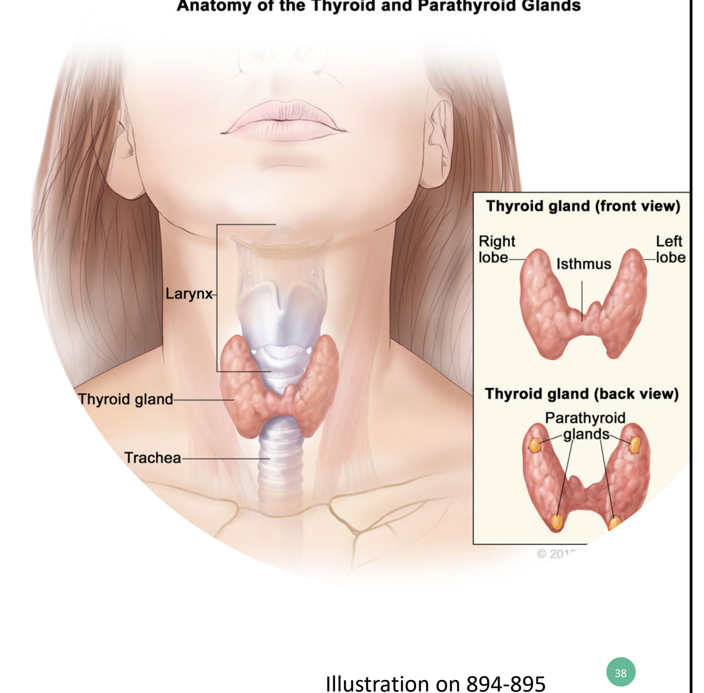
PRIMARY TUMOR ASSESSMENT

- Tumor size cut-offs
  - 1cm
  - 2cm
  - 4cm
- Gross Extrathyroidal invasion
  - Strap muscles
  - Subcutaneous soft tissue, larynx, trachea, esophagus, recurrent laryngeal nerve
  - Prevertebral fascia, encasement of carotid artery or mediastinal vessels



T values on page 891

Illustration on 894-895

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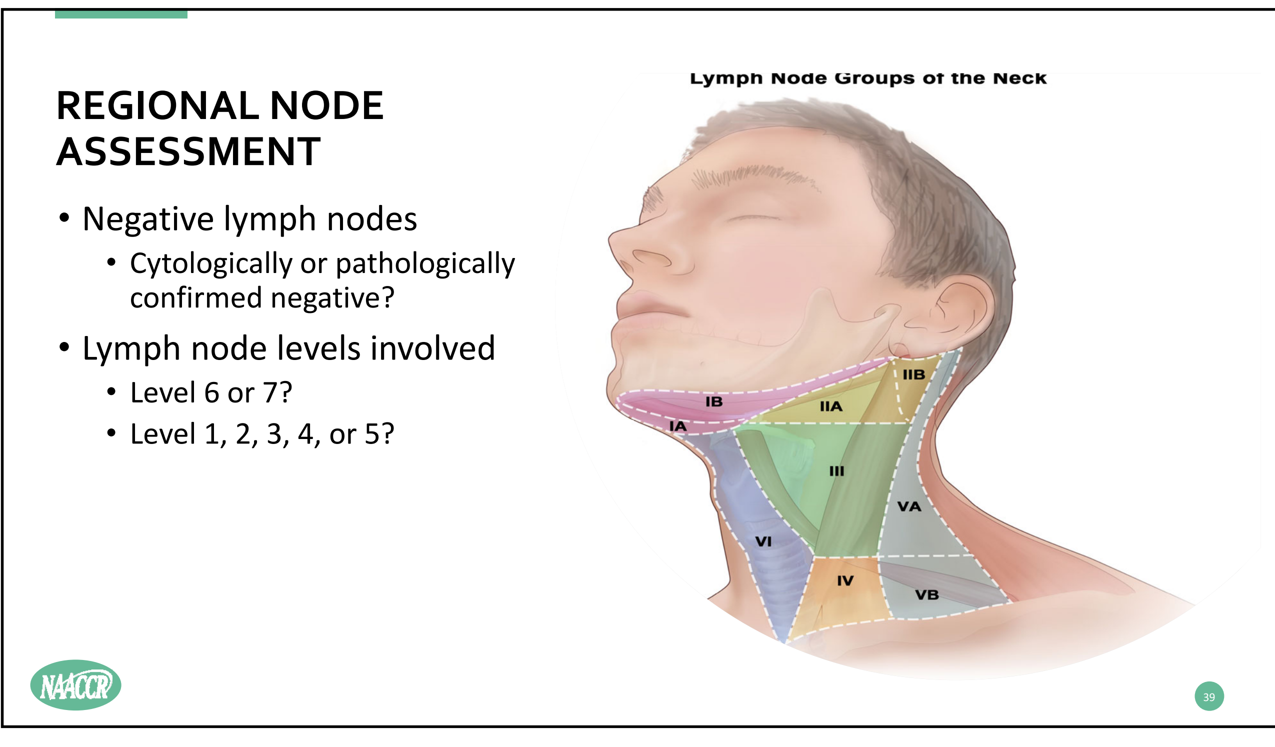
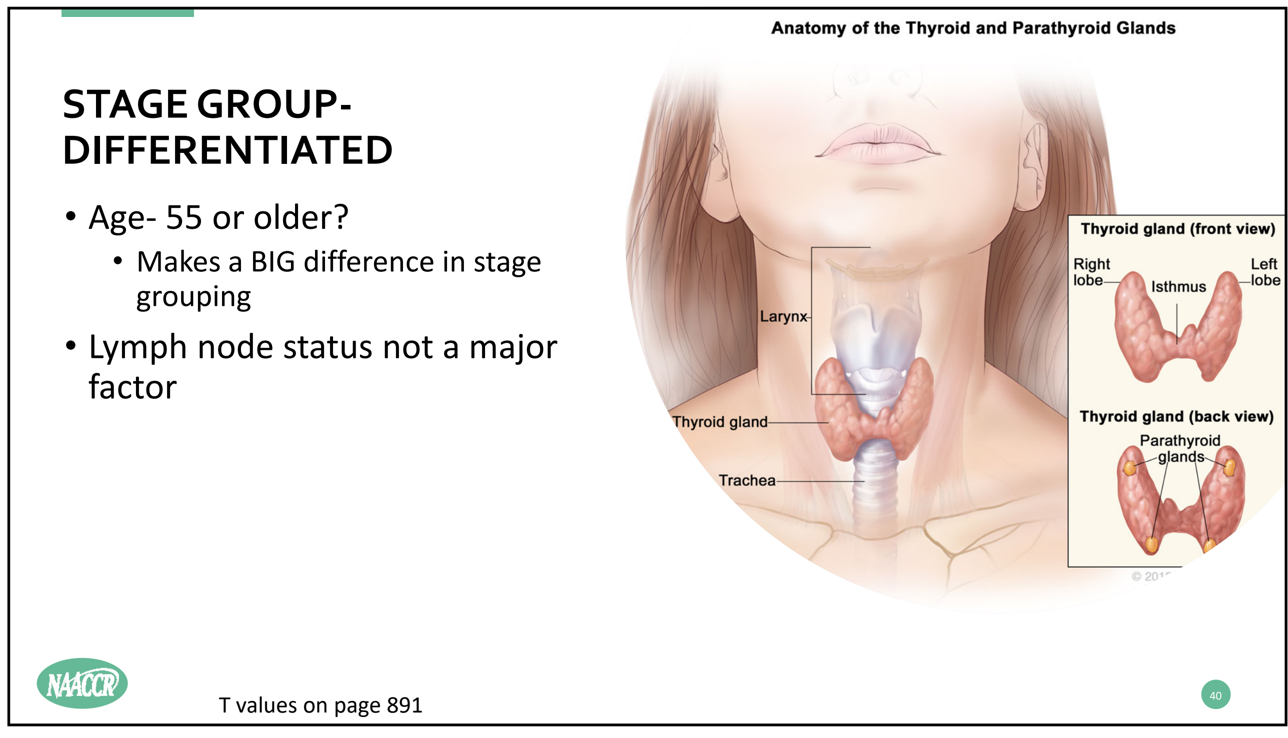
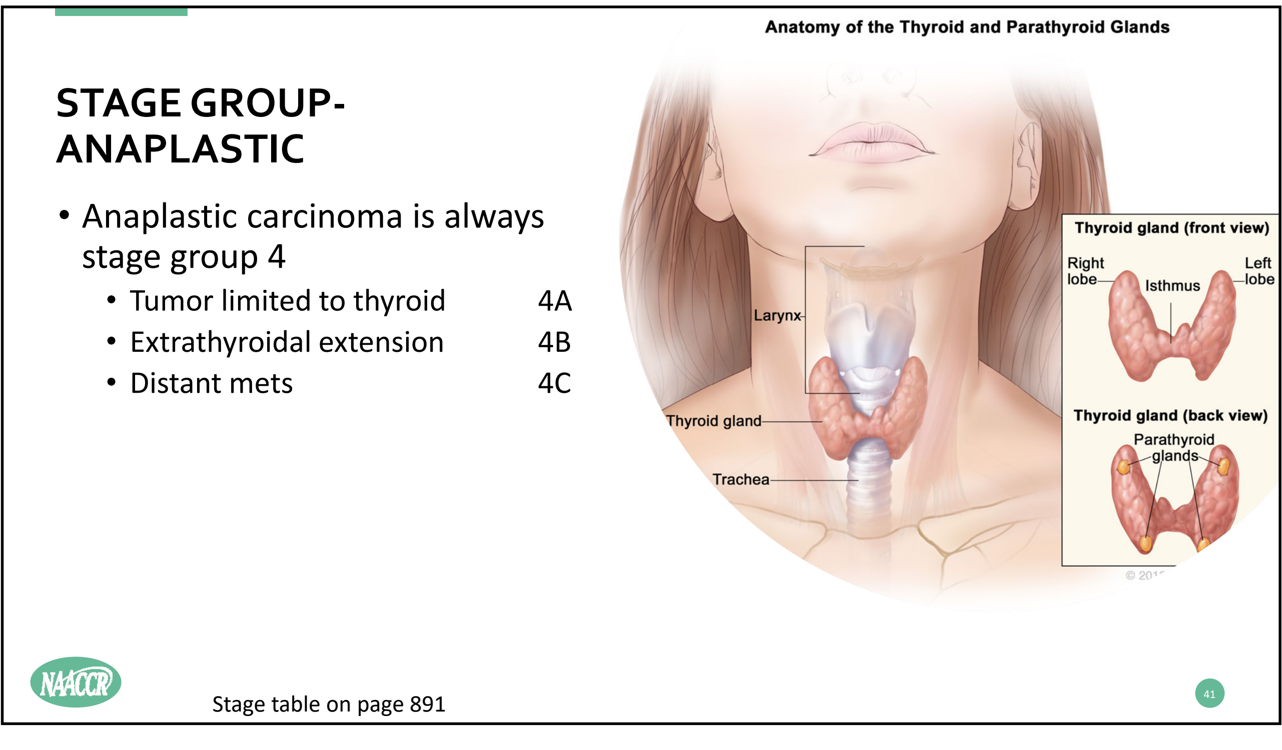

REGIONAL NODE ASSESSMENT
• Negative lymph nodes
• Cytologically or pathologically confirmed negative?
• Lymph node levels involved
• Level 6 or 7?
• Level 1, 2, 3, 4, or 5?
Lymph Node Groups of the Neck
IA
IB
IIA
IIB
III
VA
VI
IV
VB
NAACCR
39


STAGE GROUP-DIFFERENTIATED
• Age- 55 or older?
• Makes a BIG difference in stage grouping
• Lymph node status not a major factor
Anatomy of the Thyroid and Parathyroid Glands
Larynx
Thyroid gland
Trachea
Thyroid gland (front view)
Right lobe
Isthmus
Left lobe
Thyroid gland (back view)
Parathyroid glands
NAACCR
T values on page 891
40


STAGE GROUP-
ANAPLASTIC
• Anaplastic carcinoma is always stage group 4
• Tumor limited to thyroid 4A
• Extrathyroidal extension 4B
• Distant mets 4C
Anatomy of the Thyroid and Parathyroid Glands
Larynx
Thyroid gland
Trachea
Thyroid gland (front view)
Right lobe
Isthmus
Left lobe
Thyroid gland (back view)
Parathyroid glands
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Stage table on page 891
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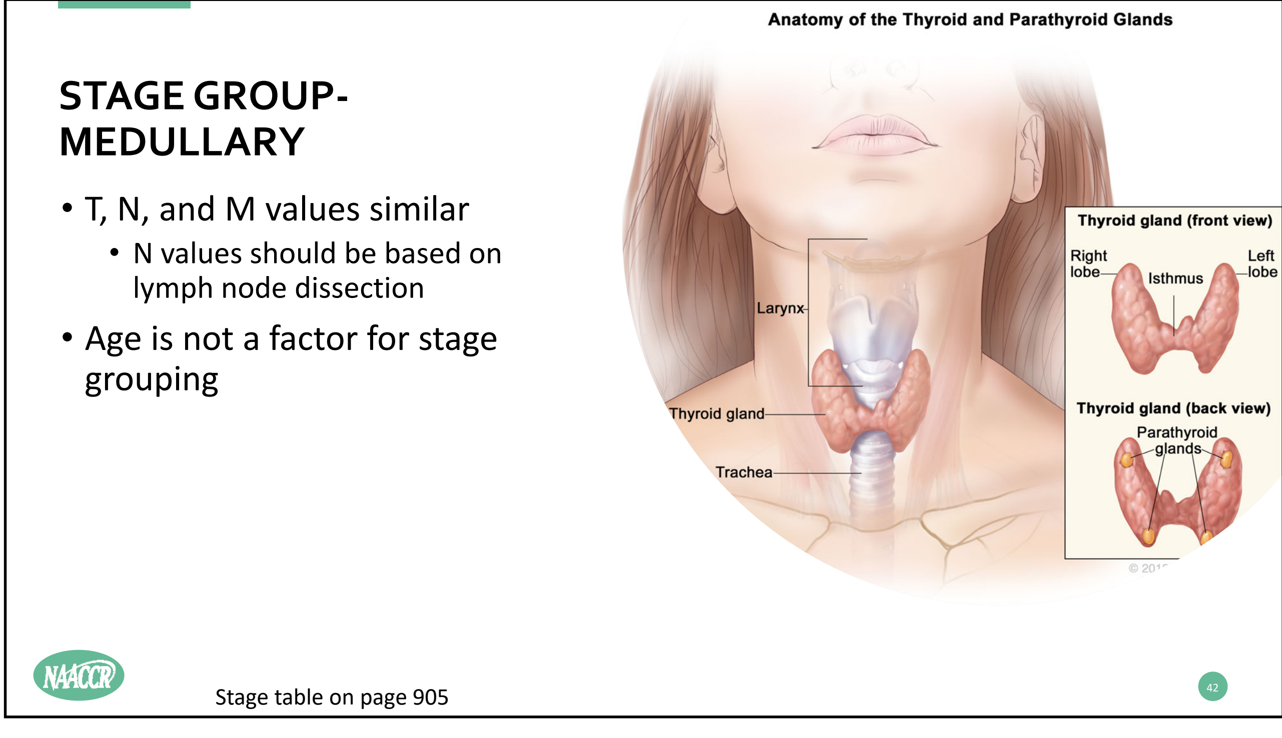
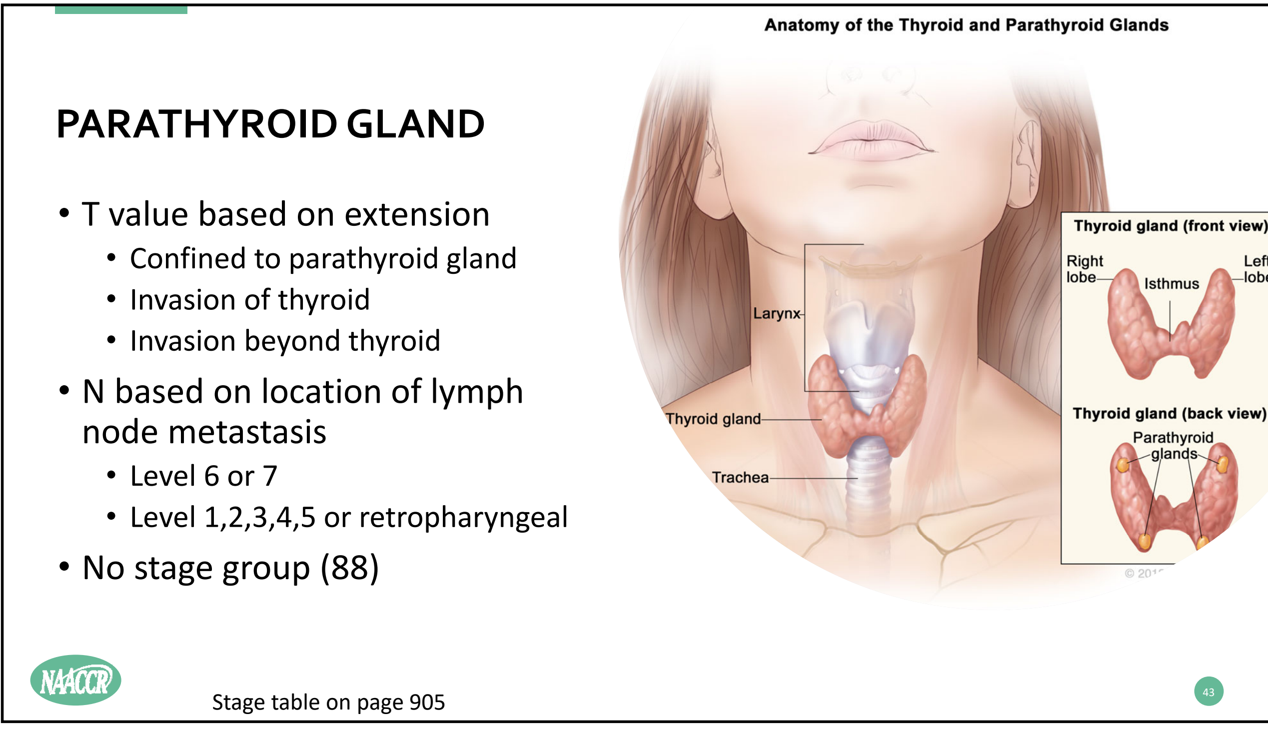
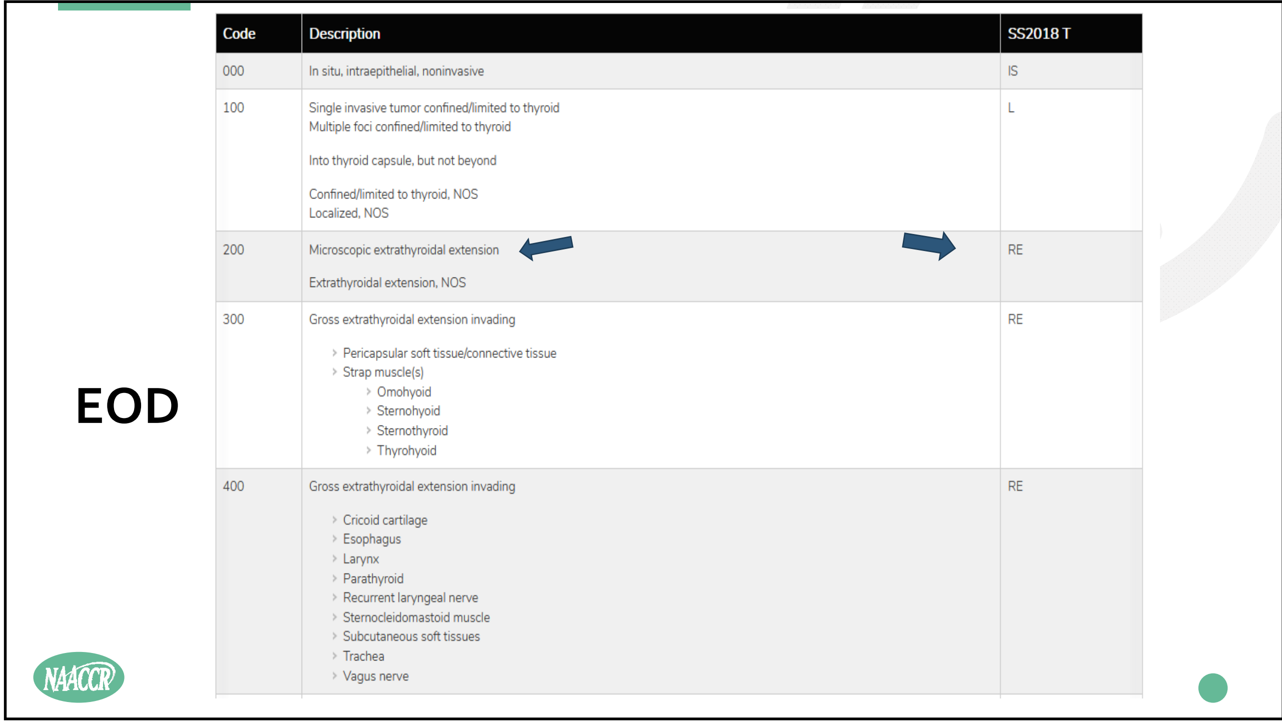

STAGE GROUP-
MEDULLARY
• T, N, and M values similar
• N values should be based on lymph node dissection
• Age is not a factor for stage grouping
Anatomy of the Thyroid and Parathyroid Glands
Larynx
Thyroid gland
Trachea
Thyroid gland (front view)
Right lobe
Isthmus
Left lobe
Thyroid gland (back view)
Parathyroid glands
NAACCR
Stage table on page 905
42





Code	Description	SS2018 T
000	In situ, intraepithelial, noninvasive	IS
100	Single invasive tumor confined/limited to thyroid Multiple foci confined/limited to thyroid Into thyroid capsule, but not beyond Confined/limited to thyroid, NOS Localized, NOS	L
200	Microscopic extrathyroidal extension Extrathyroidal extension, NOS	RE
300	Gross extrathyroidal extension invading › Pericapsular soft tissue/connective tissue › Strap muscle(s) › Omohyoid › Sternohyoid › Sternothyroid › Thyrohyoid	RE
400	Gross extrathyroidal extension invading › Cricoid cartilage › Esophagus › Larynx › Parathyroid › Recurrent laryngeal nerve › Sternocleidomastoid muscle › Subcutaneous soft tissues › Trachea › Vagus nerve	RE

EOD

600	Gross extrathyroidal extension invading › Blood vessel(s) (major) › Carotid artery (encased) › Jugular vein › Thyroid artery or vein › Thyroid cartilage › Tumor described as "FIXED to adjacent tissues"	RE
700	Gross extrathyroidal extension invading › Bone › Mediastinal tissues › Prevertebral fascia › Skeletal muscle, other than strap or sternocleidomastoid muscle Further contiguous extension	D
750	Gross extrathyroidal extension, NOS	RE

NAACCR

EOD

Code	Description	SS2018 N
000	No regional lymph node involvement CYTOLOGICALLY or HISTOLOGICALLY confirmed to be benign node(s)	NONE
050	No regional lymph node involvement RADIOLOGICALLY or CLINICALLY confirmed	NONE
070	No regional lymph node involvement UNKNOWN how confirmed	NONE
300	Level VI nodes - Anterior compartment group (central compartment) › Laterotracheal › Paralaryngeal › Paratracheal - above suprasternal notch › Perithyroidal › Precricoid (Delphian) › Prelaryngeal › Pretracheal - above suprasternal notch › Recurrent laryngeal Level VII nodes-Superior mediastinal group (for other mediastinal node(s) see EOD Mets) › Esophageal grove › Paratracheal - below suprasternal notch › Pretracheal - below suprasternal notch	RN

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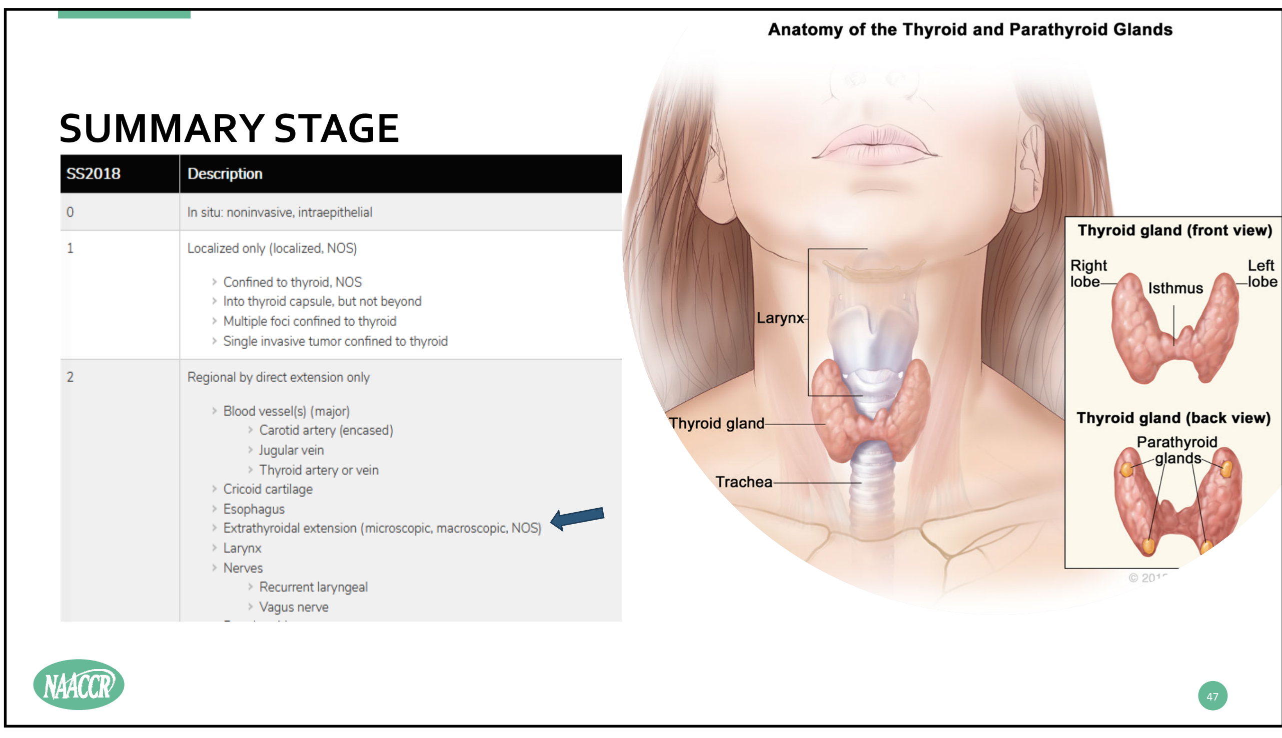

SUMMARY STAGE

SS2018	Description
0	In situ: noninvasive, intraepithelial
1	Localized only (localized, NOS) › Confined to thyroid, NOS › Into thyroid capsule, but not beyond › Multiple foci confined to thyroid › Single invasive tumor confined to thyroid
2	Regional by direct extension only › Blood vessel(s) (major) › Carotid artery (encased) › Jugular vein › Thyroid artery or vein › Cricoid cartilage › Esophagus › Extrathyroidal extension (microscopic, macroscopic, NOS) › Larynx › Nerves › Recurrent laryngeal › Vagus nerve

GRADE

- **Note 3:** If there are multiple tumors with different grades abstracted as one primary, code the highest grade.

Code	Description
A	Well differentiated
B	Moderately differentiated
C	Poorly differentiated
D	Undifferentiated, anaplastic
9	Grade cannot be assessed; Unknown

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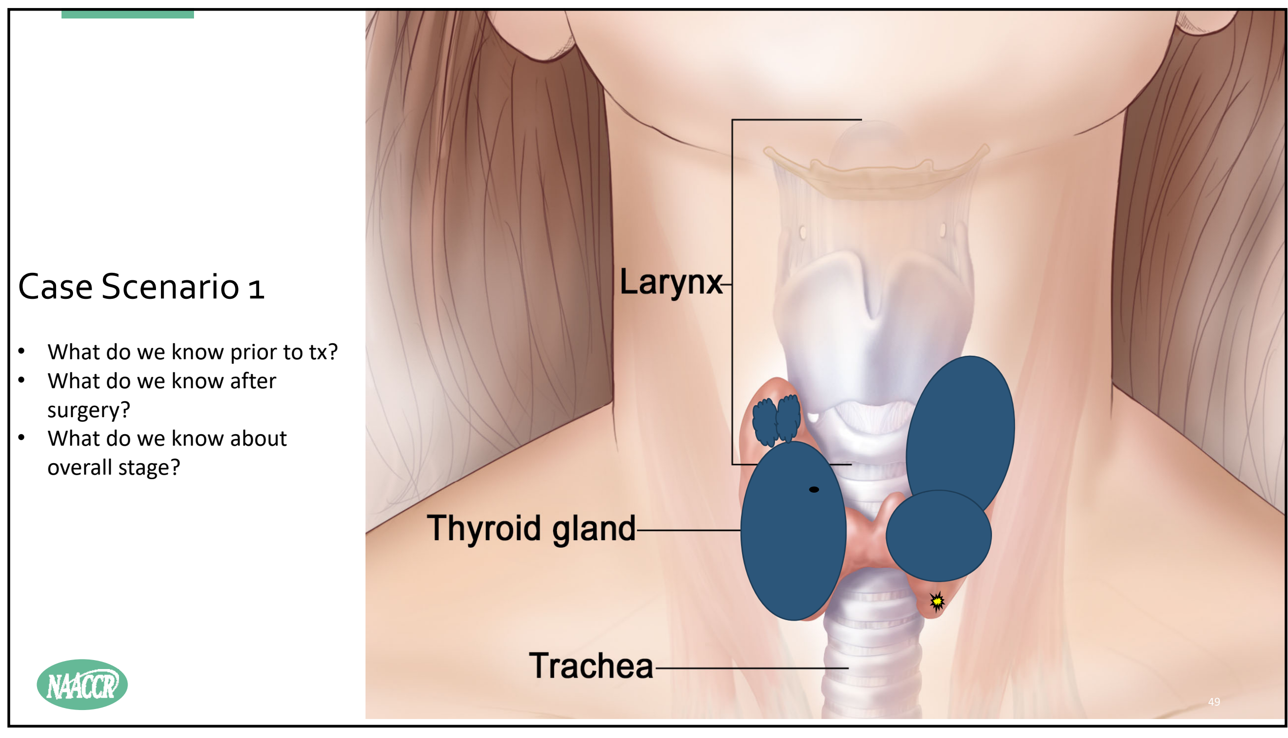
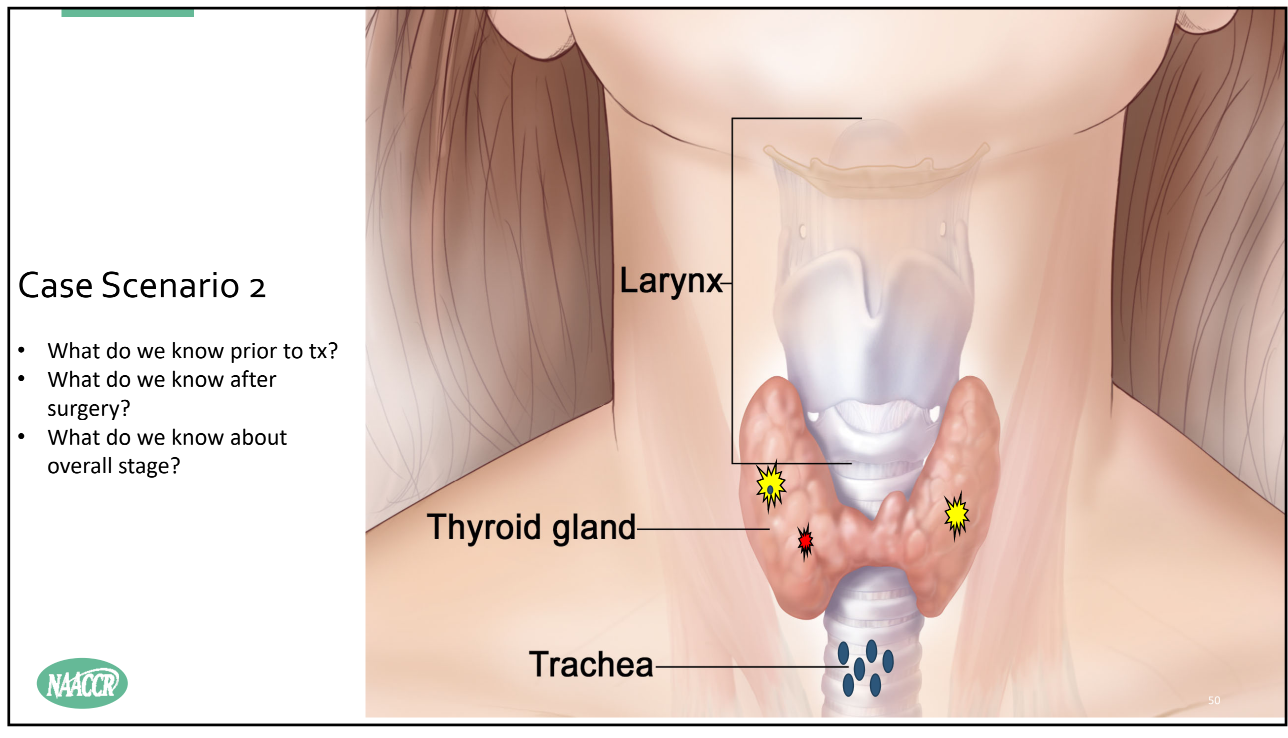
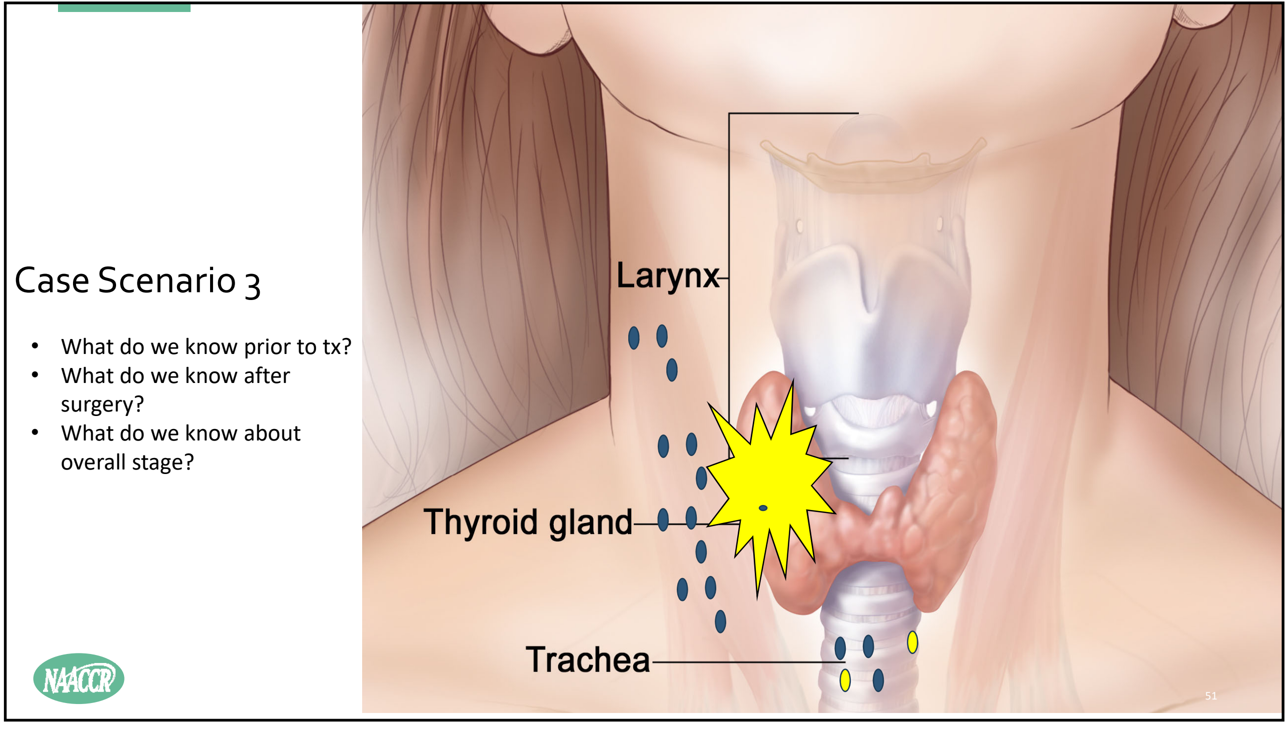
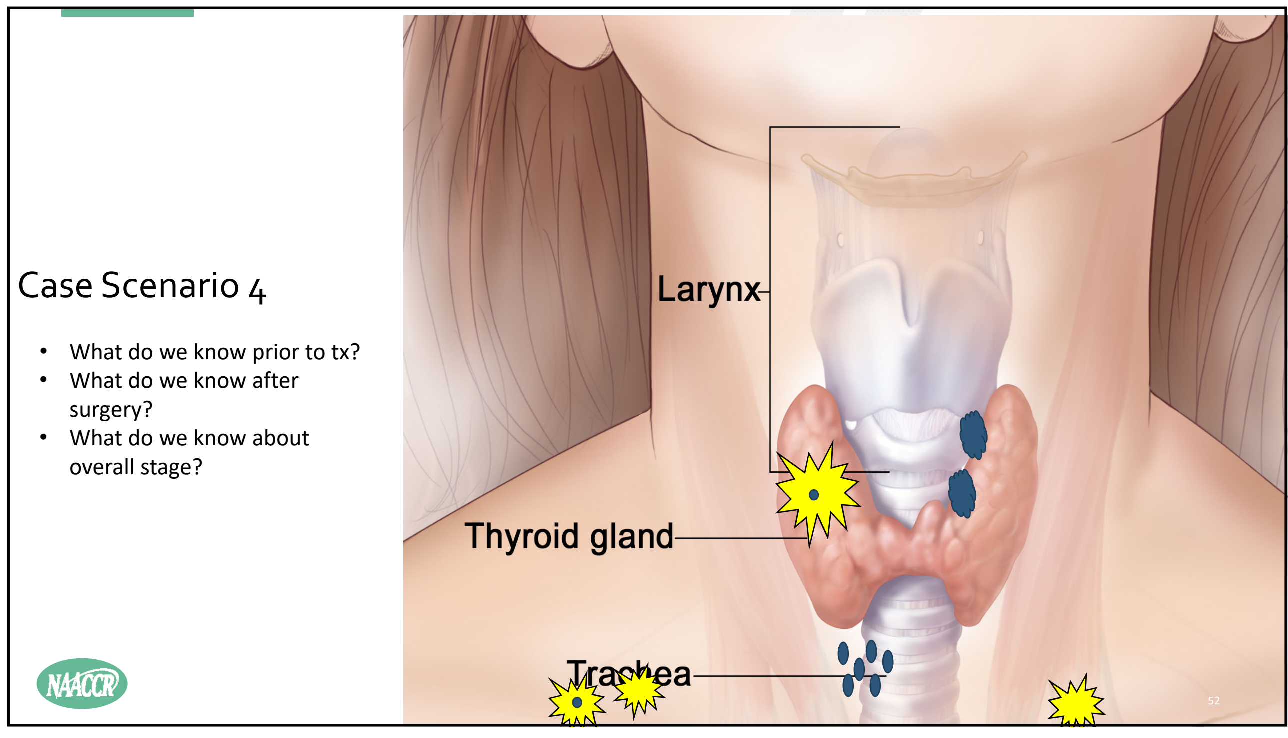
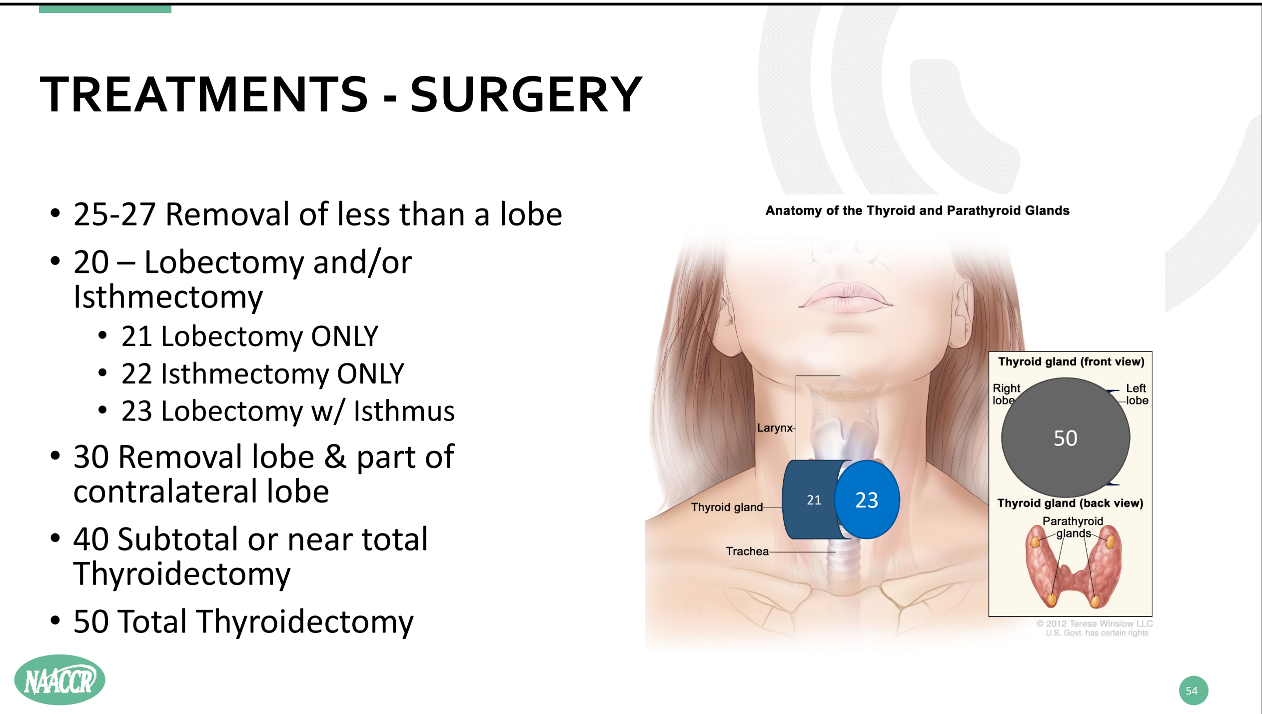

Case Scenario 1
What do we know prior to tx?
What do we know after surgery?
What do we know about overall stage?
Larynx
Thyroid gland
Trachea
49


Case Scenario 2
What do we know prior to tx?
What do we know after surgery?
What do we know about overall stage?
Larynx
Thyroid gland
Trachea
50


Case Scenario 3
What do we know prior to tx?
What do we know after surgery?
What do we know about overall stage?
Larynx
Thyroid gland
Trachea
51


Case Scenario 4
What do we know prior to tx?
What do we know after surgery?
What do we know about overall stage?
Larynx
Thyroid gland
Trachea
52

TREATMENT
Surgery
Systemic
Radiation
NAACCR
53


TREATMENTS - SURGERY
• 25-27 Removal of less than a lobe
• 20 – Lobectomy and/or Isthmectomy
• 21 Lobectomy ONLY
• 22 Isthmectomy ONLY
• 23 Lobectomy w/ Isthmus
• 30 Removal lobe & part of contralateral lobe
• 40 Subtotal or near total Thyroidectomy
• 50 Total Thyroidectomy
Anatomy of the Thyroid and Parathyroid Glands
Larynx
Thyroid gland
Trachea
21
23
Thyroid gland (front view)
Right lobe
Left lobe
50
Thyroid gland (back view)
Parathyroid glands
NAACCR
54

TREATMENTS – RAI RADIOIODINE (I-131)

- CTR Guide to Coding Radiation Therapy Treatment in the STORE
  - Version 2.0 – Latest February 2020
  - Questions – CAnswer Forum
- Volume – 98 (Other)
  - This is to maintain historic consistency
  - Don't use 93 (Whole Body) – for whole body treatment using external beam
- XRT Dose Fields – 999998 not prescribed in cGy
- Planning Technique – 88
  - No conventional plan – based on risk of residual disease and complications
- Date started/ended
  - Consider one injection of RAI as both the start and end dates

55

TREATMENTS - SYSTEMIC

- Hormone Therapy
  - Levothyroxine; L-Thyroxine
  - Liothyronine
  - Liotrix
  - Methimazole (also treats Grave's Disease)

56

TREATMENTS - SYSTEMIC

- Chemotherapy – Medullary/Anaplastic types typically
  - Retevmo – tumor is RET+
    - Proto-oncogene c-Src
      - Turns off these genes that work in conjunction with others for tumor growth and activation
  - Lenvima – tumors where RAI is ineffective
    - Multikinase inhibitor
      - Block several types of kinase proteins
  - Cabozantinib – Medullary thyroid
    - Multikinase inbhibitor
  - Dabrafenib – BRAF V600E+
    - BRAF instructs the gene to make proteins that signal cell growth, maturity, movement, and self-destruction

FABULOUS PRIZES

COMING UP!

- 1/7/21 Treatment 2021
  - Wilson Apollo, CTR
  - Jennifer Ruhl, Chair SSDI WG, Public Health Analyst HIH/NCI SEER
- 2/4/21 Lymphoma 2021
  - Jim Hofferkamp, CTR

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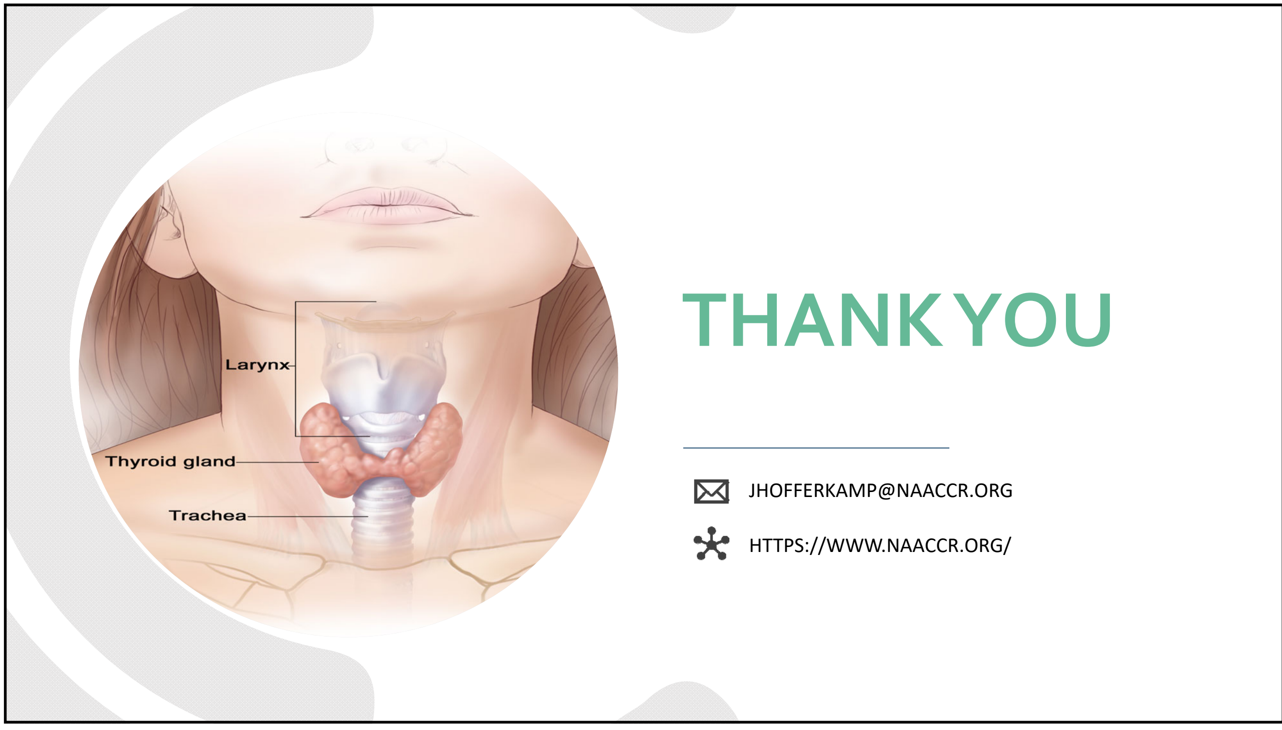
CE'S

- Phrase
- Link
  - https://survey.alchemer.com/s3/5727440/Thyroid-2020


Larynx
Thyroid gland
Trachea
THANK YOU
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