

## The Optometrist's Role in Systemic Disease

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No financial disclosures

### Type 1 Diabetes

- Auto immune disease
- Insulin therapy is required
- Usually diagnosed earlier in life
- Usually abrupt emergence of symptoms

### Type 2 Diabetes

- The most common form
- Gradual onset of symptoms
- Usually diagnosed later in life

### 3 classic symptoms of DM



### 2 values to ask every diabetic patient

- Fasting blood glucose
  - < 100 is normal
  - Between 100 and 125 is borderline
  - > 126 suggestive of Diabetes

## 2 values to ask every diabetic patient

- Reflects the percentage of free glucose bound to hemoglobin in RBC

## 2 values to ask every diabetic patient

- Glycosylated hemoglobin
  - < 5.6% is normal
  - Between 5.7 to 6.4% is borderline
  - > 6.5% is diabetic

## Treatment

- Diet changes
- Exercise
- Oral Medications
- Insulin

## Diet changes

- Lifestyle changes are as important as medications
- Take a walk anytime after eating – lowers blood glucose 20%

## Glycemic Index

Low GI (<55), Medium GI (56-69) and High GI (70+)

Grains / Starches	Vegetables	Fruits	Dairy	Proteins
Rice Bran 27	Asparagus 15	Grapefruit 25	Low-Fat Yogurt 14	Peanuts 21
Bran Cereal 42	Broccoli 15	Apple 15	Plain Yogurt 38	Beans, Dried 40
Spaghetti 42	Celery 15	Peach 42	Whole Milk 27	Lentils 41
Corn, sweet 54	Cucumber 15	Orange 44	Soy Milk 30	Kidney Beans 41
Wild Rice 57	Lettuce 15	Grape 46	Fat-Free Milk 32	Split Peas 46
Sweet Potatoes 61	Peppers 15	Banana 54	Skim Milk 32	Lima Beans 46
White Rice 64	Spinach 15	Mango 56	Chocolate Milk 35	Chickpeas 47
Cooked Couscous 66	Tomatoes 15	Pineapple 66	Fruit Yogurt 36	Pinto Beans 55
Whole Wheat Bread 71	Chickpeas 33	Watermelon 72	Ice Cream 61	Black-Eyed Beans 59
Whole Wheat Bread 80	Cooked Carrots 39			
Baked Potatoes 85				
Oatmeal 87				
Taco Shells 97				
White Bread 100				
Bagel, White 103				

## Calculate Body Mass Index

$$BMI = \frac{\text{weightInPounds} \times 703}{\text{heightInInches} \times \text{heightInInches}}$$

Or

$$BMI = \frac{\text{weightInKilograms}}{\text{heightInMeters} \times \text{heightInMeters}}$$

## Oral Meds for Diabetes

## Insulin

## What's new in treatment



## How they work

### Blood Sugar Control:

Ozempic helps lower blood sugar levels in people with type 2 diabetes by stimulating insulin release and reducing glucagon production, which can raise blood sugar.

### Appetite Suppression:

By mimicking GLP-1, Ozempic sends signals to the brain that reduce appetite and increase feelings of fullness, leading to decreased food intake.

### Slower Digestion:

Ozempic slows down the rate at which food leaves the stomach, which can further contribute to feelings of fullness and potentially affect how the body absorbs carbohydrates.

## Most common ocular complaint with DM

Fluctuating vision

## Eye Exam Recommendations

If you take vision plans:

2 visits a year

1 – vision plan (undilated)

2 – dilated exam billed to medical

## Your role in Diabetic Retinopathy

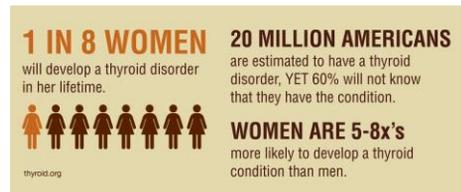
- See if patient has it
- If BDR, decide testing and frequency of monitoring
- If proliferative, decide the urgency of referral to retinal specialist

- The thyroid gland is located in the neck and is responsible for secreting thyroid hormones which are involved in almost every process in the body

## When things go wrong

- Hyperthyroid – 90 % of cases
- Hypothyroid – 10 %

## Thyroid Disease: Men vs Women



## Lab Testing

- Three primary tests:
  - TSH
  - T3
  - Free T4
- TSH is produced by pituitary gland
- Thyroid Gland Produces T4 which is converted to T3
- Alterations in hormonal balance can cause problems to arise

## Hyperthyroidism

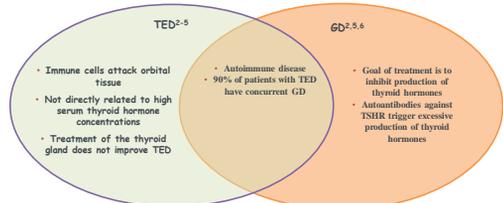
- Leads to cell growth
- Signs/symptoms:
  - Increased heart rate with palpitations
  - Increased respiratory rate
  - Diarrhea
  - Increased metabolism leading to resorption of bone and fat

## Hypothyroidism

- Fatigue
- Weight gain
- Gastric dysfunction

## TED is the Most Common Extrathyroidal Manifestation of Graves' Disease<sup>1</sup>

Up to 50% of patients with Graves' Disease (GD) will develop TED<sup>2</sup>



- 10% of patients with TED are either hypothyroid or euthyroid<sup>2</sup>
- TED may present before, during, or after the onset of GD<sup>7</sup>

1. Gough RL, et al. Curr Treat Options Ophthalmol. 2013;23(10):505-512. 2. Baker RL, et al. JAMA. 2004;291(16):2078-2083. 3. Selva DM, et al. JAMA. 2008;300(17):2278-2283. 4. Selva DM, et al. JAMA. 2008;300(17):2278-2283. 5. Selva DM, et al. JAMA. 2008;300(17):2278-2283. 6. Selva DM, et al. JAMA. 2008;300(17):2278-2283. 7. Selva DM, et al. JAMA. 2008;300(17):2278-2283.

## NO SPECS

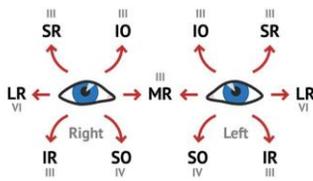
- N** O - NO SIGNS OR SYMPTOMS
- O** I - ONLY SIGNS
- S** II - SOFT TISSUE INVOLVEMENT
- P** III - PROPTOSIS
- E** IV - EXTRA-OCULAR INVOLVEMENT
- C** V - CORNEAL INVOLVEMENT
- S** VI - SIGHT LOSS

## CAS

Table 1. CAS Scoring

<b>Pain</b>	1	Pain behind the eye (in the last four weeks)
	2	Pain on eye movement (in the last four weeks)
<b>Redness</b>	3	Eyelid hyperemia
	4	Conjunctival hyperemia in more than one quadrant
<b>Swelling</b>	5	Eyelid edema
	6	Chemosis
	7	Swelling of the cornea
<b>Impaired function</b>	8	Increase in proptosis >2mm over one to three months
	9	Decrease in motility in any direction >5° over one to three months
	10	Decrease in visual acuity =one line on Snellen

## Basic Sensory motor exam



## Ongoing Inflammation and Expansion of Orbital Tissues Leads to Changes in Physical Appearance

### Conjunctiva and Cornea<sup>1-3</sup>



- Chemosis (swelling of the conjunctiva) Occurs in ~40% of patients
- Conjunctival hyperemia (redness)
- Photophobia (light sensitivity)
- Pain
- Foreign body sensation (grittiness)
- Exposure keratopathy
- Swollen lacrimal caruncle
- Dry eye and tearing

### Extraocular Muscle<sup>1,5</sup>



- Restricted ocular motility: Occurs in ~40% of patients
- Strabismus (misalignment of eye)
- Diplopia (double vision)
- Pain
- Retro-orbital ache
- Decreased vision and depth perception

From Douglas RL, et al. Thyroid Eye Disease. 2015. Reprinted with permission.\*

Figure 4 from Chapter 11 of the Thyroid Eye Disease Atlas, edited by Douglas RL, et al. Reprinted with permission.\*

1. Robinson DD, et al. Clin Ophthalmol. 2009;3(3):405-412. 2. Baker RL, et al. JAMA. 2004;291(16):2078-2083. 3. Selva DM, et al. JAMA. 2008;300(17):2278-2283. 4. Selva DM, et al. JAMA. 2008;300(17):2278-2283. 5. Selva DM, et al. JAMA. 2008;300(17):2278-2283.

## Hertel Exophthalmometry



## Be diligent about TED

- In general, once the ocular manifestations show up, they don't go away even with the systemic disease gets under control

## Treatment of hyperthyroidism

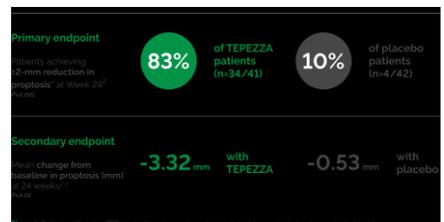
- Oral antithyroid medication – methimazole, propylthiouracil
- Radioactive iodine
- Surgical thyroidectomy

## Treatment of hypothyroidism

- Synthroid –
- Tepezza -

## Dosing of Tepezza

- One infusion done every 3 weeks for a total of 8 sessions.



## Hypertension

### A SNAPSHOT: BLOOD PRESSURE IN THE U.S. Make Control Your Goal

High blood pressure is a major risk factor for heart disease and stroke, the first and fourth leading causes of death for all Americans.

#### ◀ HIGH BLOOD PRESSURE BASICS ▶



## Risk factors for Hypertension

### CAUSES FOR HYPERTENSION



## What is normal BP?

- Systolic = 120 mm Hg
- Diastolic = 80 mm Hg

### Categories of BP in Adults\*

BP Category	SBP		DBP
Normal	<120 mm Hg	and	<80 mm Hg
Elevated	120–129 mm Hg	and	<80 mm Hg
<b>Hypertension</b>			
Stage 1	130–139 mm Hg	or	80–89 mm Hg
Stage 2	≥140 mm Hg	or	≥90 mm Hg

## What is emergency criteria for HTN?

- Systolic pressure over 180
- Diastolic pressure over 120

## Treatment

- Lifestyle Changes
- Diet
- Medications

## Lifestyle Modifications

- Lose weight
- Quit smoking
- Exercise

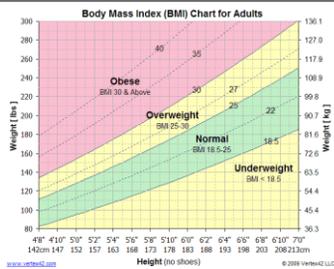
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Or

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## Lose Weight: How much?



## Sodium consumption and BP

- How much do we actually need?
- 180 mg
- How much is adult daily recommended amount?
- 1500 mg

How much do we actually consume?

Where does the sodium come from?

## Ocular Manifestions of HTN

- Vessel changes/AV nicking
- Retinal hemorrhages
- Papilledema

## Grades of HTN Retinopathy

- Grade 1
  - Vascular Attenuation
- Grade 2
  - As grade 1 + Irregularly located, tight constrictions - Known as 'AV nicking' or 'AV nipping' - Salu's Sign
- Grade 3
  - As grade 2 + Retinal edema, CWS and flame-hemorrhages 'Copper Wiring' + Bonnet's Sign + Gunn's Sign
- Grade 4
  - As grade 3 + optic disc edema + macular star ' Silver Wiring

## How do you show meaningful use?

"Patient educated to work with PMD on maintaining proper bp"

## Smoking and Mortality

Leading preventable cause of death and disease in the US

Smoking results in 10-20 years of lost life

## Improve Smoking Treatment Offered in Healthcare Systems

80% of people who smoke visit a primary care physician each year

The healthcare system is an important venue for treating smoking

## Smoking Treatment in Primary Care

Only ~ 5% of patients leave their healthcare visit with recommended evidence-based treatment for their smoking (both counseling and medication)

Source: MMWR 2017

This is an opportunity for ODs

- Why? Because we part of the patient's healthcare team
- Why? Because you can get paid for it

## CPT codes

HCP/PT Codes	Type of Service	Description
99406	Intermediate counseling cessation treatment	Smoking and tobacco use cessation counseling visit greater than three minutes, but not more than 10 minutes.
99407	Intensive counseling	Smoking and tobacco use cessation counseling visit is greater than 10 minutes.
99078	Provider educational services (group counseling)	Group counseling for patients with symptoms or established illness.
99241-99245	Outpatient consultation E/M	Time-based E/M, Levels 1 - 5 based on minutes, which can include tobacco E/M.
99201-99205	New patient E/M	
99211-99215	Established patient E/M	

## Criteria

### Billing Guide for Tobacco Screening and Cessation

#### Documentation

Regardless of the payer (e.g. Medicare, Medicaid, private), providers need to use ICD-10 codes and provide documentation regarding medical necessity and the specifics of what was provided. The goal is to clearly establish medical necessity and ensure payment for services. **Coding is not sufficient.** Medicare and other payers find improper payments by selecting a sample of claims or flagging suspicious claims and requesting medical documentation from the provider. The claim is reviewed against the provider's medical documentation - either an electronic medical record or paper record. As such, the following items should be documented in the medical record:

- Patient's willingness to attempt to quit
- What was discussed during counseling
- Amount of time spent counseling
- Tobacco use
- Advice to quit and impact of smoking provided to patient
- Methods and skills suggested to support cessation
- Medication management
- Setting a quit date with the patient
- Follow-up arranged
- Resources made available to the patient

### ICD-10 Diagnosis Code : Description: All with Nicotine Dependence

**F17 Codes** \*Indicates codes which can be used for Medicare's Asymptomatic patients (as well as Symptomatic)

F17200*	Product unspecified, uncomplicated
F17201*	Product unspecified, in remission
F17203	Product unspecified, with withdrawal
F17208	Product unspecified, with other nicotine-induced disorders
F17209	Product unspecified, with unspecified nicotine-induced disorders
F17210*	Cigarettes, uncomplicated
F17211*	Cigarettes, in remission
F17213	Cigarettes, with withdrawal
F17218	Cigarettes, with other nicotine-induced disorders
F17219	Cigarettes, with unspecified nicotine-induced disorders
F17220*	Chewing tobacco, uncomplicated
F17221*	Chewing tobacco, in remission
F17223	Chewing tobacco, with withdrawal
F17228	Chewing tobacco, with other nicotine-induced disorders
F17229	Chewing tobacco, with unspecified nicotine-induced disorders
F17290*	Other tobacco product, uncomplicated
F17291*	Other tobacco product, in remission
F17293	Other tobacco product, with withdrawal
F17298	Other tobacco product, with other nicotine-induced disorders
F17299	Other tobacco product, with unspecified nicotine-induced disorders

## Reimbursement

- 99406: \$16
- 99407: \$27
- Note: Bill with -25 modifier when doing at the same time as eye exam