**October 6, 2020 Objectives**

**Thyroid Function Test Interpretation:**

1. Describe the normal physiology of the hypothalamus-pituitary-thyroid-target tissue axis. (It may help to draw a diagram and label it with feedback loops.)
2. Know and understand the differential diagnoses for the following thyroid function tests in the described clinical scenario:
   1. Asymptomatic; Normal TSH; Normal FT4
   2. Fatigue, constipation: High TSH; Low FT4
   3. Palpitations, sweating: Low TSH; High FT4
   4. Palpitations, sweating: High TSH; High FT4
   5. Asymptomatic: High TSH; normal FT4
   6. Palpitations, sweating: Low TSH, elevated or normal FT4, no goiter, low Tg concentration, and undetectable 24-hour radioiodine uptake
3. Describe the changes to thyroid physiology in pregnancy and know what happens to the requirement for thyroxine supplementation in hypothyroid women who become pregnant.

**Thyroid Nodules:**

1. Know the rate of malignancy in thyroid nodules that are incidentally discovered (aka detected on imaging performed for a non-thyroid related reason).
2. List and describe several risk factors for thyroid cancer.
3. Draw the algorithm for initial workup of a thyroid nodule. Know the indications to proceed with FNA.
4. Briefly list the MEN syndromes and their associated malignancies.

**Calcium:**

1. Where are the primary effects of vitamin D and PTH, respectively?
2. Describe and draw the feedback loop between the GI tract, parathyroids, bones, serum blood level, and kidneys.
3. Describe the signs and sx of hypercalcemia.
4. Describe the indications for parathyroidectomy in primary hyperparathyroidism.
5. Describe the ddx for hypOcalcemia, and how the PTH, phosphorous, and vitamin D levels would be different.