The thyroid gland produces T3 and T4 which affect multiple organ systems including the reproductive system.

**Hypothyroidism (most common)**
- 4 to 8 times more common in women than men
- More likely with autoimmune family hx
- Occurs in 10% to 21% of women over age 50, and symptoms often attributed to menopause.
- High T4, T3 cause hyperthyroidism
- Low T4, T3 cause hypothyroidism

**Thyroid Function Studies**
- TSH: $60$ reduced to $34$; free T4: $34$

**Effects on reproductive system**
- Anovulation
- Increased frequency of periods
- Heavier menses
- Fertility difficult
- Increased rate of miscarriages

**Therapy of choice in hypothyroidism**
- Proper dose of LT4 (levothyroxine sodium)
- Determine for LT4 dose: Age, weight
  - Dose first thing in am: 1.6 μ/kg/d (Improved absorption on empty stomach)
  - Stable elderly. Start 25 μg to 50 μg; titrate upward with 12.5 μ; monitor TSH
  - Follow up with annual TSH
  - With age, lower LT4 dose may be required.
  - Overdose in premenopausal woman 12.8% have low bone density. Over-suppression (low TSH) may cause subclinical hyperthyroidism and may have adverse effects on heart and bone density by aggravating osteopenia. New sensitive TSH assays are good for distinguishing low normal from suppressed values.

**Subclinical hypothyroidism progresses to clinical dis. Initially 13.2% had normal T4, high TSH. Four years later, 33% had low T4 and high TSH. Once patient diagnosed, treatment begins. High titer of anti-TPO microsomal antibodies are predictive of those that progress to overt hypothyroidism—estimated at a rate of 5% to 8% per year.

**Hypothyroidism may mask CAD symptoms by:**
- Bradycardia, depressed contractility leading to reduced O2 demand
- Physical inactivity so angina less likely
- Altered mental status so symptoms not reported

**CAD symptoms can be exacerbated in hypothyroidism by:**
- Hypertension leading to increased O2 demand
- CHF with depressed ventricular function
- Anemia so less O2 available to myocardial tissue

**Lipoprotein changes in hypothyroidism:**
- Increased total cholesterol, LDL, HDL, and VLDL, but the degree of increased HDL less than LDL, so still an unfavorable ratio.

**Thyroid Nodules**
- Five percent incidence of cancer. Nodules are common (10% to 15% in adults undergoing PE). Up to 15% of nodules have suspicious features clinically.
- Dx: thyroid scanning; “cold” and “hot” nodules, biopsy; “cold” nodules.
- Dx: thyroid nodules: Adenoma, carcinoma, cyst, other
- Malignancies usually “cold,” but most nodules are cold.

**Hyperthyroidism**
- Incidence: Women more than men
  - Graves’ disease: most common; autoimmune disease
  - TMG (Toxic multinodular goiter): Dx: TSH and T4 (TSH producing tumors)

**Preferred treatment**
- Graves’ disease: 1131
  - Anti thyroid Rx
  - Surgery
- TMG: Surgery
- Painful thyroiditis Symptomatic (anti-inflammatory drugs)
- Non-painful thyroiditis: Symptomatic (watch for eventual hypothyroidism)
- Hashimoto’s thyroiditis: Symptomatic (watch for eventual hypothyroidism)

**Antithyroid drugs:** Graves’ disease pretreated with ATD lead to reduced efficiency of 1131 therapy

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**Initial evaluation: TSH**

- If TSH low, then scan; hot nodule almost never malignant.
- Normal TSH, then FNA (need cytology).
- Ultrasound and RAI scan add to costs and not helpful in ruling out malignancy.
- Nondiagnostic biopsies (no cells to examine) are not “negative”.
- Indeterminate biopsies, if suspicious clinically may require surgery.
- FNA (fine-needle aspiration) is simple, cost-effective and accurate in the hands of a good endocrinologist along with a good cytopathologist.

Clinical approach:

- **TSH**
  - **RAI scan**
  - **FNA biopsy**

- **Benign**
- **Intermediate**
- **Malignant**

- **Observation**
- **Surgery**

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### Classified Notices

**Office Space**

- **Pearl City Business Plaza.**—Long leases; 680+ sq ft; 24 hr security; free tenant/customer pkg; available now; call 531-3526 Gifford.

- **Medical Arts Bldg.**—250 sq ft to 997 sq ft office space avail. Pharmacy, x-ray lab; Clinical Laboratories of Hawaii on-site. Call Chrissy Young (S), 524-2666.

**Locum Tenens**

- **Radiologist.**—Available on short notice for locum tenens. Full or part time, any island. (808) 875-9794.

- **Locum tenens available.**—Board-certified family practice, 12 years’ clinical experience in Hawaii. Deborah C. Love MD; Home phone on Oahu: (808) 637-8611; cellular phone Maui: (808) 281-4713.

- **Space to Share.**—Physician practice has space to share with flexible arrangements for individual practice needs. Near QMC ground floor, free parking. Call Deborah at 532-0517 for more information.

- **For Rent.**—100 sq ft office space Kapiolani Medical Center, phone 949-3677

- **Looking for an MD.**—Opportunity to share office space with alternative health care providers. Low overhead. Space available in town. Tuesday, Thursday, Saturday, Sunday. Four treatment rooms, reception area. Call Dr. Bryan Luke or Susan at 591-2400.

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