

Family Medicine

Student Guide



BLUE BOOK



Michael G. DeGroote
SCHOOL OF MEDICINE

McMaster
University



Contributors

Author and Chief Editor

Adib Shamsuddin, BSc

Michael G. DeGroot School of Medicine
McMaster University

Other Authors

Joyce Moore, MD

Preventative Medicine Cheat Sheet
The Department of Family Medicine
McMaster University

Rebecca Klimo, BA

Personality Disorders; Quick Reference
Guide: Antidepressants; A Screening
Neurological Exam
Michael G. DeGroot School of Medicine
McMaster University

Section Editors

Leah Nairn, BSc(Kin)

Cardiology & Vascular Surgery;
Musculoskeletal Disorders &
Rheumatology; Nephrology; Urology
Michael G. DeGroot School of Medicine
McMaster University

Kim Pong, BSc, MSc

Gynecology; Reproductive Medicine &
Obstetrics
Michael G. DeGroot School of Medicine
McMaster University

Adhora Mir, BSc

Dermatology; Geriatrics; Hematology,
Allergy & Immunology
Michael G. DeGroot School of Medicine
McMaster University

Xinxin Tang, BMSc

Respirology; Infectious Diseases
Michael G. DeGroot School of Medicine
McMaster University

Rebecca Klimo, BA

Psychiatry; Neurology
Michael G. DeGroot School of Medicine
McMaster University

Catherine Lee, BHSc

Endocrinology; Gastroenterology;
Pediatrics
Michael G. DeGroot School of Medicine
McMaster University

Isaac Kong, BSc, MSc

Oncology
Michael G. DeGroot School of Medicine
McMaster University

Staff Reviewers

Keyna Bracken, MD, CCFP FCFP

Psychiatry
Undergraduate & Clerkship Director Family Medicine
Michael G. DeGroot School of Medicine
McMaster University

Resident Reviewers

Nadia Omri, MD

Dermatology; Endocrinology; Gynecology; Hematology, Allergy & Immunology;
Infectious Diseases
The Department of Family Medicine
McMaster University

David Weiler, MD

Musculoskeletal Disorders &
Rheumatology; Hematology, Allergy &
Immunology
The Department of Family Medicine
McMaster University

Nisha Kansal, MD

Cardiology & Vascular Surgery;
Respirology
The Department of Family Medicine
McMaster University

Kate Rath-Wilson, MD

Reproductive Medicine & Obstetrics
The Department of Family Medicine
McMaster University

Laura Duncan, MD

Gastroenterology
The Department of Family Medicine
McMaster University

Yashoda Valliere, MD

Geriatrics; Oncology
The Department of Family Medicine
McMaster University

Jasmine Gite, MD

Urology
The Department of Family Medicine
McMaster University

A big thank you to:

Graham Campbell - WRC Research
Lindsay Beuermann - Centre for Family Medicine FHT
Larysa Soroka - Centre for Family Medicine FHT
Jennifer Jones, MD - Centre for Family Medicine FHT

Hissan Butt, MD

Cardiology & Vascular Surgery;
Respirology
The Department of Family Medicine
McMaster University

Sara Jean Lanteigne, MD

Nephrology; Neurology
The Department of Family Medicine
McMaster University

Gillian Bedard, MD

Gynecology
The Department of Family Medicine
McMaster University

Alyssa Schuurman, MD

Endocrinology
The Department of Family Medicine
McMaster University

Joyce Moore, MD

Pediatrics
The Department of Family Medicine
McMaster University

Date of Publication: June 25, 2021

Disclaimer

The information presented herein is for educational purposes and cannot substitute the opinion of a medical professional. All attempts have been made to ensure the information is accurate and current. No contributors shall be held responsible for adverse outcomes due to information contained in this book.

Foreword

I wanted to make a book that compiled common family medicine topics in a format geared for clinical use by clerks and possibly junior residents. Guidelines are great, but picking out the right information from swaths of text during a 15 min appointment is a skill I have yet to acquire. On the other hand, summarized versions sometimes miss out on details and refer curious readers to their main text, where the information is notoriously difficult to find (at least for me). I hoped to a hit a sweet spot through this guide.

The book also seeks to broaden differentials, with the occasional unusual condition, and fortify histories (why do we ask the questions we do?). You will also find shorthands and algorithms throughout this book. These serve to reduce text and make topics feel less overwhelming. Footnotes provide clarification and details you might refer to on your first read, but can ignore if you are skimming before a patient interview.

I hope you find this book helpful and wish you the very best.

—Adib

Table of Contents

BASICS	8
Preventative Medicine Cheat Sheet	8
CARDIOLOGY AND VASCULAR SURGERY	10
Abdominal Aortic Aneurysms	10
Hypertension	10
Ischemic Heart Disease, Stable	13
Peripheral Vascular Disease & Carotid Stenosis	15
DERMATOLOGY	18
Acne Vulgaris	18
Approach to Skin Lesions	20
Dermatitis	25
Psoriasis	27
Rosacea (Acne Rosacea)	29
ENDOCRINOLOGY	30
Diabetes Mellitus Type II	30
Dyslipidemia	34
Thyroid Disease	37

GASTROENTEROLOGY	39
Constipation.....	39
Gastroesophageal Reflux Disease & Dyspepsia	43
Irritable Bowel Syndrome	45
GERIATRICS	47
A Geriatric Patient Visit	47
Dementia	48
Incontinence and Overactive Bladder	50
GYNECOLOGY	53
Abnormal Uterine Bleeding.....	53
Amenorrhea.....	54
Dysmenorrhea	59
Endometriosis	60
Menopause & Perimenopause.....	61
Pelvic Inflammatory Disease	63
Uterine Fibroids (Leiomyomas)	64
Vulvar & Vaginal Disease.....	65
HEMATOLOGY, ALLERGY & IMMUNOLOGY	67
Allergic Rhinitis and Chronic Rhinosinusitis	67
Approach to Red Eye & Conjunctivitis.....	69
Iron Deficiency Anemia	72
Primary Immunodeficiency	75
Urticaria	76
INFECTIOUS DISEASES	78
Approach to Antibiotics	78
Chlamydia, Gonorrhea, & Syphilis.....	81
Fungal Infections.....	83
Herpes, Genital & Zoster	85
Lyme Disease	87
Otitis Media and Otagia	88
Pharyngitis & Influenza	90
Rhinosinusitis, Acute.....	92
Travel	93
MUSCULOSKELETAL DISORDERS & RHEUMATOLOGY	95
Back Pain.....	95
Carpal Tunnel Syndrome (CTS)	96
Diabetic Foot Disease.....	97
Osteoarthritis.....	99
Osteoporosis.....	102
Rotator Cuff Impingement	103
NEPHROLOGY	105
Chronic Kidney Disease	105
NEUROLOGY	107
A Screening Neurological Exam.....	107
Fatigue	108

Headaches.....	109
Vertigo	112
Weakness, A Diagnostic Approach	113
ONCOLOGY.....	116
Breast Cancer Screening.....	116
Cervical Cancer Screening.....	117
Colon Cancer Screening.....	118
PEDIATRICS.....	119
Attention-Deficit Hyperactivity Disorder	119
Autism Spectrum Disorder	120
Emergent Neonate Surgical Presentations	122
Failure to Thrive	123
Well Child Visits.....	124
PSYCHIATRY.....	126
Adjustment Disorder	126
Alcohol Use Disorder	126
Anxiety and Related Disorders	127
Bipolar Disorder	130
Eating Disorders	132
Major Depressive Disorder.....	133
Personality Disorders	136
Schizophrenia Spectrum Disorders.....	136
Sleep Disorders.....	139
Supportive Counselling.....	140
Quick Reference Guide: Antidepressants	141
REPRODUCTIVE MEDICINE & OBSTETRICS.....	143
Contraception	143
Diabetes in Pregnancy.....	145
Erectile Dysfunction & Testosterone Deficiency Syndrome	147
Hypertensive Disorders of Pregnancy.....	149
Libido & Sexual Dysfunction	150
Prenatal Care.....	153
Subfertility.....	155
RESPIROLOGY.....	158
Asthma	158
Chronic Obstructive Pulmonary Disease.....	160
Obstructive Sleep Apnea	162
Smoking Cessation.....	163
UROLOGY.....	166
Benign Prostatic Hyperplasia and Prostate Cancer	166
Hematuria	168
INTERVIEWING.....	170
Capacity Assessment.....	170
Motivational Interviewing.....	170
Upset Patient.....	172

Virtual Visits	172
REFERENCES.....	173

Select Shorthand

? – query; consider context; e.g. in *“Fatigue and Asthenia”* - echo (?CHF) → do an echo if you suspect CHF; in *“Diabetes Mellitus”* - abdo (?fatty liver) → “positive findings on abdo exam may indicate fatty liver”

∅ – variable meanings (consider context): no, not, contraindicated

+ve, -ve – positive, negative

1G, 2G, 3G – first, second, third generation

ABPM – ambulatory BP monitor

AE – adverse events

AKA – also known as

art – arteries

BM – bowel movement

BW – bloodwork

Ca – cancer, or calcium; consider context

CC – chief complaint

CF – cystic fibrosis

CHC – combined hormonal contraceptive (i.e. oral or otherwise)

CI – cognitive impairment

CMT – cervical motion tenderness

COC – combined oral contraceptive

CP – chest pain

CS – corticosteroids

ctrl – control

CVD – cardiovascular disease

CVE – cardiovascular event

dysf – dysfunction

e/ – excluding

E2 – estradiol

EE – ethinylestradiol

fam – family

fBG – fasting blood glucose

fn – function

FNIM – First Nations, Inuit, Metis
FRS – Framingham Risk Score
G+ve, G-ve – gram positive, gram negative
GA – gestational age
GAS – group A streptococcus
ix – investigations
LMP – last menstrual period
LN – levonorgestrel
PNA – pneumonia
mgmt – management
non-AOBP – non -automatic office BP; electronic upper arm device operated with
provider in room
NR – not recommended
NV – nausea vomiting, NVD – nausea vomiting diarrhea
NV – nausea-vomiting
OH – orthostatic hypotension
PA – panic attack
PD – panic disorder
qoL – quality of life
r/o – rule out
rad – radiation
rBG – random blood glucose
RF – risk factors
Rxn – reaction
S/E – side effects
SI/HI – suicidal ideation, homicidal ideation
sx – symptoms
TM – trimester
tx – treatment
w/ – with

Preventative Medicine Cheat Sheet

- Chronic Illness Screening Topics: see “Hypertension”, “Dyslipidemia”, “Diabetes Mellitus”
 - HTN: *for each visit, take avg of 3 readings*
 - Age ≥ 40 : yearly screen
 - Age 18-39 and BP $< 130/85$: screen q3-5yr
 - Dyslipidemia:
 - Start if: M ≥ 40 yr, F ≥ 50 yr. Consider earlier if RF (HTN, DM, , smoking, fam hx CVD)
 - Frequency: lipid levels q5yr as part of global CVD risk score, unless new RF in interim
 - DM:
 - Start if: if obese or RF, at any age. Else, if age $\geq 45-50$ yr
 - Frequency: annually if high risk, else q3-5yr if low risk
- Oncology Screening: see “Oncology” for details
 - Cervical Cancer: pap smear
 - Start at (whichever comes *later*): 21 yr or when first sexually active.
Note that the Canadian Taskforce recommends age 25, so discuss w/ pt
 - Frequency: q3yr if normal
 - Stop at: 70 yr if past 3 are normal
 - Breast Cancer: mammogram. self or clinical breast exams not recommended for screening
 - When: ages 50-74
 - Frequency: q2yr
 - Colon Cancer: risk stratify based on age and FHx
 - Low risk: FIT q2yr from age 50-74
 - Fam member w/ colorectal cancer <60 yo: colonoscopy q5yr from 50 yr or 10 yr before fam member’s diagnosis (whichever sooner)
 - Fam member w/ colorectal cancer >60 yo: colonoscopy q10yr starting at 50 yr or 10 yr before fam member’s diagnosis- (whichever sooner)
 - Lung Cancer: low dose CT only. This screening is a weak recommendation, so discuss with pt/staff
 - Who: age 55-74 AND 30 pack year hx if currently smoking or stopped < 15 years ago
 - Frequency: annually x 3 consecutive yr max
- Health Promotion: smoking cessation- consider NRT, EtOH use (CAGE)
- Reproductive Medicine:
 - STI screening and prevention (i.e. encourage condom use)
 - Always offer during pap test, especially in those ≤ 25 yr
 - Patients can self swab or give a urine sample
 - Folic Acid: 400-800 mcg/day folic acid if planning pregnancy

- Lifestyle: nutrition, supplementation¹, exercise, wt mgmt, sunscreen, hearing loss protection
 - 1 - Women < 50: Vit D 400-1000 U/d, Ca 1000-1200 mg/d (mostly from food)
- Geriatrics Screening:
 - Osteoporosis: screening with BMD in those with risk factors:
 - M and F ≥ 65 yr
 - Other: postmenopausal, previous #, glucocorticoid therapy, low body weight, parental hx of hip #, current cigarette smoking, excessive EtOH, RA, secondary osteoporosis, radiographic osteopenia, loss ≥ than 1.5 inches in height.
 - AAA: see “Abdominal Aorta Aneurysms”. One time screening with U/S
 - Who: M 65-80 yo | F 65-80 yo w/ Hx of smoking or CVD | all 1° relatives of AAA after 55 yo (low-quality evidence)
- Immunizations: vaccination schedule, annual influenza, tetanus q10yr
 - Shingles: *Shingrix is now the only vaccine used for shingles prevention*
 - 2 IM doses given 2-6 mo apart
 - Who: offered to all adults ≥ 50 yr. *OHIP covered if age 65-70 (unless previously receive Zostavax)*

Ontario Immunization Schedule:

Category	Values	15 mo	Var (SCT)
2 mo	DtaP-IPV-Hib (IM) Pneu-C-13 (IM) Rotavirus (PO)	18 mo	DtaP-IPV-Hib (IM)
		4-6 yo	Preferred at 4 yo MMRV (SCT) Tdap-IPV (IM)
4 mo	<u>Same as 2 mo</u>	Grade 7	At school: Hep-B, Men-C, HPV-9
6 mo	DtaP-IPV-Hib (IM) Rotavirus (PO)	Tdap (IM)	14-16 yo + 24-26yo, then q10 yr
12 mo	Pneu-C-13 (IM) Men-C-C (IM) MMR (SCT)	Shingrix	50 yo + see above
		Pneu-P-23	65 yo + see “Asthma”
		Influenza	Every fall

Adapted from: Publicly Funded Immunization Schedules for Ontario – December 2016

See guidelines for catchup schedule (e.g. cannot combine live + non-live)

CARDIOLOGY AND VASCULAR SURGERY

Abdominal Aortic Aneurysms

Background and Screening:

- Recommendation: one time screening U/S for
 - SVS 2017: M or F aged 65-75 yo with hx of tobacco use or 1° relative with hx of AAA (consider in case of 1° relative f pt > 75yo and in good in health).
 - CTFPHC 2017: M 65-80 yo, F 65-80 yo w/ Hx of smoking or CVD, all 1° relatives of AAA after 55 yo (low-quality evidence)
- Dx of AAA if > 3.0 cm

The decision to treat: "We suggest referral to a vascular surgeon at the time of initial diagnosis of an aortic aneurysm."

Follow-up:

Size	Follow-up
< 2.5 cm	None
2.5-3 cm	Repeat U/S in 10 yr
3.0-3.9 cm	U/S q3 yr
4.0-4.9 cm	Refer to vascular surgeon if ≥ 4.5 cm. U/S q1yr
5.0-5.4 cm	Refer to vascular surgeon. U/S q6mo
≥ 5.5 cm	Refer to vascular surgeon. Elective repair.

Adapted from: The Society for Vascular Surgery Practice Guidelines on the Care of Patients with an Abdominal Aortic Aneurysm and 2005 Canadian Cardiovascular Society Consensus Conference

Other Considerations: notify MTO if imminent rupture

Hypertension

Background:

- 1° HTN RF: age > 55, obesity, excessive EtOH, tobacco, FHx, high-sodium diet, physical inactivity
- 2° HTN etiology (RECAPS): Renal (renal artery stenosis[e.g. 2° to atherosclerosis, fibromuscular dysplasia], PCKD), Endocrine (Conn's, Cushing, pheochromocytoma, hyperthyroidism, hyperparathyroidism), Collagen vascular disease/Clonidine withdrawal, Aortic coarctation, Polycythemia/Porphyrria /Pregnancy (e.g. pre-eclampsia), Sleep apnea
 - Consider 2° causes if: severe HTN, tx resistant (if on 3 agents including one diuretic), < 30 yo with end organ damage, electrolyte disturbances, $\geq 30\%$ \uparrow Cr after new ACE/ARB or recurrent pulmonary edema (renovascular causes)

History:

- Basics: CP/SOB, diet, caffeine/EtOH/smoking, occupation, stressors, activity level, snoring, FHx CVD/stroke/kidney disease

- Other Causes: rx (NSAIDs, pseudoephedrine), palpitations (hyperthyroid, pheochromocytoma), PND/orthopnea, weight gain (Cushing), cocaine use, fatigue + weakness + constipation (Conn's)
- HTN Rx Risk Assessment: hx falls, orthostatic hypotension sx

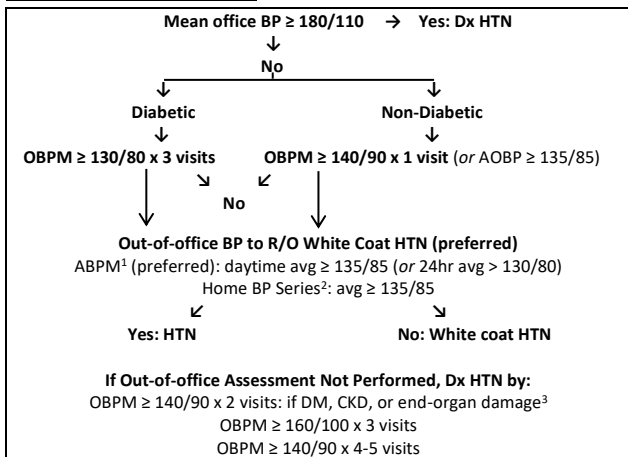
Physical Exam:

- BP: non-dominant arm, cuff edge 3 cm above elbow crease, size (bladder width 40% arm circumference, length 80% arm circ.), arm supported at heart level
 - > 25 mmHg interarm difference indicates PAD (PPV 81%)
 - Orthostatic hypotension: 30-20-10 rule (↑30HR after 1 min standing most sensitive)
- Inspection: BMI, waist circumference, funduscopy¹
 - 1 - narrowed artery, cotton wool spots, AV nicking
- Cardiac Exam: PMI laterally displaced + S4, carotid pulses, pulsatile abdominal mass (AAA – HTN complication)
- 2° Causes: S3 or murmurs, pitting edema, abdo striae (Cushing), renal bruit, palpable goiter, radio-femoral delay (aortic coarctation), ↓ DTR (Conn's)

Diagnosis:

- Averaging: take 3 readings at each visit. Average all 3 if using AOBP¹. Discard 1st reading and average latter 2 for OBPM²
 - 1 - AOBP: automated office blood pressure; works w/ pt alone in room + no interaction with nurse/doctor
 - 2 - OBPM: office blood pressure monitor; typical office BP taken by nurse/doctor
- F/U elevated BP in 1 year (or sooner if particularly high); no specific guidelines

In-Office HTN Diagnostic Criteria:



1 – 24h ambulatory Home BP Settings: average q20-30 min day and night

2 – Home BP Series: average 7d of pre-breakfast + 2 hr post-supper; discard day 1 readings

3 – stroke, retinopathy, LVH, CHF, claudication, urine ACR > 30

Adapted from: Guidelines Hypertension Canada's 2020 Comprehensive Guidelines for the Prevention, Diagnosis, Risk Assessment, and Treatment of Hypertension in Adults and Children

Investigations:

- At diagnosis: urinalysis, eGFR/Cr, A1C, lytes, lipid panel, 12 lead ECG (LVH, atrial enlargement, Q wave/ST changes)
- Calculate CV Risk: Framingham Score
- Optional:
 - Endocrine: TSH, plasma renin + aldosterone, plasma metanephrines, extended lytes
 - Renovascular: captopril-enhanced radioisotope renal scan, renal doppler

HTN Management:

- Office-based BP target: <120 in high-risk¹, < 130/80 in DM, < 140/90 in low-moderate risk
 - 1 – High risk: 10yr CV risk >15% and age > 50yo
- Non-Rx: exercise (moderate intensity 30-60mins x 4-7 days/week), wt loss¹, DASH diet², EtOH <2 per day, smoking cessation, relaxation therapies
 - 1 - BMI 18.5 – 24.9, waist circumference M <102 cm (40") / F <88cm (35"); can ↓ BP 5-20mm Hg
 - 2 - high K+, fruit/veggies, dietary fibre, non-animal proteins, low-fat dairy, low Na+

Standalone HTN Therapeutics:

Therapy	Grade	Examples, Trials and Exceptions
Thiazide/ Thiazide- like	1 st Line	▫ Class mortality benefit + ↓ stroke/MI vs. ACE, CCB (ALLHAT trial) ▫ e.g. Chlorthalidone 12.5-25 mg OD ▫ e.g. Indapamide 1.25 mg OD (↓ stroke > 80 yo; HYVET) ▫ Shorter acting hydrochlorothiazide <i>may</i> be inferior
ARB	1 st Line	▫ ∅ black pt (ALLHAT shows ↑ stroke in ACE subgroup) ▫ ∅ ACE/ARB in pregnancy – fetal renal damage ▫ e.g. Losartan 50 mg OD
CCB	1 st Line	▫ e.g. Amlodipine 5 mg OD
ACE	1 st Line	▫ ∅ in black pt, pregnancy ▫ e.g. Ramipril 2.5 mg OD
BB	2 nd Line	▫ if < 60 yo ¹ or other indication (e.g. CHF, MI, CAD) ▫ e.g. Metoprolol 25 mg OD

1 - b/c stroke risk ↑ in older adults with BB use

Combination Therapy

- if *standard dose* monotherapy inadequate
- Dual therapy: e.g. ACE/ARB + thiazide/thiazide-like/CCB, thiazide/thiazide-like + CCB, etc.
 - ∅ combine ACE + ARB: ↑ risk of dialysis, AKI (ONTARGET Trial)
 - BB: no effect in combo w/ ACE or ARB. CAUTION: strong synergy w/ CCB

- If tx non-effective w/ 2 agents at standard dose: up-titrate or add another agent
 - If reach max dose w/ 3 agents (including one diuretic), ix other causes. If ix -ve, add Spironolactone, BB, or hydralazine (if already using BB + diuretic). Other agents include amiloride, doxazosin.

Other Considerations:

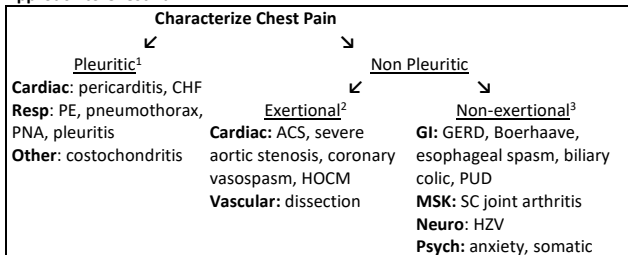
- HTN in DM:
 - Monotherapy: 1st line – ACE or ARB, 2nd line – DHP CCB
 - If other CVD RF or renal disease: ACE/ARB
 - Combo: if *standard dose* monotherapy inadequate, ACE/ARB+CCB had fewer CV events vs. ACE/ARB+thiazide (ACCOMPLISH trial)
- Other 1st line Therapies:
 - Stroke/TIA - combo ACE + thiazide/thiazide-like)
 - CAD - ACE/ARB, + BB/CCB if angina
 - Non-DM CKD - ACE preferred (ARB if intolerant) + diuretic if needed
- Monitoring:
 - ACE/ARB¹, diuretic: Cr + lytes 2 wk after starting & w/ dose titrations
 - 1 - If Cr ↑ > 30%: stop rx; consider renal artery stenosis if r/o causes like NSAIDs, dehydration, etc.
 - Monitor BP q1-2 mo until 2 consecutive visits below target, then q3-6 mo
 - Yearly A1C, lipids.

Vascular Protection:

- Statin: add statin if ≥ 3 RF¹
 - 1 - Male, > 55 yo, LVH, EKG findings (LBBB, LV strain, Q-wave, ST-T of CAD), PAD, stroke/TIA, DM, smoking, microalbuminuria, FHx of early CVD, TC:HDL ≥ 6

Ischemic Heart Disease, Stable

Approach to Chest Pain:



1 - fever + positional (pericarditis), ↑JVP + pitting edema + crackles (CHF), palpitations + hemoptysis + SOB (PE), percussion hyperresonance + Ø breath sounds (pneumo), cough + fever (PNA), pleural rub (pleuritis), pain to palpation on chest wall + hx of strain/sprain (costochondritis)

2 - systolic ejection murmur + brachioradial delay (AS), triptan or cocaine use (coronary vasospasm), syncope/presyncope (HOCM), tearing back pain + arm pulse difference (dissection)

3 - sour mouth taste + relation to meals + pain to epigastric palpation (GERD), emesis w/ retching (Boerhaave), dysphagia (esophageal spasm), relationship to meals (biliary colic, PUD), pain to palpation (SC arthritis), tingling/burning (HZV), STUDENTS FEAR the 3 C's (anxiety)

History:

- Angina:
 - 3 Angina Criteria: dull retrosternal pain/pressure ± radiation to jaw, back, L shoulder, provoked by exertion/emotional stress, relieved within 5 min of rest or NTG
 - Episodes: frequency, progression, fn impact
- RF: smoking, DM/HTN/dyslipidemia/obesity, CKD, diet, inactivity, FHx (relatives < 55yo), depression, male sex, older age

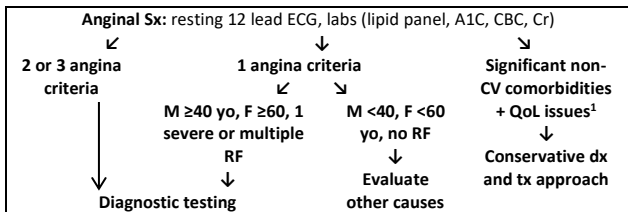
Physical Exam:

- Vitals:
 - Other causes: resting tachycardia (pneumothorax, PE), fever (PNA, pericarditis)
- Inspection: high BMI
- Palpation: ↓ pedal pulses, displaced PMI, non-reproducible on chest wall palpation
- Auscultation: murmur¹
 - 1 – Complementary actions to identify murmurs: clench fist/Valsalva (↑ HOCM, ↑ TR), L lateral decubitus (better hear MS), lean forward (better hear AR), standing (↓ HOCM), inspiration (↑ PR)

Diagnosis and Investigations:

- Calculate Framingham Risk Score
- Angina: typical Angina (3/3 criteria), atypical angina (2/3 criteria), non-anginal CP (1/3 criteria)
 - See Hx section for angina criteria

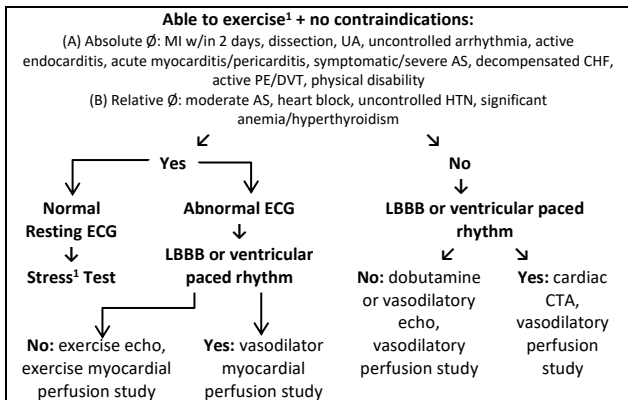
Preliminary Evaluation:



¹ – E.g. pt with terminal ca unlikely to receive invasive angiography, surgery

Adapted from: *Canadian Cardiovascular Society Guidelines for the Diagnosis and Management of Stable Ischemic Heart Disease*

Diagnostic Testing:



1 - Consider pharmacological stress test if exercise intolerant: persantine (\emptyset in asthma) or dobutamine

Adapted from: Canadian Cardiovascular Society Guidelines for the Diagnosis and Management of Stable Ischemic Heart Disease

Management:

- Follow-up: resting ECG \pm stress test; annually or w/ sx status Δ
- Cardiologist referral
- Exercise-based cardiac rehabilitation
- Rx: *optimize in 12-16wk of presentation*
 - ASA 81mg OD indefinitely (Plavix 75mg OD if intolerant); \emptyset DAPT
 - ASA \emptyset in Sampeter triad; caution in HTN, kidney disease
 - Statin: e.g. Rosuvastatin 10mg OD; see "Dyslipidemia"
 - ACEi (ARB if intolerant): consider in *all pt, but necessary in SIHD + HTN, DM, LVEF < 40%, or CKD*
 - e.g. Perindopril 4mg OD
 - BB (or CCB if asthma, severe Raynaud): LVEF < 40%, hx MI
 - e.g. metoprolol 100mg OD; titrate 25mg q1wk to 50-60 BPM
 - NTG 1-2 spray translingual q5min PRN (max 3 spray/15 min)

Peripheral Vascular Disease & Carotid Stenosis

Background:

- Etiology: atherosclerosis (e.g. RF¹, Leriche syndrome), vasculitis (e.g. Buerger's, Takayasu, Bechet, GCA, Periarteritis)
 - 1 - RF: male sex, TD2M, HTN, dyslipidemia, smoking, obesity, EtOH
- Screening: by hx; do not screen with ABI
 - Who: consider in M > 40, F > 50 or menopausal

History:

- Claudication:
 - Sx: pain w/ walking but \emptyset at rest, resolves \leq 10 min w/ rest, fn impact
- Chronic critical limb ischemia: pain at rest, supine burning sensation of sole (relief in dependent position), non-healing wounds
- Acute insufficiency (6 P's): pain, paresthesia, poikilothermia, pallor, pulseless, paralysis

Physical Exam:

- Vitals: BP (HTN, inter-arm difference¹)
 - 1 - $>$ 25 mmHg interarm difference indicates PAD (PPV 81%)
- Inspection: CHUSE¹
 - 1 - color – pale, hair – sparse, ulcers, skin – thin/shiny, edema – none unless critical ischemia
- Palpation: pedal edema, reduced posterior tibial pulse, pulsatile abdo mass, slow capillary refill, pallor on elevation (after $>$ 30-60s – arterial insufficiency), rubor w/ dependency ($>$ 15s – venous insufficiency)
- Auscultation: femoral bruits
- Ankle-brachial Index: $<$ 0.9 diagnostic, $<$ 0.4 severe. $>$ 1.3 abnormal, suggestive of calcification/hardening of arteries

Investigations:

- Standard: A1C, lipid panel (LDL/HDL/TG/TC)
- Other: duplex scanning or treadmill test, CTA or MRA (for incapacitating claudication)

Management:

- Optimize BP + DM ctrl
- Non-Rx: exercise¹, smoking cessation, diet/wt loss
 - 1 – Most effective in supervised setting (e.g. hospital program); 45-60 min 3x/wk x 12 wk. Walk until moderate pain then take short rest, and repeat.
- Rx: lifelong ASA 81mg or Plavix 75mg OD¹, Ramipril², statin (e.g. Atorvastatin 10mg OD; see “Dyslipidemia”), cilostazol 100mg BID (PD-inhibitor)
 - 1 - CAPRIE trial: Plavix \downarrow CVE by 8.7% vs. ASA
 - 2 - Even if normotensive - PAD dose 10mg OD (HOPE trial)
- Vascular Surgery Referral: chronic critical limb ischemia, severe + interferes w/ fn despite rx and exercise

Carotid Stenosis

Physical Exam: irregular pulse, carotid bruit, adapted neuro screen¹

- 1 - speech, facial droop, pupils, EOM, finger extension strength, abnormal gait, pronator drift. *High yield findings to R/O TIAs.*

Investigations: U/S duplex

Management:

- If Recent TIA or non-disabling stroke *and*–

- 50-69% stenosis: non-urgent endarterectomy + Plavix 75mg OD
- 70-99% stenosis: urgent endarterectomy (w/in first days of stroke or 14d of TIA) + Plavix 75mg OD
- If remote sx (≥ 6 mo ago; or asymptomatic) + 60-99% stenosis + > 5 yr life expectancy: vascular surgery \pm ASA 81 mg OD
- If intracranial stenosis: neurosurgery referral, ASA 325mg + Plavix 75mg OD

DERMATOLOGY

Acne Vulgaris

Background:

- Pathophysiology: ↑ androgens ► ↑ sebum ► sebaceous follicle outlet obstruction (i.e. comedones) ► sebum bacterial colonization (by *P. acnes*) ► inflammation (pustule, papule, nodule)
- DDx: bacterial folliculitis, drug-induced (CS, OCP, androgens, Li), Hidradenitis suppurativa, miliaria, dermatitis, rosacea, pseudofolliculitis barbae, PCOS, Cushing

History:

- Basics: onset, aggravating factors, cosmetic use, occlusion (e.g. sports gear), manipulation (“popping pimples”), FHx acne, psychosocial impact
- In F also ask: effect of OCP use on acne, sx flareup around menses, ± LMP + sexual hx (if considering OCP, isotretinoin)
- Other causes: oligomenorrhea + hirsutism (PCOS, Cushing), abrupt eruption (bacterial folliculitis), spread with scratching/shaving (pseudofolliculitis barbae), atopy/asthma hx (dermatitis)

Physical Exam:

- Location: face, neck, chest, back; appearance: comedones (open or closed), papules, pustules, cyst, scars
- Other causes: no comedones + telangiectasias (rosacea), greasy scales (seborrheic dermatitis), vermilion border clearance (perioral dermatitis)

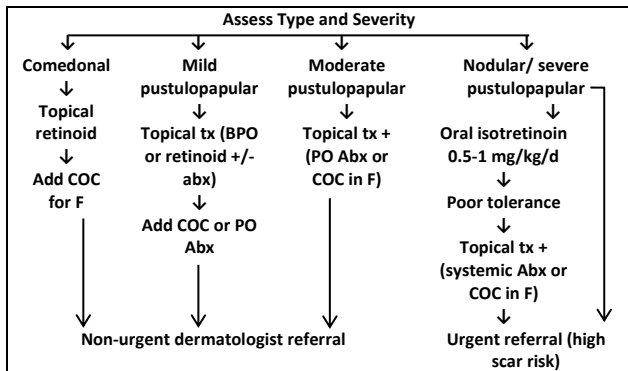
Diagnosis: *clinical*

- Consider endocrinologic W/U if 1-7 yo (acne very uncommon for this age group)
- Acne mimics: Rosacea fulminans, perioral dermatitis, pityrosporum folliculitis, syringomas, desmodex folliculitis, lupus miliaris disseminata faciei, cutaneous Sarcoidosis

Management:

- Non-Rx:
 - Avoid known triggers: makeup, overzealous cleaning, occlusion, manipulation
 - No evidence for: dietary restriction, chemical peel (glycolic/salicylic acid), microdermabrasion

Therapeutics in Acne: *acne often worsens in early tx, but take rx 4-8 wk;*



Adapted from: CMAJ Management of acne: Canadian clinical practice guideline

- Topical Treatment: *gel preferred; apply to cleaned surface*
 - Monotherapy:
 - Retinoids¹: adapalene (0.1%, 0.3%), tretinoin (0.01%, 0.025%, 0.1%)
Apply qHS to avoid photodegradation of retinoid and subsequent photosensitivity
 - All retinoids (including PO) can transiently worsen acne
 - Abx: dapsone 5% BID
 - Benzoyl Peroxide (BPO): 2.5-10% BID
 - Combo:
 - Retinoid + BPO: Tactapump qHS (adapalene 0.1%/ BPO 2.5%)
 - Abx + BPO: e.g. Benzaclin BID (clindamycin 1%/BPO 5%)
 - Retinoid + Abx: Bianca qHS (Clindamycin 1.2%/tretinoin 0.025%)
 - In pregnancy: consider Azelaic acid 15% BID
- PO Antibiotics^{1, 2}: Tetracycline 250mg or 500mg BID, (∅ pregnancy, children < 8 yo), Doxycycline 40mg daily, Erythromycin 250-500mg BID
 - 1 - w/ food/water + stay upright > 30 min to prevent esophagitis
 - 2 - PO abx can be discontinued and replaced with topical retinoids once treatment goals have been met
- Combined oral contraceptives (COC)¹: e.g. Alesse, Marvelon, Tri-Cyclen, Yaz, Diane 35, Ortho
 - 1 - Avoid norethindrone or levonorgestrel as they have androgenic properties
- Isotretinoin (Accutane/Epuris/Clarus)
 - Low dose regimen: 0.3mg-0.5mg/kg/day for cumulative dose of 120-150mg/kg
 - Typical dosing: 0.5mg/kg/d ÷ in 2 doses x 1m then 0.1mg/kg/d ÷ in 2 doses for cumulative dose of 120-150mg/kg
 - Pregnancy Prevention: isotretinoin is a class X teratogen (compared to Adapalene in Class C, same as PO tetracycline)

- Contraception (2 forms; 1 month prior to + during use) + β -hCG (2x at baseline, then q1mo, at 1 mo after d/c)
 - Monitoring: CBC, LFTs, lipid panel at baseline, then at 4wks (+/- q2-3 months after)
 - S/E: dryness, muscle aches/back pain, pseudotumor cerebri, depression, acne fulminans
- Laser and light therapy: no optimal use guidelines. \emptyset routine in acne tx
 - Follow-up:
 - Re-evaluate q2-3 mo for maintenance and escalation
 - Maintenance: comprised of topical only¹
 - For comedones/mild acne: topical retinoid. For Moderate: topical retinoid \pm BPO. For severe: topical retinoid \pm BPO \pm topical Abx

Approach to Skin Lesions

Describing Skin Lesions:

- Appearance: 1^o morphology¹, size, shape (round, well demarcated, symmetry), color (e.g. salmon, homogeneity, blanching), 2^o morphology², texture (rough, fluctuant, rubbery, edematous)
 - 1 - E.g. macule (<1cm), patch; papule (<1cm), plaque; vesicle (<1cm w/ fluid), bulla (>1cm w/ fluid), pustule (pus-filled); nodule, wheal; umbilicated; petechiae/purpura; morbilliform; telangiectasia
 - 2 - Scaling, crusting, fissure, lichenified, ulcerated, excoriated, erosion, discharge
- Arrangement: e.g. symmetric, scattered, clustered, linear, confluent, discrete
- Distribution: location¹, pattern²
 - 1 - E.g. scalp, face, trunk, extremities
 - 2 - E.g. dense, sparse, linear, flexural, extensor, intertriginous, sun-exposed surface, dependent, blaschko-linear
- Evolution over time (location, appearance, size)
- ABCDE mnemonic (concerning for melanoma): Asymmetry, Border irregularity, Color not uniform, Diameter >6mm, Evolving size/shape/color

History:

- Basics: onset, duration, evolution, associated sx^{1, 2}, allergies, new exposure (milk, drugs, work, skin product, pet, bites), infectious contacts, déjà vu, palliating factors (e.g. Benedryl), travel (e.g. Ohio River Valley)
 - 1 - Common: pruritis, fevers, URTI, NVD, abdo pain, joint pain, conjunctivitis
 - 2 - PRN: neck stiffness, IVDU, standing water/mosquito net use, sexual hx, mucosal bleeding, bloody stools, fair skin/sun exposure/sunscreen use
- PMHx: atopic triad, immunocompromise, vaccinations
- FHx: similar sx, skin ca (melanoma), skin dx, autoimmune dx

Skin Biopsies:

- [1] Antiseptic Wash: isopropyl alcohol, chlorhexidine, or povidone-iodine
- [2] Local Anesthetic: Lidocaine 1-2% +/- EPI¹, Bupivacaine
 - 1 - Reduces bleeding; "don't use in finger, nose, penis, toes" is old wives' tale, however, caution in in poor circulation areas [PAD, DM, crush injury]
 - Max Lidocaine dose (3-5-7 rule): 3mg/kg IV, 5mg/kg local, 7mg/kg w/ EPI
 - Toxicity Sx (e.g. accidental intravascular injection): metallic taste, tongue numbness, blurry vision, tinnitus, dizziness, CV collapse
- [3] Biopsy Types:
 - Punch (1-8mm): for small lesion or part of lesion
 - Elliptical Excision: for larger lesions or cosmetic areas (e.g. face, chest, ear)

- Closing suture: simple interrupted¹ w/ non-absorbable Ethilon or Prolene; face (5-0 or 6-0), hands (4-0 or 5-0), trunk or over joints (3-0 or 4-0), scalp (3-0 or 4-0)
 - 1 - Horizontal/vertical mattress if gaping excision, esp. for wounds under tension or to evert edges
 - Removal time: face/neck (5-8d), scalp (7-9d), upper extremity (8-14d), lower extremity (8-14d), over joints (14-21d)
- Specimens are usually placed in neutral buffered formalin and must be labelled (anatomical site)

Notable Conditions: information on selected conditions provided below; see <https://dermnetnz.org/> for pictures and more information

- Life Threatening: TEN (>30% BSA), SJS (<10% BSA), necrotizing fasciitis, toxic shock syndrome, pemphigus vulgaris, staphylococcal scalded skin syndrome
- Pustular DDx: acne vulgaris, acne rosacea, staph folliculitis/furunculosis, hidradenitis suppurativa, periorificial dermatitis, scabies, HSV/HZV, miliaria

Conditions in Adults and Children

[1] Bullous pemphigoid:

- Features: tense blisters on urticarial rash; negative Nikolsky sign
- Etiology: autoimmune; triggered by many drugs (ie. DPP4 inhibitors, diuretics, ACEI and abx)

[2] Carbuncle: cluster of furuncles

[3] Cellulitis: ill-defined spreading erythema; warmth, painful to touch (but not out of proportion)

[4] Cheilitis:

- Common Subtypes: cheilitis simplex (lip licking in cold weather), angular cheilitis (Fe or B12 deficiency, HIV), eczematous cheilitis

[5] Dermatofibroma: benign, firm, pink-skin coloured 0.5-1.5cm diameter nodules with + dimple sign (dimple on pinching the lesion)

[6] Dermatitis: see "*Dermatitis*"

- Select subtypes: atopic [sub-subtypes - dyshidrotic, nummular], irritant contact, allergic contact, seborrheic, periorificial, stasis

[7] Epidermoid Cyst:

- Features: firm, 1-3cm skin colored papule w/ central punctum exuding yellowish debris; esp. on face, neck and torso
- Etiology: occluded pilosebaceous unit
- Tx: hot compress if small, or excision w/ intact capsule

[8] Erysipelas:

- Features: superficial form of cellulitis (warmth, well demarcated erythema, painful), but marked swelling vs. cellulitis
- Tx: Penicillin VK 300mg q6h x 5- 7d + non-rx (cold packs, elevate area)

[9] Erythema infectiosum (5th disease):

- Etiology: blanching rose patches on cheeks ("slapped cheek") followed by truncal, papular reticular rash of limbs

- Etiology: *Parvovirus B19*
 - Hx: HA, URTI, “burning cheeks”; Ix: CBC, Parvovirus PCR
 - Complications: aplastic crisis, IU demise (esp. 1TM), arthropathy, encephalitis
- [10] Erythema Multiforme:
- Features: target lesion w circular sharp erythematous border + pink middle ring + crusty red centre (+/- central blister); +/- mucositis; start dorsal hand/foot → spread twd trunk
 - Etiology: drugs, autoimmune, infection (mycoplasma pneumonia, HSV)
- [11] Erythema Nodosum: several cm reddish tender nodules (esp. tibial region); panniculitis; associated w/ IBD, sarcoid Iofgren triad (erythema nodosum + fever + bilateral hilar adenopathy)
- [12] Folliculitis:
- Features: papule/pustule on erythematous base at hair follicle. Subtypes:
 - Kleoidialis: chronic at nape of neck; not actually a keloid
 - Decalvans: chronic on scalp; causes permanent alopecia
 - Etiology: infectious (bacterial, tinea, Malassezia, viral), non-infectious (drug induced, cutting oil), pseudofolliculitis barbae
 - Hx: w/ shaving (pseudof.), contaminated water (*P. aeruginosa* - hot tub, pool, soil), infectious contact, tenderness/ spreading warmth (cellulitis)
 - Ix: ± C&S if suspect infectious
 - Tx:
 - Infectious: staph (mupirocin 2% TID x 10d), *P. aeruginosa* (self-limiting, if severe Cipro 500mg PO BID)
 - Kleoidialis: avoid razor + avoid collar/rubbing + OTC antimicrobial cleanser (prophylactic) + topical betamethasone 0.05% BID x 2-4 wk (if <3mm papules; if big then intralesional injection)
 - Decalvans: tetracycline ± prednisone *or* isotretinoin; or dermatology consult
- [13] Furuncle: folliculitis affected adjacent/deeper tissue
- [14] Hand-Foot-and-Mouth (Enterovirus):
- Features: maculopapular/vesicular rash on hands/feet ± numerous oral ulcers (vs. singular aphthous ulcer)
 - Etiology: Coxsackie virus
- [15] Herpes zoster: vesicles in clusters (water on rose petal); doesn't cross midline; along dermatome
- [16] Hidradenitis suppurativa: pus-filled nodules and abscesses in apocrine glands (axillae, groin, under breasts)
- [17] Impetigo:
- Features: contagious large localized ruborous plaques with honey crusting
 - Etiology: *staphylococcus* and *streptococcus* species
 - Tx: mupirocin 2% TID x 7d or if extensive, cephalexin 50mg/kg/day ÷ 4 doses x 7d
- [18] Kawasaki: non-blanching (vasculitis)
- Etiology: self-limited vasculitis of unknown origin

- Dx: ≥ 5 d of fever + $\geq 4/5$ of associated sx¹
 - 1 - oral Δ [red cracked lips, strawberry tongue, pharyngeal rubor], bilateral non-purulent conjunctivitis, blanching morbilliform/ macular/erythema multiforme-like rash, extremity Δ [edema, erythema, desquamation], ≥ 1 cervical lymph node > 1.5 cm [esp. unilateral]
 - Mgmt: in-pt (IVIG + high dose ASA + echo[at dx + 2wk + 6wk] + CS); must do varicella + regular flu shots if low-dose ASA (re Reye's syndrome)
- [19] Keloid:
- Features: pink/brown colored rubbery, smooth growth due to scar formation at injury site. Does not Δ to ca.
 - Tx: OTC silicone sheet \pm intralesional CS, laser therapy
- [20] Keratosis pilaris: hair follicle keratinization esp. w/ ichthyosis vulgaris, atopic dermatitis; bilateral symmetric non-itchy, red or hyperpigmented papules at follicles base
- Tx: gentle exfoliation, emollients, keratolytic (e.g. salicylic acid 2-6% OD)
- [21] Lichen Planus:
- Features: 5 P's (papule 2-5mm, pruritis, purple, polygon, planar [top is flat, not rounded]), oral (reticular white streaks)
 - Etiology: T-cell mediated autoimmunity against keratinocytes
 - Tx: local (clobetasol 0.05% occlusive dressing OD for few hr x 6wk), severe erosive (0.5mg/kg/d PO prednisone x 4-6wk tapered)
- [22] Lichen Simplex Chronicus:
- Features and Etiology: lichenified (thick, leathery skin) from scratching
 - Tx: treat underlying condition (e.g. tinea) + break scratch-itch cycle + moderate-potent topical steroid (depending on location)
- [23] Measles (Rubeola):
- Features: 1mm-1cm non-blanching clustered maculopapular spots on face \rightarrow spread to truncal predominance + some at extremities; \pm oral kolpik spots (small punctate blue-white on erythematous background)
 - Hx: conjunctivitis, cough, coryza, fever, travel, no vaccination; non-pruritic rash on 5th d of sx and lasts 4 d
 - Tx: notify public health + Vit A (age depend dose) + contact ctrl; 30% w/ measles develop complications
- [24] Milia: innumerable tiny white facial papules; harmless; ddx white comedones
- [25] Miliaria (heat rash):
- Subtypes and Features:
 - Rubra: 2-4mm pruritic non-follicular papulovesicles (esp. in axilla, scalp, neck – friction areas)
 - Crystallina: 1-2mm clear blister that easily break; look like sweat beads; no inflammation
 - Etiology: blocked sweat ducts, esp. in neonates
 - Tx: ventilation + avoid tight clothing + combo Calamine & emollient \pm topical CS
- [26] Molluscum contagiosum:
- Features: localized vesicles w/ umbilication
 - Etiology: pox virus
 - Hx: infectious contacts

- Tx: self resolves 6-13 mo + avoid sex (if genital area),
 - If cosmetic area or bothersome: cryotherapy, curettage or cantharidin or podophyllotoxin 5% BID x3d ± repeat after 4d
- [27] Pemphigus Vulgaris:
- Features: widespread friable blisters with pruritis and painful erosions; affects mucosa; positive Nikolsky sign¹
 - 1 - slight rubbing of affected skin causes sloughing of outer layer. Positive in pemphigus since desmosomes normally hold skin layers together. Use to differentiate from bullous pemphigoid
 - Etiology: autoimmune attack on desmosomes; triggered by ACE/ARB, β-lactams, ca
- [28] Pityriasis rosacea:
- Features: onset w/ herald rash → diffuse non-uniform papule-plaques; ruborous border, pale centre
 - Etiology: HHV-6
- [29] Pyogenic granuloma (lobular capillary hemangioma): 1-2cm solitary raspberry papule; easily bleeds ± ulcer
- [30] Pyoderma Gangrenosum:
- Features: large, rapidly growing full-thickness painful ulcer w/ violaceous border at site of minor injury; ± started as pustule
 - Etiology: autoimmune; associated with IBD
- [31] Roseola Infantum (6th disease):
- Features: innumerable 2-5mm blanching pink truncal papules ± soft palate Nagayama spots
 - Etiology: HHV 7 and 8
 - Hx: 6mo-3yr w/ fever ± febrile seizure, URTI; rash starts w/ resolution of fever at day 3-5 and lasts 2d
- [32] Rubella (German Measles):
- Features: innumerable maculopapular 2-3mm pink spots rash starting on face w/ spread to trunk + extremities; ± mucosal Forchheimer spots (pinpoint petechiae of uvula/soft palate); cervical or retroauricular lymphadenopathy
 - Hx: fever, pharyngitis, coryza, travel; rash upto 5d then skin flakes
- [33] Scarlet Fever:
- Features: innumerable scarlet blanching papules in clusters (“boiled lobster”) + rose patch on cheeks; starts 1-2d of fever in chest, groin, armpit → goose pimples of “sandpaper quality” → peeling at 6d
 - Etiology: Group A *streptococcus*
 - Hx: strep pharyngitis, strawberry tongue, lymphadenopathy, NV
 - Tx: Penicillin V 600mg BID x 10d (peds: 40mg/kg/day ÷ BID, max 750mg/d)
- [34] Scabies:
- Features: papules [esp. axilla, groin, buttocks, penile shaft], nummular dermatitis, acral pustules, crusting; ± burrows (0.5-1.5m web space tracks)
 - Etiology: sarcoptes scabiei mite
 - Hx: pruritis, family also symptomatic
 - Ix: fluorescein wood lamp [shows burrows]

- Tx (treat whole household):
 - Non-Crusted: permethrin 5% cr on apply everywhere and wash off after 8-14 hours x 1 then rpt 7 days later; wash all bedding + clothes
 - Crusted: ivermectin 200mcg/kg PO x1 then rpt on day 8 & 14
- [35] Urticaria: *See "Urticaria"*
- Features: transient wheals; can emerge w/in min of a trigger
 - Etiology:
 - Acute: type I hypersensitivity [food, rx, bee sting], serum sickness, bacteria/virus, widespread rxn to local contact [e.g. latex]
 - Chronic: cold, cholinergic [hot shower, sweat], contact, heat, sun, dermatographism, chronic spontaneous urticaria [esp. w/ H. Pylori, SLE]
- [36] Warts (Verruca Vulgaris):
- Features: hard grey-brown keratotic papule ± tiny central black dot [hemorrhage]
 - Etiology: HPV
 - Hx: pain (near nail, sole of foot), infectious contact (barefoot in gym, etc.)
 - Tx: self resolve in 2yr or salicylic acid (sealed w/ duct tape) ± cryotherapy ± cantharidin ± excision (sx relief, but recur + scars) ± HPV vaccine ± intralesional MMR [∅ if immunosuppressed]

Conditions in Adults:

- [1] Actinic Keratosis: photoaging lesion; rough, scaly, yellowish papule; may develop into squamous cell ca
 - Tx: cryotherapy ± shave (if cutaneous horn)
- [2] Seborrheic Keratosis: mm-several cm papule w/ waxy surface; may be skin colored or multi-pigmented
 - Etiology: not photoaging, but ± associated w/ high friction areas (e.g. bra line), hormone Δ (pregnancy, menopause)
 - Dx: Seborrheic keratosis (quite palpable, speckled/warty, symmetric) vs. melanoma (dermatoscope [striation, blood vessel invasion])
- [3] Basal Cell Carcinoma: 90% of all skin ca; slow growing pearly papule w telangiectasia. Morphoeic subtype can be very subtle
- [4] Squamous Cell Carcinoma: scaly papule, often tender and ulcerating; may arise w/in existing actinic keratosis
- [5] Melanoma: macular, pigmented lesion
 - Evaluation: ABCDE (asymmetry, border irregular, color non-uniform, diameter > 6mm, evolution)

Dermatitis

Atopic Dermatitis (Eczema)

Background:

- Atopic triad: asthma, allergies, eczema
- Complications: bacterial infection¹, Kaposi varicelliform eruption² (life-threatening)

- 1 - pustules/crusts, not responding to tx/rapidly worsening sx, fevers
- 2 - disseminated HSV infection w/ widespread vesicles
- **DDx:**
 - Common: other dermatitis¹, lichen simplex chronicus, xerosis, infectious (candidiasis, tinea, impetigo, scabies), dermatitis herpetiformis
 - 1 - seborrheic, contact, nummular, lichen simplex chronicus, asteatotic
 - Uncommon: Zn deficiency, cutaneous T-cell lymphoma, immunodeficiency (Hyper IgE syndrome, Wiskott-Aldrich, Omenn), keratinization disorders (ichthyosis vulgaris, Netherton)

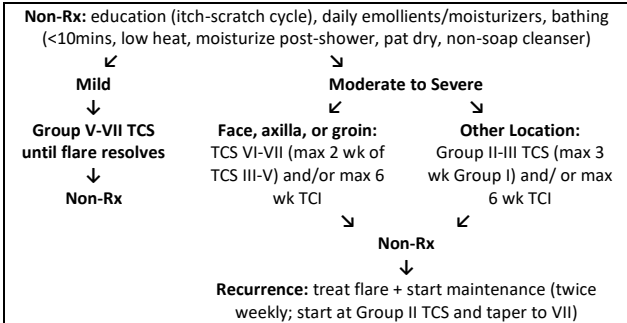
Physical Exam:

- Location: extensor surface (children), flexural surface (adults)
- Appearance: acute (may be weeping, blistering), subacute (dry, scaly, thickened), chronic (lichenified, hyperpigmented or depigmented [from scratching])

Diagnosis:

- Simplified UK Working Party Criteria: itchy skin + ≥ 3 of — asthma or allergic rhinitis, hx flexural sx, current flexural dermatitis, onset before 2 yo, hx xerosis
 - Supportive hx: bleeding, oozing clear fluid, flaky skin, pruritus, recurrent conjunctivitis, sleep disturbances, triggers (environmental, irritants, stress)
 - Supportive PE: keratosis pilaris, pityriasis alba, allergic shiners

Management of Dermatitis:



TCS – topical corticosteroids, TCI –topical calcineurin inhibitors

Adapted from: *AAFP Atopic Dermatitis: An Overview*

- Topical Corticosteroids
 - S/E: skin atrophy, striae, acne; adrenal suppression + growth ↓ in children w/ long-term high dose (derm consult before Group I use in children)
 - Potency:

- Least (group VII; e.g. hydrocortisone 1-2.5%), low (group VI; e.g. desonide 0.05%), medium (group IV, V; e.g. betamethasone valerate), medium-high (III; e.g. Fluticasone 0.005%), high (group II; e.g. Desoximetasone 0.25%), ultra-high (group I; e.g. clobetasol 0.05%)
 - Ointment > cream > lotion
- Prescription: OD-BID dosing; use rule of hand (0.25g of application to cover 1 palm/ 1% BSA)
- Topical calcineurin inhibitors: *no atrophy, but \$\$\$*
 - S/E: FDA warning skin Ca + lymphoma (but poor evidence of this), transient skin burning
 - Examples: pimecrolimus 1% BID (≥ 2 yo), tacrolimus 0.1% BID (adults)
- Other Considerations:
 - Use occlusive therapy for lichenified plaques
 - Adjuvant tx for bacterial infections: diluted bleach bath + Abx
 - Dermatology referral (for phototherapy, immunosuppressants): tx failure (esp. facial involvement), psychosocial disturbance

Seborrheic Dermatitis

- **Features:**
 - Appearance: thick yellow-white greasy scales (adults); salmon-red greasy lesions (infants)
 - Location: infants (scalp, napkin area) vs. adults (scalp, nasolabial folds, ears, ant. chest)
- **Treatment: PRN**
 - Children: emollients (olive oil, Vaseline), Ketoconazole 1-2% BID x 2 wk
 - Adolescents, Adults:
 - Scalp – Zinc pyrithione shampoo BID/ Nizoral 2% shampoo twice/week
 - Face and Body – Ketoconazole 2% BID acute + long-term, HC 1% OD-BID short-term

Irritant Diaper Dermatitis

- **DDx:** zinc deficiency, atopic/irritant dermatitis, histiocytosis, bacterial infection, child neglect, candidiasis, psoriasis, seborrheic dermatitis
- **Physical Exam:** irregular erythema w/ convex surface skin maceration; often spares intertriginous creases (vs. diaper candidiasis); baby not irritable¹ + no bloody streaks in stool¹
 - 1 - otherwise could indicate GAS infection – potentially serious; tx w/ PO Abx
- **Mgmt:** change diaper frequently + leave diaper off for period of time + gentle wipes/washcloth (nothing abrasive) + keep dry + ZnO cream (e.g. Desitin ES¹)
 - 1 - apply w/ each diaper Δ and esp. at bedtime when long exposure to wet diaper

Psoriasis

Subtypes and Differential Diagnoses:

- Plaque Subtype: dermatitis (atopic, contact, seborrheic), lichen planus, tinea corporis, mycosis fungoides, pityriasis rosacea
- Guttate Subtype: 2° syphilis, viral/drug exanthem, pityriasis rosea

- Erythrodermic Subtype: DRESS, TEN/SJS, SSSS, staph toxic shock, cellulitis
- Pustular Subtype: paraneoplastic acrokeratosis, miliaria crystalline

History:

- Basics: ±itching/pain, smoking, triggers (skin trauma, stress, HIV, strep URTI [esp. guttate], post-partum, prednisone), inflammatory joint sx, FHx psoriasis
- Co-morbidities: mood (MDD), CP (CVD), abdo pain (IBD), moles (melanoma), palpable nodes (lymphoma)
- Before tx: LMP + contraception use (methotrexate), sunburns + sunscreen use + FHx melanoma (phototherapy)

Physical Exam:

- General: vitals + volume status (erythrodermic type)
- Appearance:
 - Plaque: well demarcated, oval, ≥ 1 cm, silvery-white w/ scale
 - Guttate: 5->100 lesion; 1-10 mm salmon papules w/ fine scales
 - Erythrodermic: generalized erythema covering large BSA
 - Pustular: pustules ± plaques
- “Hidden” Locations: behind ear, between buttocks, umbilicus, nail (pitting, onycholysis)
- Psoriatic arthritis: dactylitis, limited joint ROM

Diagnosis: *clinical*

- Psoriatic arthritis
 - CASPAR Criteria, established inflammatory articular disease with ≥ 3 of:
 - Evidence of current (2 points), personal Hx, or FHx of psoriasis
 - Typical psoriatic nail dystrophy (onycholysis, pitting, hyperkeratosis)
 - Negative test for RF
 - Current dactylitis or history of dactylitis
 - XR evidence of juxtaarticular new bone formation

Management:

- Approach: periodically review rx and taper as tolerated
- Non-Rx: smoking cessation improves course of all psoriasis
- Rx:
 - Mild-moderate ($< 5\%$ BSA¹): intermittent² or continuous therapy³
 - 1 - entire volar hand approximates 1% BSA
 - 2 - Intermittent Tx: Topical CS (see “Atopic Dermatitis”; e.g. Betamethasone Valerate 0.1% BID) ± Vit D analog (e.g. calcipotriol 0.005% BID) ± Tazorac 0.05-0.1% qHS
 - Longer disease free period (Tazorac [retinoid], Vit D analog) vs. faster onset (CS)
 - 3 - Continuous Tx: calcineurin inhibitors (first line for face/flexural surface; less effective for plaque psoriasis) e.g. Tacrolimus 0.1% BID
 - Severe (5-20% BSA): dermatologist referral + Vit D analog ± phototherapy
 - Very Severe ($> 20\%$ BSA): dermatologist referral + systemic tx (e.g. Methotrexate¹ 5-10mg/week) ± phototherapy
 - 1 - Monitoring: CBC, Cr, LFTs, β -hCG: baseline, q2wk for first few mo, then q2 mo

- Arthritic Sx: rheumatology referral (biologics can replace all other tx)
- Other:
 - Guttate Psoriasis: +/-phototherapy, self resolves in 3-4 mo
 - Erythrodermic: in-pt mgmt; can develop cardiac failure, hypothermia, arrhythmias

Rosacea (Acne Rosacea)

Background:

- DDx: acne vulgaris, contact/ seborrheic dermatitis, photodermatitis, SLE
- Subtypes: erythematotelangiectatic, papulopustular, phymatous, ocular

History:

- Basics: fixed erythema > 3 mo of cheeks/forehead, rhinophyma, skin thickening, burning/stinging, swelling, trigger (sun, stress, EtOH, cosmetics), ocular sx¹, psychosocial impact
 - 1 - dryness, blurry, photophobia, foreign body sensation, eyelash crusting
- Other causes: pruritis (dermatitis)

Physical Exam:

- Centrofacial erythema: cheeks or forehead w/ Ø nasolabial sparing
- Phymatous Features: rhinophyma, skin thickening + nodularities + bulbous appearance
- Ocular: conjunctivitis, chalazion/hordeolum¹, scleral telangiectasia, blepharitis
 - 1 - Chalazion (non-infective; less painful, subacute, larger, located further from eyelid edge) vs. hordeolum (infective; acute, painful)

Diagnosis: centrofacial erythema or phymatous Δ or sx complex¹

- 1 - ≥ 2: centrofacial papules/pustules, frequent/prolonged flushing, telangiectasia, ocular (lid margin telangiectasia, lid granuloma)

Management:

- Non-Rx: SPF 30 sunscreen + mild non-alkaline cleansing + moisturizing
- Rx:
 - Erythema, flushing, telangiectasia:
 - Mild: Brimodine gel 0.33% OD (can cause rebound erythema at HS), metronidazole 1% daily
 - Severe/persistent: phototherapy
 - Papulopustular Features:
 - Mild: ivermectin 1% OD, metronidazole 1% OD, Azelaic Acid 15%
 - Moderate-severe: Doxycycline XR 40mg OD
 - Severe: isotretinoin¹ 0.25-0.3 mg/kg/d x12-16 wk
 - 1 - see "Acne Vulgaris" for pregnancy prevention)
 - Phymatous Features: limited evidence; consider isotretinoin, laser surgery
 - Ocular Sx: ophthalmology referral + lid hygiene (e.g. warm compress)
 - If mild-moderate sx, can start: cyclosporine 0.5% BID ± tetracycline XR 40mg OD

ENDOCRINOLOGY

Diabetes Mellitus Type II

Complications of DM:

- See “Chronic Complications”
- Microvascular (retinopathy, nephropathy, neuropathy), macrovascular (PVD, CVD, stroke), metabolic decompensation (HHS, DKA)
- DM pt account for: 30% of strokes, 40% MI and 50% renal failure in Canada

History:

- First presentation: FHx CVD, ethnicity, diet, exercise, smoking, occupation/lifestyle, polydipsia/polyuria, blurry vision
- Diagnosis hx: age onset, sx + wt at dx, initial tx (when, response)
- Routine follow-up:
 - Control: meds compliance, glucose checks/diary, hypoglycemia sx¹, foot checs, insulin (how using, BG values)
 - 1 - diaphoresis, trembling, hunger, palpitations
 - Complications: Vision Δ , CP, claudication, ED, leg swelling + frothy urine, dyspepsia + emesis (gastroparesis), orthostatic hypotension (dysautonomia), foot care + burning/numbness

Physical Exam:

- Vitals: BP
- Inspection: BMI + waist circumference, oral thrush, corneal arcus, xanthomas, fundoscopy
- Palpation: palpable liver \pm RUQ pain (?fatty liver)
- Foot Exam (see “Diabetic Foot Disease”): gait, temperature, wounds, pulses, monofilament, vibration, ankle DTR

Screening:

- Who:
 - Age < 40 or low-moderate risk¹: no screen
 - 1 - “Diabetes Canada: Are you at risk” calculator. Annual calculation for pt with FHx, low socioeconomic, GDM hx/prediabetes, CV RF, etc.
 - Age \geq 40 or high risk (10 yr risk of T2DM 33%): q3 yr
 - Very high risk (10 yr risk of T2DM is 50%): q6-12 mo
- How: fBG (8 hr fast) or A1C

Diagnosis:

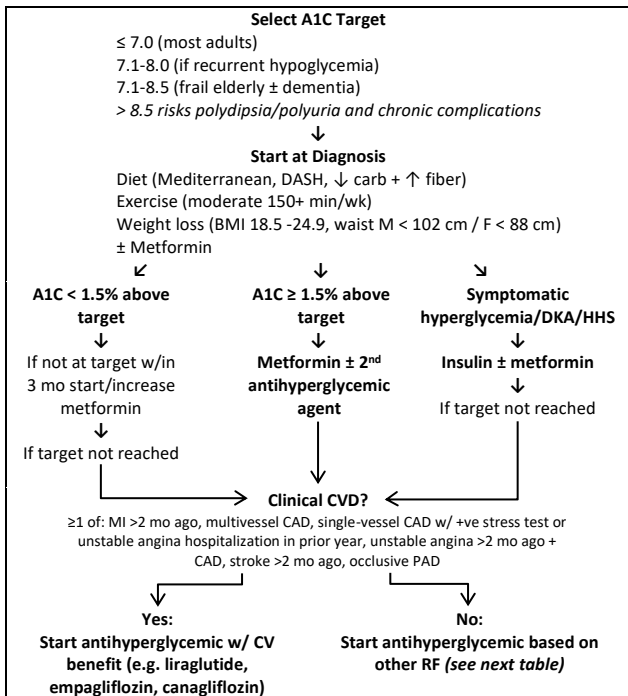
- Pre-diabetes¹: fBG 6.1-6.9 or A1C 6.0-6.4
 - 1 - controversial label, but shown for completeness
- Diabetes: fBG \geq 7.0, random BG \geq 11.1, A1C \geq 6.5, 2h post 75g OGTT \geq 11.1
 - If symptomatic (polydipsia/polyuria): single test needed
 - If asymptomatic: any of above tests on 2 different days¹
 - 1 - preferably same test, but rBG should be confirmed with alternative test

- **Limitations of A1C:**
 - Avg of last 8-12 weeks (50% of value from last 30 d)
 - A1C↑: iron/B12/folate deficiency, hyposplenism, EtOH, chronic ASA/opioid
 - A1C↓: hemolysis/hemoglobinopathy (e.g. HbS, thalassemia), splenomegaly, pregnancy, RA
 - Consider LFTs if concerned about A1C accuracy

Management:

- Pre-diabetes: tx controversial; focus on lifestyle interventions
- **Major trials for glycemic control and Metformin:**
 - UKPDS 34: metformin ↓ mortality + DM-complications in obese pt
 - ACCORD: A1C < 6.0 vs. 7-7.9 showed ↑ mortality and equal CV benefit
 - ADVANCE: A1C ≤ 6.5 ↓ microvascular complications (vs. A1C 7.3%)

Pathway at diagnosis:



Adapted from Diabetes Canada - Pharmacologic Glycemic Management of Type 2 Diabetes in Adults

Oral Antihyperglycemic Medications:

Class and A1C ↓	Drug and 1 mo Cost	Notes
Biguanide 1.0	Metformin 500 mg BID (\$4)	<ul style="list-style-type: none"> ▫ Starting dose: 500mg qhs ac x 1 wk. If tolerate, then ↑ to BID ac ▫ S/E: diarrhea¹ ▫ ∅: eGFR < 30, hepatic failure ▫ Caution w/ ++EtOH (acidosis risk)
	Metformin XR 500 mg OD (\$18-74)	
DPP4 0.6	Sitagliptin 50 mg OD (\$52 ²)	<ul style="list-style-type: none"> ▫ Caution w/ saxagliptin in CHF ▫ Rare S/E: joint pain, pancreatitis
GLP-1 agonist 1.0	Liraglutide 0.6 mg OD SCT (\$91-272)	<ul style="list-style-type: none"> ▫ Cons: expensive, injection ▫ ∅: hx/FHx of MENS2 or medullary thyroid Ca ▫ ↓ nephropathy (NEJM 2017 trial), ↓ CVE (LEADER trial)
SGLT2-inhibitor 0.5	Canagliflozin 100 mg OD (\$84)	<ul style="list-style-type: none"> ▫ A/E: UTI, mycotic infection, Cana. (↑ #, lower limb amputation, AKIs) ▫ Caution: Euglycemic DKA risk ▫ ∅: CrCl < 45 ▫ ↓ mort + HF + nephropathy: Empa. (EMPA-REG OUTCOME), Cana. (CANVAS)
	Empagliflozin 10 mg OD (\$42 ³)	
Sulfonylurea 1.0	Repaglinide 0.5 mg TID (\$7)	<ul style="list-style-type: none"> ▫ Hypoglycemia risk (worst → best): Glyburide, gliclazide, repaglinide ▫ Repaglinide: ∅ use w/ Plavix or gemfibrozil
	Gliclazide 80 mg OD (\$3-11)	
	Glyburide 2.5 mg OD (\$2-6)	
Thiazolidine 0.8	Pioglitazone 15mg OD (\$10-21)	<ul style="list-style-type: none"> ▫ ∅: NYHA III-IV, Piog. (bladder ca) ▫ S/E: leg + macular edema, # ▫ Rosi. controversial MI risk (DREAM vs. RECORD)
	Rosiglitazone 4mg OD (\$54)	

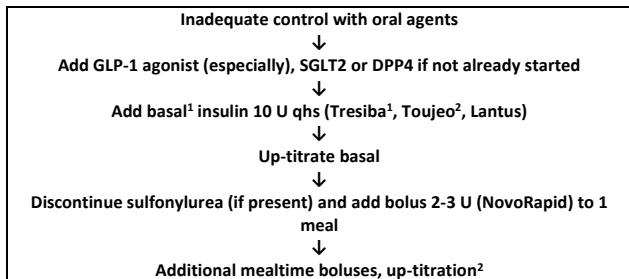
1 - can treat w/ loperamide 4 mg OD + 2mg per loose BM or switch to XR

2 - price listed for Metformin/sitagliptin (Janumet), which is cheaper than standalone sitagliptin (Januvia)

3 - price listed for Metformin/Empagliflozin (Synjardy), which is cheaper than standalone empagliflozin

Short Form: Cana. = Canagliflozin, Empa. = Empagliflozin, Piog. = Pioglitazone, Rosi. = Rosiglitazone

Considerations for Insulin:

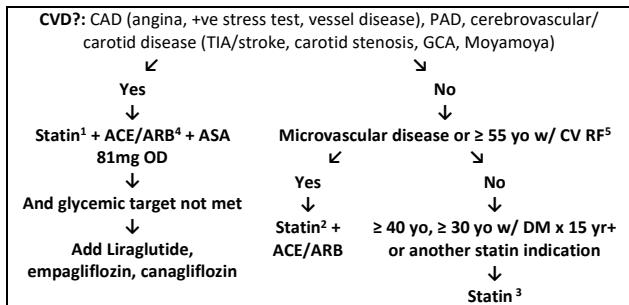


1 - hypoglycemia risk (low → high): Tresiba (degludec), Toujeo, Lantus

2 - ↑/↓ previous insulin by 10% (e.g. if am BG too high ↑ basal 10%, if dinnertime too low ↓ lunchtime 10%). 100/total daily insulin (e.g. 25 U) = BG ↓ per additional U (e.g. 4 mmol/L ↓ per U)

Original Work. Created based on information from: Diabetes Canada Pharmacologic Glycemic Management of Type 2 Diabetes in Adults

Cardiovascular Protection:



Recommended Statins: 1 - atorvastatin 80 mg in CVD (TNT)

2 - atorvastatin 10 mg (CARDS) or 40 mg if need 45%+ ↓ in LDL-C

3 - simvastatin 40 mg (HPS)

4 - ACE/ARB: perindopril 8 mg (EUROPA), ramipril 10 mg (HOPE), telmisartan 80 mg (ONTARGET)

5 - CV RF (≥ 1 of): TC > 5.2 mmol/L, HDL < 0.9 mmol/L, HTN, microalbuminuria, smoking

Adapted from: Diabetes Canada – 2018 Clinical Practice Guidelines Quick Reference Guide

Monitoring:

• Glycemic Control:

- A1C: q3mo; can stretch to q6mo if stable
 - Consider Somogyi effect before adjusting meds
- Self BG check if: using insulin¹, using oral rx + failing A1C, using oral rx + getting hypoglycemic sx (esp. if using BB – reduced awareness of sx)
 - 1 - Targets: pre-prandial 4-7, post-prandial 5-10 [5-8 if failing A1C]

- Hypoglycemia Sx¹: ask about at each visit for insulin or sulfonylurea users, educate on mgmt²
 - 1 - diaphoresis, trembling, hunger, palpitations
 - 2 - 2 x juice box and recheck BG in 15 min; repeat till normal
- Chronic Complications:
 - Retinopathy: eye exam at DM dx
 - If retinopathy present: eye exam q1yr + fenofibrate 160 mg OD + statin
 - If no retinopathy: eye exam q1-2yr
 - Note: yearly optometrist or ophthalmologist eye exams are OHIP covered
 - CVD: lipid profile q1-3yr (if not on statin)
 - ED: see *"Erectile Dysfunction & Testosterone Deficiency Syndrome"*
 - Diabetic Foot Disease: see *"Diabetic Foot Disease"*
 - Renal: see *"Chronic Kidney Disease"*; modify doses when eGFR < 60
- Dyslipidemia:
 - Targets: LDL < 2.0 or ↓ 50% from baseline
 - Lipid Panel (TC, HDL, LDL, TG): check q3 mo when starting statin till LDL target met, then q1yr thereafter. Check q1yr if not starting statin
 - Rx:
 - See *"Cardiovascular Protection"* footnotes for recommended statins
 - Adjuncts: ezetimibe 10 mg (esp. w/ simvastatin in CAD), Fenoglide 120 mg (if fasting TG > 10, prevent pancreatitis), Omega 3 (trial pending)

Other:

- Programs: Diabetes Education Program (important)
- Lifestyle: smoking cessation, vaccinations, abstinence¹
 - 1 - pt often blame themselves for DM, which can affect tx. Tell them "you didn't cause your diabetes and are not responsible for it, but are for the tx"
- Pregnancy planning: keep A1C ≤ 6.5%, folic acid 1 mg OD 3 mo pre-conception, stop statins + ACE/ARB + DM meds e/ insulin, metformin, and glyburide
- Sick days¹: hold SADMANS drugs during acute illness w/ ↓PO/dehydration
 - 1 - sulfonylureas, ACE, diuretics, metformin, ARB, NSAIDs, SGLT2 inhibitors, metformin, secretagogues, and SGLT2 inhibitors

Dyslipidemia

Etiology:

- Most Common: combo of genetic + dietary factors
- Less Common: meds¹, hypothyroid, Cushing, PCOS, nephrotic syndrome, CKD, familial hypercholesterolemia, monoclonal gammopathy
 - 1 - atypical antipsychotics, estrogen/SERM, thiazides, BB, IFN-α

History:

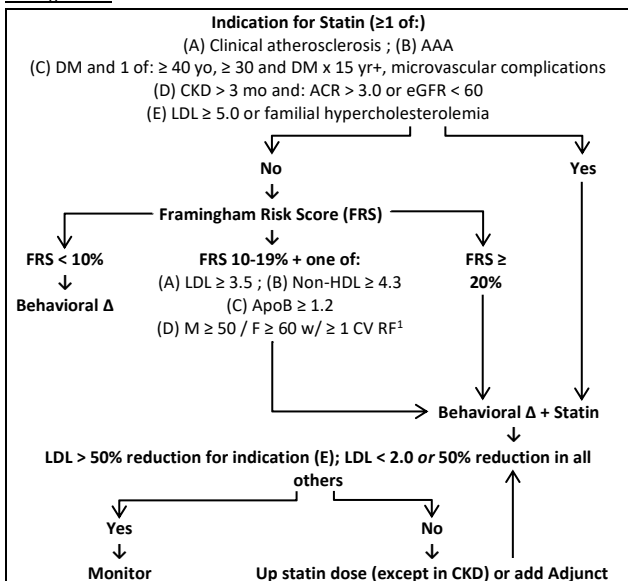
- Background: diet¹, smoking/EtOH, exercise, occupation, stressors, FHx dyslipidemia, CVD
 - 1 - esp. if carbs comprise > 60% total daily energy
- Complication Sx: CP/SOB, ED, claudication

- Other causes: hirsutism + thin skin + ↓ libido (Cushing), constipation + ↓ mood (hypothyroid), oligomenorrhea/amenorrhea + recent DM + acne (PCOS), frothy urine + FHx kidney disease (nephrotic), CRAB¹ (monoclonal gammopathy)
 - 1 - Ca ↑, renal dysfunction, anemia, bone #

Screening:

- Who:
 - Age > 40 (M & F) or post-menopausal
 - earlier for risk groups: South Asian, FNIM
 - At any age for ≥ 1 of:
 - Clinical atherosclerosis¹
 - 1 - ACS, angina, CAD > 10% stenosis, stroke/TIA, carotid disease, PAD/claudication/ABI < 0.9
 - AAA (> 3.0 cm or previous surgery), ED, HTN, gestational HTN
 - FHx premature CVD (1° relative M < 55, F < 65), FHx dyslipidemia
 - DM, CKD, COPD, current smoker, BMI ≥ 30, HIV, IBD
- What: lipid panel (TC, LDL, HDL, TG, VLDL, non-HDL)¹, A1C, eGFR, Framingham Risk Score (FRS)
 - 1 - Non-fasting ok, unless had previous hx TG > 4.5
- When: q5yr if FRS < 5%, q1yr if FRS ≥ 5% or Δ risk status

Management:



1 - CV RF: waist M < 102 / F < 88 cm, impaired OGTT, low HDL, smoker, HTN

Adapted from: 2016 Canadian Cardiovascular Society Guidelines for the Management of Dyslipidemia for the Prevention of Cardiovascular Disease in the Adult

- Non-Rx: diet¹, activity (150min/wk moderate intensity), BMI (18.5-24.9), waist circumference², smoking cessation
 - 1 - Diet: DASH/Mediterranean, ↓ saturated/trans fats, ↑ nuts, soluble fiber (e.g. oatmeal), soy milk
 - 2 - Waist < 88cm (35") F / 102cm (40") M
- Rx:
 - Statins
 - Contraindications: pregnancy, breast feeding, acute liver disease, transaminitis (3x normal)
 - S/E: rhabdomyolysis, myopathy¹
 - 1 - RF: high dose, small body, > 80 yo/frailty, hypothyroid, excess EtOH, grapefruit juice, St. John's Wort, renal insufficiency, DDI
 - CKD:
 - Use RCT doses¹ and Ø track LDL. (See "Chronic Kidney Disease")
 - 1 - Examples: atorvastatin 20mg (4D trial), rosuvastatin 10mg (AURORA trial), simvastatin/ezetimibe 20/10mg (SHARP trial)
 - Non-CKD:
 - Agents: *no specific guideline recommendations*
 - Examples: pravastatin 40-80 mg OD, simvastatin 5-40 mg qPM, rosuvastatin 5-40 mg OD, atorvastatin 10-80 mg OD
 - Trial Considerations: atorvastatin 80 mg in CAD (TNT), atorvastatin 10mg in HTN + normal LDL (ASCOT-LLA), atorvastatin 10 mg in DM + w/ normal LDL (CARDS), rosuvastatin 10 mg in HTN + CVD (HOPE-3), simvastatin in high risk of CVD (HPS), rosuvastatin 20 mg normal LDL but high CRP (JUPITER)
 - Starting Dose:
 - In 2° prevention (e.g. DM, CVD, AAA) + normal LDL: begin w/ clinical trial doses
 - Standalone dyslipidemia: begin w/ standard starting dose
 - Monitoring: no evidence for routine LDL or LFT checks. Get baseline LFTs + lipid panel. Lipid Panel 4 wk after dose adjustments/rx changes. LFTs¹ and CK as clinically warranted
 - 1 - Ok for LFTs to be ≤ 3x upper limit normal. Else, stop agent and try new agent in 4 wk
 - Adjuncts:
 - [1st Line]: ezetimibe 10 mg OD (IMPROVE-IT trial) or cholestyramine 4 g OD (LRC-CPPT)
 - [Other] fibrates¹, PCSK9 inhibitor (benefit but \$\$\$)
 - 1 - Fibrates: ACCORD showed no benefit in DM. Possible ↓ CVD in high TG/low HDL-C pt in meta-analysis

HDL-C Deficiency

- Background: 30-40% of pt w/ HDL deficiency have RF for CAD
- Etiology: metabolic syndrome, liver disease, Crohn's, Hodgkin's, menopause
- Non-Rx Mgmt: diet (moderate EtOH, AHA/DASH diets, high HDL foods¹), exercise/wt loss
 - 1 - fatty fish, nuts, flax seeds, olive oil

Thyroid Disease

Background:

- Etiology:
 - Hyperthyroidism: Grave's, viral subacute thyroiditis, painless/postpartum thyroiditis, toxic multinodular goitre, adenoma, iatrogenic
 - Subclinical hyperthyroidism: recovering hyperthyroidism, pregnancy
 - Hypothyroidism: thyroiditis¹, hypopituitarism, iodine deficiency, meds (e.g. goitrogens, PTU, MMI, Li), neoplasia, iatrogenic
 - 1 - inflammation initially releases T4/T3 reserves [i.e. hyperthyroidism], but continued inflammation ↓ further production [i.e. hypothyroidism]
 - Sick Euthyroid Syndrome: post-hospitalization, severe illness

History:

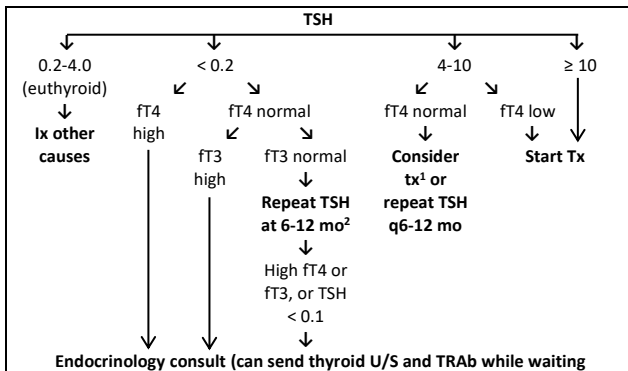
Thyroid	Wt	Mood	Temp	Derm	BM	Periods	Other
Hypo	↑	Depressed, slow, fatigued	Cold intolerant	Dry skin, brittle hair/nails	↓	Heavy	--
Hyper	↓	Irritable, fatigued	Heat intolerant	Diaphoresis	↑	Irregular	palpitations

- RF: FHx thyroid disease, autoimmune disease (T1DM, RA, psoriasis, IBD), meds (e.g. iodine, Li, Amiodarone), Down/Turner syndrome

Physical Exam:

- Vitals: pulse
- Goiter¹: diffuse non-tender (Grave's, painless thyroiditis, Hashimoto's), ≥ 1 nodule (toxic multinodular goitre), single nodule (adenoma), tender (subacute thyroiditis)
 - 1 - can be a finding for both hyper- or hypothyroidism
 - Other Causes of Goiters: iodine deficiency (esp. high-altitude dwellers), non-toxic goiter, cyst
 - If goitre, check Pemberton's sign (re risk of SVC syndrome)
- Hyperthyroidism: fine tremor, exophthalmos, pretibial myxedema, hyperreflexia, lid lag
- Hypothyroidism: delayed relaxation phase of DTR, proximal muscle weakness

Investigations and Diagnosis of Thyroid Disease:



Note: the lab will automatically check ft4 if abnormal TSH, and ft3 if normal ft4

1 - Subclinical hypothyroidism: consider tx if symptomatic, ↑ TPO, CVD (MI, CHF or associated RF), pregnancy

2 - Subclinical hyperthyroidism: screen pt with A-Fib and osteoporosis, consider tx in elderly (↑ CV and # risk)

Adapted from: BC Guidelines Thyroid Function Testing in the Diagnosis and Monitoring of Thyroid Function Disorder

Management of Hypothyroidism:

- Levothyroxine:
 - Target TSH 0.2-4.0 (euthyroid)
 - Elderly or heart disease: 12.5 mcg OD, ↑ by 12.5mcg OD q6-8 wk
 - Non-elderly: 1.6 mcg/kg OD, ↑ by 12.5mcg OD q6-8 wk
 - Severe disease (e.g. TSH ≥ 10): 25-50mcg OD initial, ↑ q2-4 wk by 12.5mcg
 - Annual TSH once stable dose, otherwise get labs prior to each apt
- Pregnancy:
 - Characterized by increased thyroxine demand
 - CAUTION – maternal subclinical hypothyroidism risks infant cognitive impairment
 - TSH once pregnancy confirmed, q4-6 wk to adjust dose
 - Target TSH 0.2-2.5 (1TM), 0.2-3.5 (> 20 wk)
 - Consult endocrinologist or obstetric IM
 - Post-partum thyroiditis: TSH at 3 and 6 mo postpartum (if TPO +ve), at 2 and 4 mo (if T1DM), annual TSH if postpartum thyroiditis hx
- High Risk Medications:
 - Lithium: TSH at baseline, 3 mo, then q6-12 mo; if abnormal, follow “Investigations and Diagnosis of Thyroid Disease” algorithm
 - Amiodarone:
 - TSH: baseline, 3mo, then q6-12mo; if abnormal follow algorithm
 - ft3 + ft4 (irrespective of TSH at 3 mo); if abnormal, get a consult

GASTROENTEROLOGY

Constipation

Constipation in Adults

Etiology:

- Structural: cancer (colorectal, compressive tumor), diverticulosis, pelvic floor dysfunction, adhesions, fissures
- Endocrine: pregnancy, hypothyroid, hyperparathyroidism, hyper-Ca, hypo-K, chronic illness (DM, CKD, CVD)
- Iatrogenic: opioids, iron, Ca, antacids, anticholinergics¹, antihistamines, antidepressants, anticonvulsants, NSAIDs
 - 1 - e.g. diphenhydramine (Benadryl), dimenhydrinate (Gravol, Sleep-eze), oxybutynin; cholinergic S/E: "can't see, can't pee, can't spit, can't s****"
- Neurologic: spinal cord injury, MS, dysautonomia, Parkinson's, fissure-related
- Psychiatric: MDD, IBS, anorexia, functional
- Lifestyle: poor PO fluids, low fibre diet, sedentary

History:

- General: onset/duration, < 3 BM/wk, Bristol 1-2, difficult passage (straining, incomplete evacuation, manual disimpaction), dietary fibre, PO fluids, exercise, past tx
- Red Flags: hematochezia¹/melena², wt loss [≥5kg in last 6mo], 1° FHx colon ca, anemia (pallor, fatigue, palpitations), sudden Δ in BM³, b-symptoms
 - 1 - LGIB: in absence of fissures, typically hemorrhoids
 - 2 - UGIB: however, Fe supplements can also cause black stools
 - 3 - Bowel obstruction: vomiting, no flatus, ++abdo pain
- Etiology Specific:
 - Rx (including OTC): see list in etiology section
 - PMHx: spinal cord injury, CVD, CKD, DM
 - PSHx: abdominal surgery
 - Other: mood (hypothyroid, MDD), abdo-pain/polydipsia (hyper-Ca), long-term PPI use (hypo-Mg), hx DM/SLE/Parkinson's (autonomic neuropathy), cocaine use (↑ risk of ulcers, perforations, necrosis)

Physical Exam:

- General: body habitus, pallor
- Abdo: distension, focal discomfort, palpable mass, inguinal lymphadenopathy
- Anorectal: fissures (apply traction), Valsalva maneuver (hemorrhoidal or rectal prolapse), anal wink
- DRE: stricture, high resting tone, mass, Valsalva maneuver (rectocele¹, paradoxical puborectalis contraction², lack of perineal descent²), DRE sweep (stool/blood)
 - 1 - anterior wall prolapse into vagina
 - 2 - puborectalis [posterior wall] relaxes w/ bearing down; lack of descent may be anorectal dyssynergia

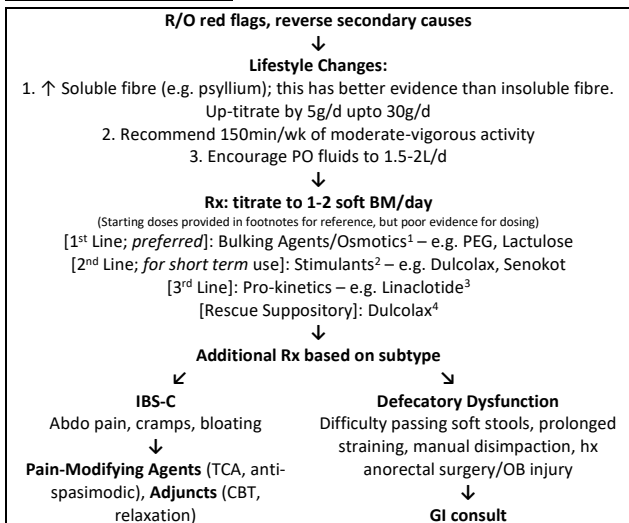
Investigations: often not needed; consider red flags

- PRN: CBC, ferritin, lytes, extended lytes, Cr, TSH, β -hCG
- Ensure colon ca, CVD risk, mental health screening up to date

Specific Diagnoses:

- Rome III Functional Constipation Criteria
 - (≥ 3 mo of): no loose stools + \emptyset meet IBS criteria¹ + ≥ 2 constipation sx²
 - 1 - Rome IV IBS Criteria: ≥ 3 mo of abdo pain, ≥ 1 x/wk related to defecation or altered frequency/calibre
 - 2 - straining 25% time, lumpy/hard stools 25% time, incomplete evacuation sensation 25% time, anorectal obstruction sensation 25% time, manually facilitating defecation 25% time, < 3 unassisted BM/wk

Management of Constipation:



1 - Osmotics: PEG 17-34g/d (i.e. 1-2 capful in 250cc juice or water qHS)

lactulose 15-30 cc OD-TID (S/E: bloating, flatulence)

2 - Stimulants: Dulcolax 5-10mg PO qHS, Senokot 2-4mg PO OD-BID

3 - linaclotide 145 μ g OD 30 min before breakfast [\$100/mo]

4 - Dulcolax magic bullet 10mg suppository PRN (max 30mg/d)

Adapted from: Canadian Association of Gastroenterology - CONSTIPATION Enhanced Primary Care Pathway

• Hemorrhoids:

- Use general approach discussed in figure above
- Steroidal ointment/suppository for sx mgmt (e.g. Anodan HC BID or after BM)

- If acute thrombosed (<72h): donut pillow, steroidal ointment, Tylenol/Advil, topical Nifedipine 0.3% BID, general surgery referral for banding/ligation (if severe or pt preference)
- Fissures: warm sitz baths, Nifedipine 0.3% BID-QID
- Dyssynergic defecation: PEG + biofeedback therapy; high fibre unhelpful

Additional Considerations in Older Adults:

- Rx: caution in pt w/ mobility issues (high doses → diarrhea → dehydration/falls)
 - Osmotic agents (PEG, lactulose): most evidence of efficacy
 - Caution w/ Mg and PO₄ based laxatives, esp. in renal impairment
 - Stool Softener: Docusate 100mg BID
 - Stimulants (e.g. Senna 17.2mg BID, Bisacodyl 5-10mg OD)
 - Electrolyte abnormalities reported; regular use may ↓ efficacy over time
 - Pro-kinetics (cisapride, prucalopride): caution re cardiac safety
 - Enemas: avoid sodium or phosphate enema
- Impaction:
 - Distal: mineral oil enema OD x 3d max or manual disimpaction w/ 2% lidocaine; ∅ bulking agents
 - Proximal: 1L PEG 3350 w/ electrolytes x 3d

Constipation in Children

Etiology:

- Common: functional (#1 cause), cow's milk allergy, celiac
- Other: anatomic (imperforate anus, colonic stenosis, Ehlers-Danlos, Marfan), endocrine (CF, hypothyroid, hyper-Ca, hyper-K, DM, DI), neuro (Hirschsprung, sphincter achalasia, colonic myopathy), drugs (opioids, ADHD-rx, SSRIs), lead

History:

- Basics: stooling (frequency, calibre, size), diet¹/fluids, age of onset + duration, intermittency, previous tx efficacy & compliance
 - 1 - breast milk only (if > 2wk old then ok to have BM every 4wk. Typically expect BM 7 times/d to once every 7 days), cow's milk allergy, fiber
- Red Flags: age onset < 1 mo¹, delayed meconium passage (> 48h)², fever + vomiting + intermittent explosive diarrhea + anorexia (Hirschsprung)
 - 1 - DDx: anorectal or spine malformation, Hirschsprung, allergy, endocrine, CF
 - 2 - >48hr; DDx same as 1 (above)
- Sx: withholding behaviour¹, pain, bleeding w/ BM², abdo pain w/ BM, fecal incontinence, irritability/anorexia that resolve w/ BM
 - 1 - retentive posturing [straight-legged on toes, clenched buttocks], grunting
 - 2 - fissures (esp. w/ painful GM), allergies
- Etiological:
 - Functional: stressors, toilet unavailability [or refusal to use school toilet], toilet training
 - Polyuria: DM, DI

Physical Exam:

- Vitals: growth curves (r/o FTT)

- Inspection: abdo distension (Hirschsprung), anal fissures, goitre, pilonidal dimple w/ tuft of hair (spina bifida)
- Abdo: pain w/ palpation (not useful unless ++pain), mass in LLQ (impaction)
- DRE not necessary in all kids (e.g. those w/ clear withholding behaviours):
 - Palpation (Hirschsprung): empty rectum + tight anal sphincter/malformation + gushing stool w/ DRE
 - Neuro (spinal cord abnormality): absent anal wink + absent cremasteric reflex + decreased patellar reflexes + decreased sphincter tone

Investigations:

- Consider anti-TTG + IgA, withhold cow's milk
 - *Abdo flat plate: NOT needed to r/o disimpaction*
- FOBT: all < 1 yo; children w/ pain, FTT, diarrhea or FHx colon ca/polyps
- Less Common:
 - Imaging: barium enema (anatomic, neuropathy), colonic manometry (myopathy, neuropathy)
 - Labs: lytes + extended lytes, sweat test, TSH, fBG, serum + urine Osm
 - Rectal suction biopsy (Hirschsprung)

Diagnosis of Functional Constipation (Rome IV):

- Children 1 mo to 4 yo (≥ 1 mo $\times \geq 2$ of): ≤ 2 BM/wk, hx of excessive stool retention, painful/hard BM, large diameter stools, large fecal mass in rectum, incontinence after toilet training ≥ 1 x/wk, wide-diameter stools that block toilet
 - Associated sx: irritability/anorexia that disappear w/ BM
- Children 4-18 yo (≥ 1 mo $\times \geq 2$ of): same as above + hx of retentive behavior, *and* doesn't meet IBS criteria
 - Consider IBS if: normal stooling frequency (but hard stools), abdo pain w/ defecation

Management of Functional Constipation:

- Non-Rx: parental education¹, diet²
 - 1 - refer to <https://gikids.org/>: e.g. regular toileting x5-10min post-meals
 - 2 - prune juice diluted w/ water, \uparrow fluids, \uparrow fiber, verify formula prep
- Rx:
 - Disimpaction: PEG 1-1.5g/kg/d (max 100g/d) x 3-6d (till clear effluent)
 - In-pt nasogastric lavage if PO volume intolerant
 - [1st Line]:
 - Osmotic Agents: PEG 0.5g/kg/d, lactulose 1cc/kg OD-BID, occasional glycerin suppository¹
 - 1 - half to one whole infant suppository; use adult size if > 6yo
 - Dulcolax 1-3 tabs/d (5mg/tab): can add if > 2 yo
 - [2nd Line]: Mg hydroxide
- Follow-up in 2 weeks:
 - Unresponsive: assess tx compliance first
 - Responsive: maintenance tx at least 2 mo and do not d/c unless no sx ≥ 1 mo; if toilet training, then don't d/c till training complete
- Referral to Pediatric GI: red flags or failure to adequate therapy

Gastroesophageal Reflux Disease & Dyspepsia

Background:

- GERD:
 - Lower esophageal sphincter relaxation causing injury by gastric reflux
 - Complications: Barrett's, stricture, esophageal ca, dental erosion, aspiration pneumonitis
- Dyspepsia:
 - Symptom complex¹ of gastroduodenal origin w/ GERD/IBS overlap
 - 1 - postprandial epigastric pain + bloating, belching, nausea. *May overlap with GERD and IBS*
 - Etiology: PUD, H. Pylori, celiac, ca, chronic pancreatitis, IBD, idiopathic
- DDx: ACS, chronic mesenteric ischemia, gastroparesis, esophageal ca, achalasia, esophageal motility disorder, eosinophilic esophagitis/gastritis, gallstones, laryngopharyngeal reflux (esp. if PPI ineffective)

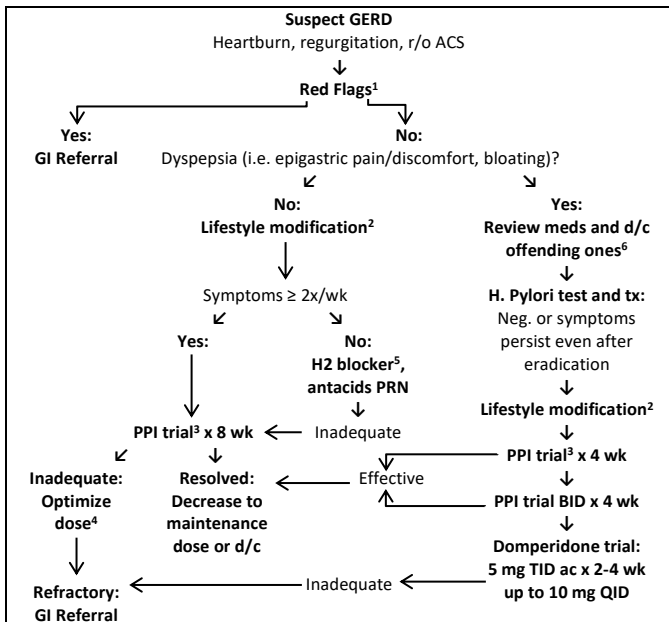
History:

- Red Flags: CP on exertion + SOB (ACS), dysphagia, odynophagia, personal hx PUD, GI bleed/ anemia, wt loss, recurrent vomiting, FHx upper GI ca
- General: heartburn, regurgitation, relief w/ antacids (GERD), postprandial epigastric pain, bloating, belching, nausea (dyspepsia), constipation/ diarrhea + stressors (IBS), diet¹
 - 1 - RF: smoking, caffeine, EtOH, spicy/fatty/acidic food, ↑/qHS PO intake
- Other causes: hoarseness + throat clearing (laryngopharyngeal reflux), postprandial RUQ pain (gallstones), DM + NV + bloating + early satiety + abdo pain (gastroparesis)

Physical Exam:

- Inspection: increased body habitus, dental erosion
- Abdominal Exam: epigastric tenderness to palpation, Murphy's sign (cholecystitis)

Diagnosis and Management of GERD and Dyspepsia:



1 - see hx section

2 - ↓ nocturnal GERD (head of bed elevation, no meals 3h before bed), eliminate triggers (smoking, EtOH, caffeine, spicy/fatty/acidic food), wt loss

3 - e.g. PPI: pantoprazole 40 mg or esomeprazole (Nexium) 40 mg 30 min before breakfast OD. Caution in C. diff

4 - Ensure PPI adherence first. If adherent, switch to another PPI and ↑ dose to BID (e.g. Nexium 40 mg 30 min before breakfast + supper) or dexlansoprazole 60 mg OD x 8 weeks

5 - e.g. Ranitidine (Zantac) 150 mg OD, alginates and Ca/Mg/Al salts (Gaviscon, TUMS)

6 - NSAIDs, bisphosphonates, steroids, β-lactams, ACE, Fe, nitrates

Adapted from Canadian Association of Gastroenterology - *DYSPEPSIA Enhanced Primary Care Pathway and GERD Enhanced Primary Care Pathway*

Helicobacter Pylori

• Background:

- Prevalence: 50% worldwide
- Complications: PUD, gastric ca, Fe deficiency anemia

• Diagnosis: urea breath test¹

- 1 - 97% sensitive and most common, but gold standard remains gastric biopsy

• Management:

- Rx:

- 1st try: CLAMET or BMT
 - CLAMET: PPI BID + clarithromycin 500mg BID + amox. 1000mg BID + Flagyl 500mg BID x 14d
 - BMT: PPI BID + bismuth salicylate 524mg QID + Flagyl 375mg QID + tetracycline 500mg BID x 14d
- 2nd try: if CLAMET in 1st attempt, use BMT (vice versa) x 14 d
- 3rd try: PPI BID + levofloxacin 250mg BID + amox. 1000mg BID x 14d
- 4th try: PPI BID + rifabutin 150mg BID + amox. 1000mg BID x 10 d
 - Caution: rifabutin (Mycobutin) is myelotoxic
- PPI: at standard dose (e.g. omeprazole 20mg OD, rabeprazole 20mg OD)
- Monitoring: urea breath test ≥ 4 wk after each attempt to test eradication¹
 - 1 – usually 70% success per attempt, but this ↓ w/ smoking

Barrett's Esophagus

- **Background:** esophageal metaplastic Δ (squamous epithelium → columnar) from chronic GERD. Can develop into adenocarcinoma
- **Screening Endoscopy:** males with >5 years of poorly controlled GERD if ≥ 2 RF described below
 - RF: Age > 50, caucasian, central obesity (WC >102 cm or waist: hip > 0.9), current or past smoker, confirmed FHx of Barrett's or esophageal ca
 - Females considered low risk and thus screening not recommended; consider endoscopy based on individual/RF
- **Management:**
 - Rx: High-dose PPI indefinitely ± surgical fundoplication
 - Monitoring:
 - No dysplasia: gastroscopy q3yr
 - Low-grade dysplasia: surveillance or endoscopic ablation/resection
 - High-grade dysplasia: frequent surveillance w/ intensive biopsy, endoscopic ablation/resection, or esophagectomy

Irritable Bowel Syndrome

Differential Diagnoses: IBD, lactose intolerance, celiac, colon ca, ovarian ca, giardiasis, thyroid disorder

History:

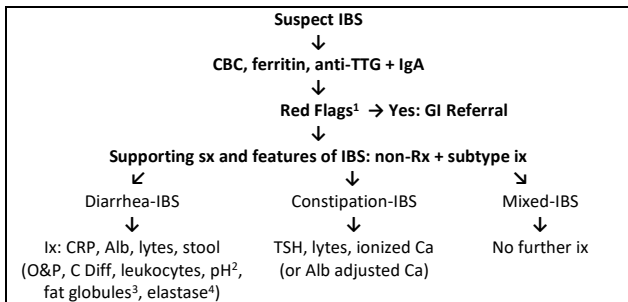
- Sx: abdo pain relieved by defecation, constipation/diarrhea, bloating/flatulence, burping, nausea, early satiety, GERD/dyspepsia
 - Supporting Features: dysuria/frequency, dysmenorrhea, MSK pain, fatigue, MDD/anxiety, sleep issues
- Red Flags: bleeding, wt loss, nocturnal/progressive sx, onset > 50 yo, hematochezia, mucous stools (IBD), FHx IBD, FHx colorectal¹ or ovarian ca
 - 1 - also FIT testing, latest colonoscopy

Diagnosis and Investigations:

- Rome IV Diagnostic Criteria for IBS:
 - ≥ 3mo of recurrent abdo pain ≥1d/wk
 - ≥ 2 of:
 - Related to defecation (increasing/improving pain)

- Altered frequency
- Altered size/calibre

Evaluation of IBS:



1 - see hx section

2 - acidic stool ddx: lactose intolerance, bacterial overgrowth

3 - i.e. fat malabsorption if elevated fat globules

4 - routine calprotectin not recommended

Adapted from: Canadian Association of Gastroenterology – IBS Enhanced Primary Care Pathway

Management:

• Non-Rx:

- Exercise (moderate 20-60 min 3x/wk), diet^{1,2}, relaxation (mindfulness, yoga), ± psyllium husk ½ tsp OD
 - 1 - for diarrhea: low FODMAP (www.ibsdiets.org/), gluten avoidance (possible non-celiac sensitivity)
 - 2 - for constipation: ↑ PO fluids

• Rx:

- For all subtypes: antispasmodic¹ (e.g. butylscopolamine 10mg TID-QID), Nortriptyline² 10-25mg/10-25 q2 wk (esp. for diarrhea, anxiety/depression)
 - 1 - Caution in elderly
 - 2 - Medication Safety: bipolar screen, baseline ECG, A1C/lipid panel at 3-6-12 mo then q1yr, risk ↑ SI
- Diarrhea-IBS: loperamide 2-4mg BID, Cholestyramine¹ 1-4mg PO TID, TCA, rifaximin 550mg TID x 2wk²
 - 1 - esp. post-cholecystectomy; avoid taking w/ other meds; long term use can cause Vit A-D-E-K deficiency | 2 - very expensive; 2 wk trial costs \$325!
- Constipation-IBS: ↑ PO fluids, PEG (17-34g/d), pro-kinetic (e.g. prucalopride 2mg OD x 4 wk¹)
 - 1 - 4 wk trial costs \$120!
- Mixed-IBS: emphasize non-Rx, PEG/loperamide PRN

GERIATRICS

A Geriatric Patient Visit

Frequency: no set frequency. Usually based on comorbidities (DM, HTN, etc.) e.g. > 65y/o typically seen 5-6x/yr

Routine Screening: BP, falls¹, osteoporosis, polypharmacy, vision, hearing, immunizations (flu, shingles², pneumococcal³, Tdap q10yr)

- 1 - any fractures, ≥ 2 fall/12 mo, diff walking/balance
- 2 - publicly funded Zostavax (NNT = 59) ages 65-70 or \$300 Shingrix (NNT = 32)
- 3 - Pneumovax 23 ≥ 65 and at least 5 yr after last dose if present

General Physical Exam:

- Orthostatic vitals
- Palpation: pulse irregularity, pedal edema¹
 - 1 - Also look at foot/skin hygiene, which indicates their mobility and ability to care for self
- Auscultation: cardiac, respiratory
- Neuro: gait, TUG (Timed Up and Go) test¹
 - 1 - Time to rise from chair, walk 3 meters, turn around, walk back to chair and sit down. ≥ 12 s is falls risk

Common Complaints:

- **Falls:**
 - Etiology: extrinsic (polypharmacy, psych rx, environment), intrinsic (poor vision, neuropathy, CNS disorder, deconditioning, MDD, cardiac)
 - History:
 - Basics: number of falls in last 12mo, hazards (e.g. ice, stairs, low lighting), injury (#, concussion), household hazards, fear of falling
 - Etiology: circumstances before/during/after fall (e.g. presyncope, dizziness, CP/SOB), gait/balance, new rx, gait aids
 - Mgmt: tx underlying cause (esp. incontinence/vision/meds), OT home safety assessment, PT (OHIP coverage ≥ 65 yo), dietician (frailty)
- **Depression:**
 - Evaluation: recreation/leisure, MSIGECAPS, Geriatric Depression Scale, \pm Cornell Scale for depression in dementia (filled by caregiver), \pm Geriatric Anxiety Index
 - Mgmt: CBT \pm rx¹ (SSRIs, SNRIs, NDRIs), community groups (\downarrow isolation)
 - 1 - Assess fall risk as antidepressants may exacerbate; see "Major Depressive Disorder"
- **Frailty:**
 - Etiology: incontinence, falls, polypharmacy, MDD, cognitive impairment
 - Hx: \downarrow energy, \downarrow physical activity, wt loss
 - Dx: Dalhousie Clinical Frailty Scale
 - PE: low grip strength, slow gait
 - Mgmt: 150 min/wk of moderate-intensity activity (bouts of 10 min in duration)

- **Fitness to Drive:**
 - CANDRIVE: Illness, Neurologic issues, Drugs, Record, In-Car experiences, Vision, ETOH use, Trails B test
 - Consider reading introduction of CMA's "Determining medical fitness to operate motor vehicles"
- **Hearing:** audiologist referral
- **Osteoporosis:** See "Osteoporosis"
- **Polypharmacy:** see deprescribing.org algorithms for PPI, antihyperglycemic, antipsychotic, benzodiazapenes, cholinesterase inhibitors and memantine

Common Culprit Therapeutics (Modified Beers Criteria)

Therapeutic Category	Examples	Rationale
Anticholinergics	Gravol, Benadryl, antiparkinsonian (eg. benztropine), antispasmodics (atropine, spolcolamine)	Confusion, xerostomia, constipation
Antithrombotics	Dipyridamole, Ticlopidine	OH
Antibiotics	Macrobid	hepatic toxicity, ILD, peripheral neuropathy
CVS	Peripheral & central α -1 blockers (e.g. terazosin, methyldoopa)	OH, bradycardia
	Digoxin, amiodarone	Not first line, toxicity
	Nifedipine	Hypotension, not first line
CNS	Antidepressants	Anticholinergic + OH
	Antipsychotics	Increased CVA, cognitive decline
	Barbiturates	Dependence
	Benzodiazepines	Cognitive impairment, delirium, falls
Endocrine	Androgens, Estrogens	\uparrow CVE risk
	Growth Hormone	Edema, arthralgias
	Sliding Scale Insulin, Glyburide	Hypoglycemia
GI	PPI	Malabsorption, bone loss, C. difficile risk if ≥ 8 wk
Pain	NSAIDS	GI Bleed
	Indomethacin	CNS S/E
	Ketorolac	GI bleeds
	Muscle Relaxants	Anticholinergic

OH – orthostatic hypotension

Adapted from 2015 American Geriatrics Society (AGS) Beers Criteria for Potentially Inappropriate Medication Use in Older Adults

Dementia

Background:

- Low or declined cognitive testing + functional decline
- Prevalence: 1% in 65-70 yo, 25% \geq 85 yo
- DDx: delirium (e.g. from low B12, hypothyroid, EtOH, UTI, etc.), depression, MCI¹, changes in vision, motor loss, gait disturbance, urinary incontinence,

behavioural disturbances, visual hallucinations, excessive alcohol use, prior stroke or Parkinson's disease

- 1 - MCI (can fn independently) vs. dementia (impairment of simple daily activities like paying bills)
- Types of Dementia:
 - Major: Alzheimer, Vascular, Lewy Body, Frontotemporal, Mixed
 - Other: progressive supranuclear palsy, multisystem atrophy, Huntington's, normal pressure hydrocephalus, Parkinson-related dementia

History:

- Obtain collateral Hx, full medications, social and psychiatric history
- Basics: insidious onset, non-fluctuating course, fn impact (ADLs¹, IADLs²)
 - 1 - (DEATH) – dressing, eating, ambulating, toileting, hygiene
 - 2 - (SHAFTT) – shopping, housekeeping, accounting, food/meds prep, telephoning, transportation
- Cognitive domains affected: attention, memory, language, motor, concentration, decision-making, social skills
- Associated sx: BPSD¹, incontinence, falls/gait aids, sleep Δ, depression²
 - 1 - BPSD: wandering, agitation, anxiety, hallucination/delusion, ↓ emotional ctrl
 - 2 - Geriatric depression scale
- PMHx: stroke/TIA
- Other: driving¹ + kitchen safety, caregiver burnout, finances (e.g. having POA), advanced care planning (e.g. recommend Speak Up Ontario)
 - 1 - probing question - "would you let your 2 yo in their car"

Physical Exam:

- Orthostatic vitals
- Inspection: gait, masked facies, resting tremor, cogwheel rigidity, chorea
- Cognition:
 - AOX3, serial 7s¹ OR spell WORLD backwards¹ OR days of week backwards¹
 - 1 - if > 1 error, consider CAM to r/o delirium (Acute Onset or Fluctuating; Inattention; Disorganized Thinking; Altered LOC)
 - Cognitive tests (administer in pt's language where possible): MoCA¹, MMSE
 - 1 - if communicating to another provider, report where errors made (e.g. clock drawing) to specify if global vs. focal deficits
- Special tests: micrographia, visual acuity

Investigations:

- Main: CBC, lytes, TSH, Ca w/ Alb, A1C¹, B12, CT head²
 - 1 - persistently high BG can cause CI
 - 2 - If: Age < 60, rapid decline (1-2 mo), duration < 2 yr, recent head trauma, focal neuro deficit, hx Ca, OAC/bleeding disorder, gait disturbance, urinary incontinence early in dementia
- PRN: vision testing, hearing testing

Diagnosis:

- Dementia: progressive ↓ in ≥ 2 cognitive domains from hx + test¹
 - 1 - e.g. MoCA: score > 26 normal, 22 MCI, 16 Alzheimer's; MoCA is 90% sensitive for MCI and 100% sensitive for Alzheimer's, although specificity is 87%.
- Subtype Specific:

- Vascular: unequal higher cognitive decline + focal neuro findings¹ + hx cerebrovascular disease, typically step wise decline
 - 1 - e.g. unilateral spasticity/hyperreflexia, Babinski, pseudobulbar palsy
- Frontotemporal: insidious onset + early social losses¹
 - 1 - social conduct, emotional blunting, insight
- Lewy Body: ≥ 2 clinical¹ or (1 clinical + PET scan)
 - Clinical: fluctuating cognition esp. attn, visual hallucinations, REM sleep disorder, \pm Parkinsonism [bradykinesia, rest tremor, rigidity]
- Alzheimer: dementia dx of exclusion; typically, memory first

Management:

- Monitoring: global deterioration scale
- Non-Rx:
 - Manage depreciating factors: sleep, pain, polypharmacy, falls, HTN, incontinence, OTC¹
 - 1 - Avoid: Anti-Cholinergic (Sleep-eze, Gravol, Benedryl), anti-spasmodic (oxybutynin)
 - Appetite loss is prevalent but little evidence for appetite stimulating Rx
 - Safety: driving¹, manage aspiration risk (e.g. honey thick puree), med mgmt²
 - 1 - Report to MTO if moderate dementia (loss of 2 IADLs or 1 ADL or MOCA < 18)
 - 2 - Four Tips: administration by caregivers; use aids (blister packs, Dosette); proper storage (high vs. low reaching, labelled/organized); assess compliance barriers (e.g. insurance coverage)
 - Education, memory clinic, planning (early LHIN LTC referral, goals of care), activity, socialization, diet modification
 - Other Topics: nutrition, hygiene, abuse/neglect
- Rx:
 - Alzheimer's: cholinesterase inhibitor¹ \pm Memantine 5-10mg BID
 - 1 - E.g. Donepezil (Aricept) 5-10mg OD, Galantamine 4-12mg BID, Rivastigmine (Exelon). Caution in bradycardia, severe COPD, PUD. S/E (Cholinergic): emesis, diarrhea, lacrimation, bradycardia.
 - Moderate-severe dementia: use Donepezil 11.5-23 mg XR for 3 mo then Donepezil 10mg
 - Note: cholinesterase inhibitors and memantine will eventually be deprescribed
 - Lewy-Body or Parkinson-Related Dementia: Rivastigmine (4.6-13.3mg 24h patch OD), Donepezil
 - Frontotemporal Dementia: SSRI (e.g. Citalopram 10-40mg OD)
 - BPSD Adjuncts:
 - Psychosis/agitation¹: Olanzapine 2.5-10mg OD, Risperidone² 0.5-1.5mg, Quetiapine² 25mg OD – 150mg BID
 - 1 - \emptyset anti-psychotics for Lewy Body (re worsening of Parkinsonism)! Low dose Quetiapine ok
 - 2 - \uparrow Risk of death
 - Agitation: Divalproex 125-500mg BID, Carbamazepine
 - Depression/anxiety/agitation: SSRI (e.g. Sertraline 25-100mg OD), peer support groups for caregivers, geriatric psychiatry referral
- Geriatrics Consult: diagnostic clarification, BPSD, complexity, MTO reporting

Incontinence and Overactive Bladder

Background:

- Incontinence prevalence: 10% of general population, 45% of ≥ 65 yo
- Types:
 - Major: stress, urge (esp. older adults), mixed (stress + urge)

- Other: functional (psych or mobility disorder), overflow (BPH, detrusor hyperactivity with impaired contractility), total (ectopic ureter, fistula)
- Definition of Overactive Bladder: urgency ± incontinence

History:

- Basics: describe (continuous dribbling vs. intermittent leaks), urge sx (urgency, frequency, nocturia¹, dysuria²), storage sx (straining, frequency, urgency, nocturia), triggers³, fluid and caffeine intake
 - 1 - defined as ≥ 2 voids per night
 - 2 - not all dysuria is UTI. Sometimes OAB presents with dysuria, which is incorrectly tx with Abx
 - 3 - i.e. stress incontinence; e.g. on exertion, cough, sneeze
 - Mnemonic to remember urinary sx (FUNDWISE): frequency, urgency, nocturia, dribbling, weak stream, intermittent, straining, emptying bladder incomplete
- PMHx: vaginal delivery, prostatectomy, pelvic radiation/surgery
- Rx: PM diuretic use

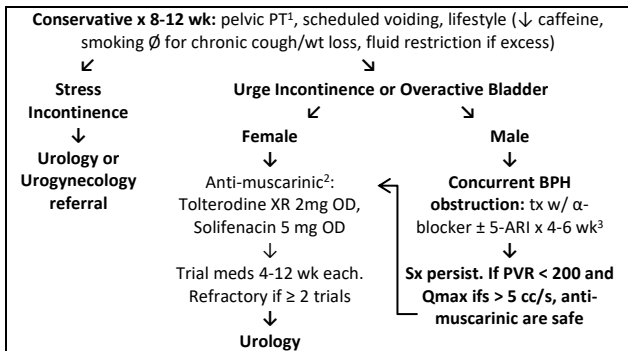
Physical Exam:

- Inspection: AOX3, bladder distension
- Abdomen¹: diastasis recti, ascites, palpable masses
 - 1 - R/O mass effect \uparrow intraabdominal pressure
- Genital Exam:
 - Both: normal bulbocavernosus + DTR, normal sharp/dull (esp. S2, S3, S4), rectal tone
 - In F, also:
 - Inspection: vaginal atrophy¹, prolapse (on speculum)
 - 1 - e.g. pale colour, loss of vulvar architecture, sparse pubic hair, labial dryness
 - Special: normal clitoral reflex, cough stress test, levator ani contraction test¹, urethral Q-tip test (hypermobility)
 - 1 - ask pt to contract "vaginal muscles" as long as possible; normally 5-10s
 - In M, also: palpable prostate

Investigations:

- Standard: 3d voiding diary¹, U/A, Cr, PVR, PSA, \pm uroflowmetry, cystoscopy
 - 1 - use template that includes fluid intake, intentional voiding, leakage and sx
- Optional: phenazopyridine¹ 200mg x 1
 - 1 - distinguish urine incontinence vs. discharge: useful for obese pt where it may be unclear; phenazopyridine turns urine orange. Pt wears pad and does triggering activities to see.

Management of Incontinence & Overactive Bladder:



1 – refer to pelvic PT where possible, as Kegels can make worse if OAB related to tight muscles | 2 - ∅ in urinary retention, gastric retention, uncontrolled narrow-angle glaucoma. A/E: sedation, ↓ cognition, xerostomia, blurred vision, constipation, HA | 3 - See “Benign Prostatic Hyperplasia” section

Adapted from: CUA – 2012 Update: Guidelines for Adult Urinary Incontinence Collaborative Consensus Document for the Canadian Urological Association

Abnormal Uterine Bleeding

Background:

- Menorrhagia: $> 80 \text{ cc}^1/\text{cycle}$, duration $> 7\text{d}$, or pt reported “very heavy”
 - 1 - i.e. changing menstrual products every 1-2 hr, passing clot \geq quarter size
- Types and Etiology of AUB:
 - Ovulatory (a.k.a. menorrhagia):
 - Features: regular cycle (q24-35 d), \pm PMS/dysmenorrhea, no intermenstrual or postcoital bleeding
 - Epidemiology: adolescents; less common in 20-40 yo
 - Etiology: coagulopathy, endocrine¹, anorexia/bulimia, chronic illness, meds (TCA, Valproate, steroids, sulfasalazine), idiopathic
 - 1 - PCOS, pituitary adenoma, hypothyroid, hyperprolactinemia
 - Anovulatory: perimenopause (technically intermittent anovulation), hypoestrogenism (POI, 45 X0, non-classic CAH), anovulatory cycles¹
 - 1 - immature axis; occurs in healthy adolescents from menarche for upto 2 yr; benign
 - Anatomic: polyps (typically premenopausal), fibroids, adenomyosis, neoplasm,
 - Other: IUD, infectious (cervicitis, endometritis, salpingitis)
- Other classification systems: PALM COEIN (polyp, adenomyosis, leiomyoma, malignancy/hyperplasia, coagulopathy, ovulatory dysfunction [PCOS, hypothyroid, anovulatory cycles, etc.], endometrial, iatrogenic [e.g. forgetting IUD, OCP/HRT incorrectly used], not yet classified)

History:

- Basics: flow duration, quantity, intermenstrual bleeding, Δ from previous, cycles (regularity, length¹), ovulatory sx (breast tenderness, cervical mucous Δ), SOB + palpitations + fatigue (anemia sx), fn impact
 - 1 - normal length: 21-45 days (teen) ; 28-35 (adult)
- Etiological:
 - Neoplasms: pain (fibroid, adenomyosis), intermenstrual or post-coital bleed (polyp, IUD, neoplasm), nulliparous + COC use (endometrial ca RF), infertility (endometrial ca)
 - Infectious: discharge, sexual RF (new or multiple partners, \emptyset condom use, STI testing)
 - Endocrine: oligomenorrhea¹ + hot flash + vaginal dryness + \downarrow libido (perimenopause), hirsutism + virilization + oligomenorrhea¹ (PCOS), wt gain + low mood (hypothyroid), galactorrhea + HA + vision Δ (hyperprolactin), irregular since menarche x max 2 yr + otherwise healthy (anovulatory cycles)
 - 1 - oligomenorrhea w/ long periods w/o shedding coalesce to menorrhagia
 - Heme: easy bruising + bleeding gums + epistaxis (bleeding disorder)
 - Psych: \downarrow PO intake + excess exercise/purging (eating disorder)
- PMHx: pap smears, gynecological conditions, pelvic or abdo surgery, chronic illness¹, rx (TCA, Valproate, steroids, sulfasalazine)
 - 1 - e.g. CKD, malabsorption, CF

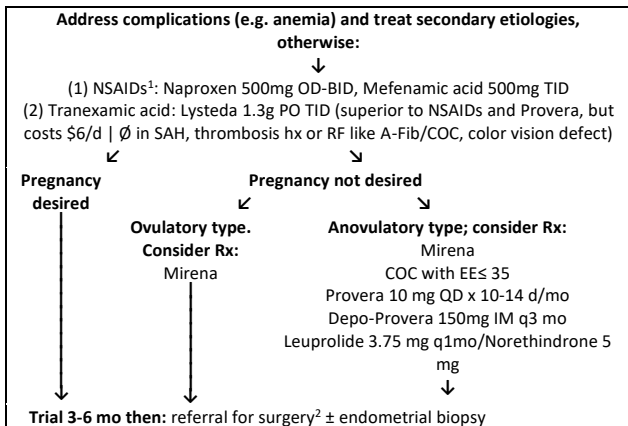
- If considering contraceptives¹: smoking hx, migraines w/ aura, stroke/VTE, CAD, liver disease, breast ca, endometrial or cervical ca, active infection
 - 1 - listed are contraindications to various contraceptives

Physical Exam:

- Vitals: orthostatics (blood loss), pulse (anemia),
- Inspection: BMI (Cushing, PCOS, hypothyroid)
- Genital Exam: discharge, atrophy (perimenopause), large uterus (fibroid), cervical motion tenderness (PID), adnexal mass (PCOS, ovarian ca, fibroid)

Investigations: β -hCG (esp. if recent onset bleed), CBC, ferritin, INR/PTT, TSH, C&S/STI swab, TV U/S (polyp, fibroid, PCOS), hysterosonogram (fibroid), endometrial biopsy (ca; *Should perform in all postmenopausal F with AUB*)

Management of Abnormal Uterine Bleeding:



1 - lower efficacy in anovulatory type and fibroids

2 - Surgeries: vaginal hysterectomy (100% success), hysteroscopic endometrial ablation (esp. > 40 yo; 10% failure)

Original Work. Information based on "Normal and Abnormal Uterine Bleed" by Lois et al. (Foundation for Medical Practice Education)

Amenorrhea

Etiology:

- **Pregnancy: do not miss.** Always check β -hCG, even if pt is 13 yo and denies sexual activity

- Primary Amenorrhea: *amenorrhea by 13 yo (if no 2° sex characteristics), Amenorrhea by 15 yo (if 2° sex characteristics present), or amenorrhea 3 year post thelarche*
 - Etiology:
 - Brain: Kallman's, constitutional puberty delay
 - Ovaries: Turner [45 XO], 46 XY gonadal dysgenesis, POI, PCOS
 - Outflow Tract: imperforate hymen, transverse vaginal septum, 46XX Mullerian agenesis, CAH, androgen insensitivity syndrome (46 XY – inguinal/labial testes¹)
 - 1 - Receive gonadectomy post-puberty
- Secondary: *amenorrhea x ≥ 3 mo despite being previously regular or previous irregular menses for 6 mo*
 - Etiology:
 - Brain: functional (stress, excess exercise, anorexia nervosa), chronic illness (DM, IBD, Celiac), CNS (neoplasm, Sheehan, TB, sarcoid), hyperprolactinemia¹, hypothyroidism, Cushing
 - 1 - Hyperprolactinemia Etiology (PROLACTINS): pregnancy, renal failure, OCP/antipsychotic, liver failure, adenoma, chest wall disease (Herpes Zoster, surgery), thyroid low, infiltration of pituitary (Histiocytosis), nursing, stalk effect
 - Ovaries: POI (e.g. mosaic Turner's, Fragile X, radiation/chemo), PCOS, natural menopause
 - Outflow tract: Asherman's syndrome

History:

- Basics: menstrual hx¹, sexual hx, ovulatory sx (mid-cycle breast tenderness, ↓ cervical mucous, unilateral mittelschmerz)², lifestyle (diet, exercise, wt changes)
 - 1 - previous menses (if any), age at menarche, regularity, cycle length, menorrhagia
 - 2 - if present may indicate outflow tract abnormality
- Etiological Sx:
 - 1° or 2°: hypoestrogenic sx (POI; hot flash + vaginal dryness + ↓libido), hirsutism + acne + wt ↑ (PCOS, Cushing)
 - 1°: intellectual disability (Turner, Fragile X), anosmia (Kallman's), FHx delayed puberty
 - 2°: poor intake + high exercise/binging + stress (eating disorder), galactorrhea + HA + vision Δ (prolactin tumor), weight + mood Δ + BM Δ (thyroid disease), constitutional sx (neoplasm, TB)
- PMHx: D&C or myomectomy (Asherman's), GTPAL + heavy intrapartum bleeding (Sheehan), Fe deficiency anemia (Celiac), radiation/chemo (POI), chronic illness, rx (anti-psychotics)

Physical Exam:

- General Inspection:
 - 1° and 2°: acanthosis nigricans + high BMI (PCOS), low BMI + lanugo (eating disorder)
 - 1°: delayed Tanner stage^A, Turner features^B, Fragile X features^C
 - A - POI, 46XY, 45XO, constitutional delay, Kallman's

- B - short stature, wide nipple distance, minimal breast/pubes hair
- C - ASD/ADHD, soft skin dorsum hand, long face, prominent forehead & jaw, large protuberant ears, MVP on auscultation (apical mid systolic click + murmur)
- 2°: striae + supraclavicular fat padding (Cushing)
- Genital Exam:
 - 1°: bulging imperforate hymen, vaginal dimple (Mullerian agenesis), non-palpable uterus¹ (Mullerian agenesis, 46XY AIS), prominent clitoris (CAH)
 - A – invasive maneuver may not be ideal considering pt age; can omit and go to pelvic U/S
 - 2°: atrophy (POI, menopause), large uterus (pregnancy), rectal bimanual (low yield, but perform to R/O masses)
- Special Tests: visual fields (pituitary tumor), DTR + thyroid exam

Female Tanner Staging:

Stage	Pubic Hair	Breast
1	None	Nonpalpable
2	Few downy hairs	Palpable bud under areola
3	Scant terminal ¹ hair	Palpable outside areola
4	Terminal hair ¹ filling triangle over pubic area	Elevated areola contour - “double scoop” appearance
5	Extends onto medial thighs	Areola hyperpigmentation + mound recedes to breast contour. Nipple protrusion

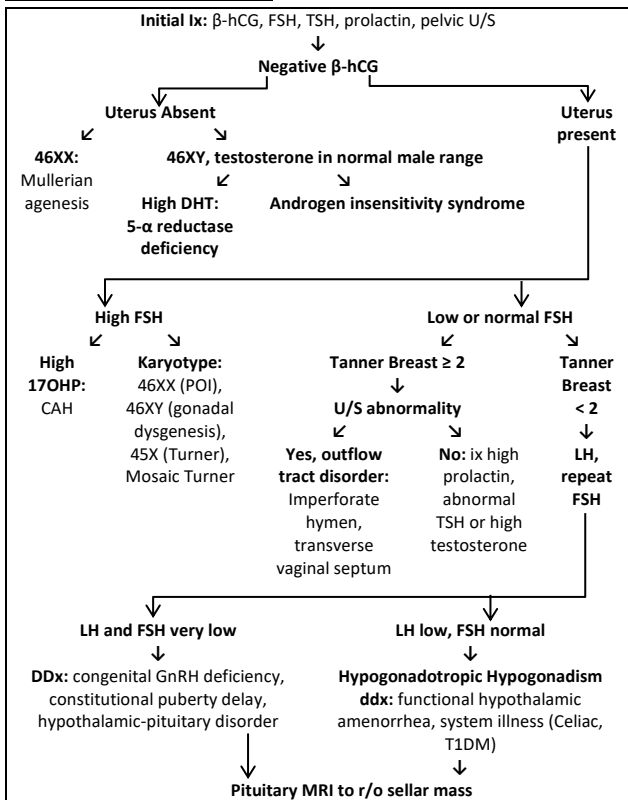
1 - terminal: final adult like appearance; coarse + curly

Mnemonic for Typical order of puberty characteristics: “boobs”, “pubes”, “grow”, “flow”

Investigations and Diagnosis:

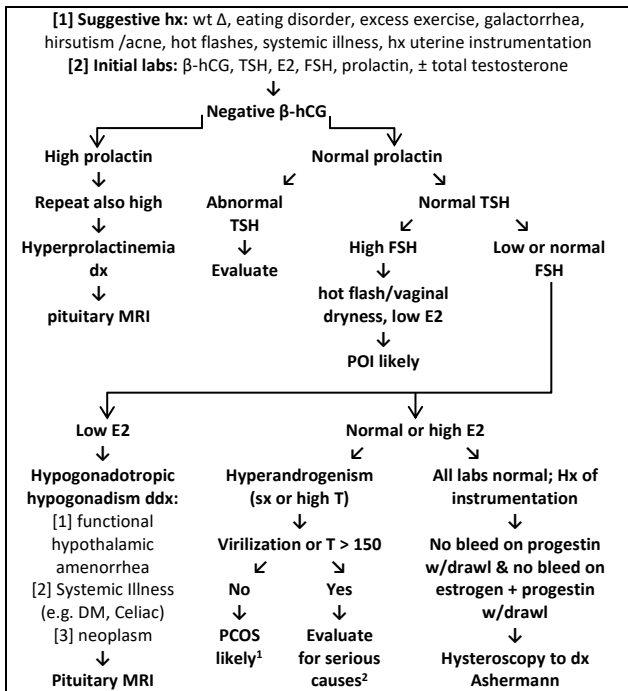
- Full List of Investigations
 - 1°: β-hCG, abdo U/S, Karyotype, 8AM testosterone, DHT, LH, FSH, 17-OHP, fBG/A1C, anti-TTG + IgA
 - 2°: β-hCG, serum prolactin (+ macroprolactin in high), TSH, FSH, LH, E2, 8AM testosterone, 17-OHP, DHEA, pituitary MRI, hysteroscopy, fBG/A1C, anti-TTG + IgA

Evaluation of Primary Amenorrhea:



Adapted from: "Amenorrhea" by Shilpa Amin (Apr 28, 2020)

Evaluation of Secondary Amenorrhea:



T - testosterone

1 - Rotterdam Criteria (≥ 2 of): oligo/amenorrhea, hyperandrogenic sx or labs (T > 75), U/S "string of pearls"

2 - T > 150 is very high. Examples of serious causes: adrenal hyperplasia (e.g. non-classic CAH; get 17-OHP, lytes), Cushing, acromegaly, androgen secreting tumor

Adapted from: "Amenorrhea" by Shilpa Amin (Apr 28, 2020)

Other Investigations:

- Etiology of POI: karyotype, FMR1 mutation, anti-adrenal Ab, anti-mullerian hormone
- OGTT for PCOS

Management:

- 1° amenorrhea: serious; ensure timely peds-endocrinology referral
- 2° amenorrhea:
 - Hyperprolactinemia: Bromocriptine¹

- 1 - initial 1.25-2.5mg OD, up titrate 2.5 q1wk, max 15mg OD
- POI: HRT¹, BMD surveillance, Ca + Vit D, donor oocyte for pregnancy
 - 1 - e.g. 17 β-estradiol 1mg + medroxyprogesterone 2.5mg OD. Given continuously, but induce w/drawl shedding 4x/yr to prevent endometrial hyperplasia
- PCOS: Spironolactone 50mg OD (for hirsutism) + diet/exercise
 - Metabolic Syndrome:
 - Non-Rx: dietician + exercise (moderate x 30min x 5d/wk)
 - Tx DM if present
 - Menstrual irregularities:
 - [1st line]: CHC (pill, patch, ring), progestin-only (use if no hirsutism; e.g. Mirena, Micronor)
 - [2nd line and not routinely used unless impaired OGTT] Metformin 1.5-2g divided daily
 - Ovulation inducer (pregnancy desired): letrozole¹ 2.5-5mg OD x 5d
 - 1 – is considered an off label use and should be discussed with patient first
 - Hirsutism: spironolactone 50mg OD
 - if persists > 6 mo: Finasteride 5mg OD

Dysmenorrhea

Background:

- Epidemiology: 50% prevalence; 10% severe enough to miss work/school
- Etiology:
 - 1^o: dysrhythmic uterine contraction + ischemic from excess prostaglandins
 - Epidemiology: 17-22 yo F, onset 6-24 mo after menarche
 - 2^o: infectious (PID), structural (endometriosis, adenomyosis, fibroids, polyps, adhesions, cervical stenosis, ovarian cyst, Mullerian abnormality), non-gyne (IBD, IBS, interstitial cystitis, UPJ obstruction)
 - Epidemiology: 30-40 yo F

History:

- Background: age of menarche, cycle length, regularity, duration of menses + blood loss, ovulatory sx¹, sexual hx + abuse, previous tx, GTPAL
 - 1 - mid cycle breast tenderness, cervical mucous Δ, HA
- Basics:
 - Sx: crampy/colicky abdo pain, back pain, labial pain, NV, diarrhea, HA, light-headedness, myalgias
 - Characterize: onset, sx timing to menses¹, NSAIDs/heat use, sx progression + fn impact
 - 1 - typical onset a few hr before/after menses, lasts 2-3 d
 - RF: younger age, stress, smoking, lack of social support
- Other causes: pelvic pain even w/o menses, menorrhagia, dyspareunia (endometriosis, fibroid), discharge (PID), subfertility, intermenstrual bleeding (polyp, cervicitis), postcoital bleeding (polyp, STI), hx pelvic surgery (adhesions)
- Comorbidities: MDD/anxiety, chronic pain syndromes

Physical Exam:

- Palpation: abdomen soft ± local tenderness

- Pelvic Exam¹: fixed/retroverted uterus + tender uterosacral lig (endometriosis), enlarged uterus (fibroid), non-mobile uterus (adhesion), purulent discharge (STI), CMT (PID)
 - 1 - defer if typical 1st sx and not sexually active. Perform if tx failure, anovulatory or suspect other causes (JOGC Guidelines)

Investigations: *none, if classic sx in ovulatory adolescent*

- If tx failure: TV U/S (fibroid, endometrioma), STI swabs/NAAT, MRI (Mullerian abnormality)

Management:

- Non-Rx: exercise (150min/wk), heat
- Rx: NSAIDs¹ ± hormonal contraceptives (OCP/IUD)
 - 1 - e.g. Naproxen 500mg x1 then 250mg q6-8h PRN (max 1250mg/d), Celecoxib 400mg x 1 ± 200mg x 1
- Gynecology referral if refractory

Endometriosis

Chronic Pelvic Pain (> 6mo) DDX: *top causes underlined*

- Gyn: adhesions, adenomyosis, endometriosis, endosalpingiosis, prolapse, ovarian/adnexal cysts, fibroid/polyps, vulvodynia, pelvic congestion syndrome
- GI: constipation, diverticulosis, IBS, IBD, chronic appendicitis, intermit SBO
- Urologic: interstitial cystitis, cystolithiasis, urethral syndrome
- MSK: pelvic floor myalgia/spasm, pudendal nerve entrapment, disc disease
- Psych: MDD/anxiety, abuse, substances, abdominal migraine or epilepsy

Endometriosis Pathophysiology:

- Non-cancerous ectopic endometrial tissue occurring in 10% of reproductive age F. Usually in pelvis¹, but rarely even extrapelvic (e.g. lungs)
 - 1 - ovaries, peritoneum, uterosacral ligament, pouch of Douglas, rectovaginal septum
- Pathogenesis: multifactorial and true cause unknown; includes genetics, retrograde reflux of menstrual tissue from fallopian tubes during menses
- Ectopic tissue is sustained by estrogen from menstrual cycles → inflammation → pain/infertility

History:

- Sx: pain (*non-cyclic*, > 6 mo, pelvis/low back, ↓ w/ OCP use¹), cycles (regularity, dysmenorrhea), dyspareunia, dyschezia, hematochezia, cyclic hematuria or dysuria, infertility
 - 1 - highly suggestive feature
 - Endometriosis doesn't typically cause AUB
- Background: fn impact, MDD screen¹
 - 1 - "Are you feeling down or waking up early? Have you lost wt or just don't seem to have an appetite?"
- Other causes: AUB, discharge + sexual hx (new or multiple partners, STI testing, condom use), ↑ frequency (UTI, interstitial cystitis if ≥ 6 wk), FHx colon ca, stress + bloating + pain relieved by BM (IBS), FHx fibroids, hx surgeries or D&C (adhesions)

Physical Exam:

- Genital Exam: fixed + retroverted uterus, painful + nodular uterosacral ligaments, tender adnexal mass (endometrioma), uterine motion tenderness
- Rectal exam: palpable nodules

Investigations and Diagnosis: *definitive dx rarely required – can treat based on signs and sx alone*

- Basics (R/O other causes): urinalysis, β -hCG, pap smear, vaginal-endocervical swab, TV U/S, CBC/ferritin
- Definitive Diagnostic: laparoscopy w/ biopsy or endometrioma (aka Chocolate cyst) on U/S

Management: *tx only if symptomatic*

- Gynecology referral indications: trying to conceive, pelvic mass, rx failure
 - 2nd Line rx: Leuprolide 3.75 mg q1mo/Norethindrone 5 mg (GnRH agonist + HT addback ↓ BMD loss) – max 6 mo, Mirena, Danazol (androgenic s/e)
 - Laparoscopy surgery: diagnostic + treatment
- Rx: *trial 3 mo empirically then R/A*
 - [1st Line]:
 - OCP: e.g. Visanne 2 mg OD, Depo 150mg IM q3mo, COC¹ (e.g. Alysena)
 - 1 - Use COC continuously - i.e. not 3 wk on/1 wk off. Must shed 4x/yr to prevent endometrial ca
 - NSAIDs: mefenamic acid 500 mg TID
- Refractory: CBT, Amitriptyline 25 mg qhs, Duloxetine 30-60 mg QD

Menopause & Perimenopause

Menopause Diagnosis:

- Age: menopause (51 yo), perimenopause (40-58 yo)
- Criteria: amenorrhea $\times \geq 3$ mo or mean cycle length ≥ 42 d

History:

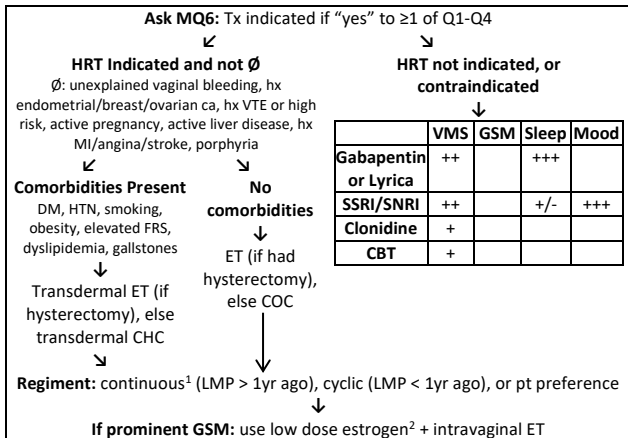
- Age: menopause (51 yo), perimenopause (40-58 yo)
- MQ6:
 - [1] menstrual irregularities¹ and LMP
 - 1 - esp. progressive lengthening of cycles; 3 consecutive mo cycles > 42d or amenorrhea indicates impending menopause
 - [2] hot flashes (severity, triggers)
 - [3] vaginal dryness pain, dyspareunia²
 - 2 - also ask dysuria, discharge, sexual hx/STI testing; [i.e. keep ddx broad]
 - [4] bladder incontinence
 - [5] poor sleep
 - [6] mood (\pm MSIGECAPS, GAD-7)
- Other Sx: low libido, EtOH use (re mood), ↓ activity level, fn impact
- Risk reduction: last BMD, last pap smear + constitutional sx

Physical Exam:

- Vitals: BP (esp. if considering HRT)
- \pm External Genital Inspection: loss of SCT labia major fat, \downarrow vaginal secretions, fissures due to thin vaginal epithelium

Investigations: \pm β -hCG (esp. if starting HRT), \pm baseline E2

Management of Menopausal Symptoms:



Acronyms: GSM (genitourinary sx of menopause – vaginal dryness, pain, dyspareunia, urinary sx), VMS (vasomotor sx – hot flashes), ET (estrogen only therapy)

1 - must induce w/draw shedding 4x/yr to prevent endometrial hyperplasia if not undergone hysterectomy

2 - ≤ 0.625 mg PO conjugated equine estrogen, ≤ 1.0 mg of PO EE, ≤ 50 μ g transdermal

Adapted from: *CFPC - An efficient tool for the primary care management of menopause*

HRT Therapy:

- Estrogen only vs. estrogen w/ progestin:
 - Estrogen-only preferable in women w/o a uterus
 - Progestin: must have for at ≥ 12 d/mo in F w/ intact uterus¹
 - 1 - avoids the 3-8x risk of endometrial adenocarcinoma from unopposed estrogen use
- Example Medications:
 - COC: Angeliq (1 mg EE/0.5 mg drospirenone)
 - Transdermal CHC: Compibatch (0.05mg EE/0.14 mg NE) to abdomen; replace twice weekly
 - Estrogen only therapy (PO): Premarin (conjugated equine estrogen) PO 0.625mg OD
 - Transdermal estrogen only therapy: Climara pro patch q weekly (0.045mg EE/ 0.015mg LNG)
- Dosing: use OCP w/ higher EE for moderate-severe vulvovaginal atrophy
- Rx Use:
 - Attempt dose \downarrow or d/c at 3-6 mo intervals
 - do not use ≥ 5 yr and not beyond 60 yo (or 65 yo at the latest)

- Before use: TSH (if previous disease), yearly breast exam (& monthly self-administered), lipid panel (if dyslipidemia hx)

Other Management:

- Non-Rx: aerobic exercise 30min/d x 5d/wk (for sleep/mood), dress in layers (for hot flashes), CBT
- Vaginal Dryness adjuncts or standalone: Replens or hyaluronic acid, lubricant for intercourse
- Testosterone: not approved for women in Canada + high S/E profile
 - Consider in hypoactive sexual desire disorder of menopause: e.g. AndroGel 5mg/d (1/10 of satchel; 1 satchel should last 10d). Do 3-6 mo trial (d/c after 6mo if tx failure). monitor q6mo
- Other:
 - Pap tests: consider 2% topical lidocaine in vulvar atrophy for pt comfort (3-5 min onset)
 - See "Osteoporosis"

Pelvic Inflammatory Disease

Background:

- Prevalence: 10% F have PID ≥ 1x in their lifetime
- Complications: TOA, ectopic pregnancy, infertility, Fitz-High-Curtis
- Etiology (usually polymicrobial): gonococci, chlamydia, hemophilus, E. Coli, bacteroides, strep species, vaginal flora
 - Pathophysiology: intra-abdominal spread from cervical or parametrium source

History:

- Sx: unilateral abdo/pelvic pain, mucopurulent discharge, dyspareunia, dysuria, vaginal pruritis, NV, sx in partner
 - PID doesn't cause AUB typically
- Background: previous PID, sexual hx (# of partners, new partners, STI testing, condom use), new IUD insertion

Physical Exam:

- Vitals: febrile
- Vaginal exam: adnexal + CMT¹, discharge (on speculum)
 - 1 - essentially indicates local pelvic peritonitis 2* to infection
- Pertinent Negatives:
 - Abdomen: non-tender McBurney's + Rovsing's + Psoas + obturator, ∅ Murphy's sign, ∅ CVA tenderness, ∅ rebound tenderness

Investigations:

- Routine: vaginal microscopy + C&S, chlamydia/gonorrhea/trichomonas NAAT¹, HIV Ab & Ag, CBC, TV U/S, β-hCG, LFTs (Fitz-High-Curtis), +/- ESR/CRP
 - Use different swabs for Chlamydia and Gonorrhea
- Not-routine - use for extensive disease: TV U/S (TOA), endometrial biopsy, laparoscopy

Diagnosis (Clinical - ≥ 1 of): uterine tenderness, CMT, adnexal tenderness

- Supportive Features: fever, ESR \uparrow , +ve swabs, mucopurulent discharge

Management: *start tx empirically even before dx confirmation*

- Hospitalization:
 - Absolute indications: pregnant, TOA¹, severe illness (NV, high fever, etc.), fail oral Abx, questionable Abx compliance
 - 1 - In-pt tx: IV Abx, ID consult, surgical washout/IR drain
 - Relative indications: HIV, youth
- Out-pt:
 - Rx (CDC Recommended): Ceftriaxone 250mg IM x 1 or Cefixime 800mg PO x1 + Doxycycline 100mg PO BID x 14d \pm Flagyl 500mg PO BID x 14d
 - Alternative: Ofloxacin 400mg BID \pm Flagyl 500mg BID x 14d
 - F/U in 72h
- Other: tx partners, \emptyset unprotected sex till tx

Uterine Fibroids (Leiomyomas)

Background:

- DDx: leiomyosarcoma, adenomyosis, epithelial ovarian ca, endometrial ca
- Epidemiology: reproductive age females; upto 70% F by 50 yo
- RF: African descent, > 40 yo, menarche < 10yo, FHx fibroid, nulliparous, obesity
 - Protective: increased parity, late menarche (>16 yo), smoking, OC
- Classification: subserosal (project outside uterus), intramural (w/in myometrium), submucosal (project into uterine cavity)
- Complications: leiomyosarcoma (very rare aggressive ca; 0.1% cases), red degeneration¹, abnormal placentation, abruption, preterm labor, infertility (esp. large submucosal)
 - 1 - hemorrhagic infarction of uterine leiomyoma once it outgrows its blood supply, esp. in pregnancy. Benign but quite painful

History:

- Sx: ovulatory menorrhagia¹, dysmenorrhea, abdo/pelvic pressure, dyspareunia, urinary straining/constipation (larger fibroid)
 - 1 - regular cycle, \pm PMS, \emptyset intermenstrual or postcoital bleed
- FHx: uterine fibroids
- Other causes: constitutional sx, FHx ovarian or breast ca + early satiety + bloating (ovarian ca), no pregnancies + menopausal + no OCP use (RF for ovarian ca), continuous OCP w/o withdrawal bleed (endometrial ca)

Physical Exam:

- Vaginal Exam: enlarged irregular¹ uterus, no palpable ovarian masses
 - 1 - enlarged smooth may indicate adenomyosis
- Palpation: \emptyset ascites + inguinal lymphadenopathy (mets)
- Percussion: \emptyset pleural effusion (mets)

Investigations:

- CBC + ferritin, TV U/S, sonohysterogram¹, endometrial biopsy²
 - 1 - more sensitive + better characterization of endometrium vs. TV U/S. Typical fibroid locations: submucosal, cavity
 - 2 - R/O neoplasm, esp. w/ abnormal uterine bleeding
- Optional: β -hCG, Ca-125, AFP, LDH

Management: *no tx if asymptomatic*

- Menorrhagia: Depo, OCP, GnRH Danazol
 - See "Contraception". i.e. NSAIDs less effective.
- Red Degeneration: NSAIDs
- OB referral: fail rx, ++pain, urinary sx, large fibroid in pregnancy
 - Post-embolization syndrome: NV, pelvic pain, fever, myalgia \rightarrow self-resolve 48 hr

Vulvar & Vaginal Disease

History:

- Sx: skin (lump, rash, fissure), discharge (odor, color, quantity, consistency), pruritis, abdo pain, post-coital bleeding, dyspareunia, urinary sx, hygiene, instrumentation
- Associated Hx: sx in partner, sexual hx¹, contraception², menstrual hx³
 - 1 - number of partners, duration of relationship, M/F/both, anal/oral/vaginal, STI testing
 - 2 - esp. douching, spermicide
 - 3 - LMP, oligomenorrhea, menorrhagia, inter-menstrual bleeding
- PMHx: GTPAL, obstetric or abdo surgeries (including D&C)

Investigations:

- Standard: vaginal & cervical microscopy + C&S, vaginal pH
- PRN: chlamydia & gonorrhea NAAT, trichomoniasis NAAT, β -hCG

Infectious

Vulvovaginal Candidiasis:

- Hx: odorless cottage cheese discharge, pruritis, dyspareunia, dysuria
- Dx: clinical; ix show spores/hyphae on microscopy + normal pH
- Mgmt:
 - Uncomplicated: fluconazole 150mg PO x1 OR Miconazole 2% intravaginally x 7d
 - Recurrent: Miconazole 2% x 14d, then fluconazole¹ 150mg PO q1wk x 6 mo
 - 1 - or clotrimazole 200mg PV 2x/wk in pregnancy
 - Complicated: (severe infection) topical x 14 d + fluconazole 150mg q72h x 3 doses; (non-candida) boric acid 600mg capsule OD intravaginal (esp. candida glabrata)
 - Δ : Boric acid is fatal PO!

Trichomoniasis:

- Etiology: protozoan *Trichomonas vaginalis*
- Hx: frothy rancid green/yellow discharge, post-coital bleeding, pruritis, burning
- O/E: strawberry cervix, Ø CMT
- Dx: +ve trichomoniasis NAAT; ix may show ↑ pH
- Mgmt: Flagyl 2g x 1 PO, for pt + partners

Bacterial Vaginosis:

- Etiology: Δ in vaginal flora; ↓ of lactobacillus or ↑ of anaerobes (*G. vaginalis*, *clostridium*, etc.)
- Hx: thin/grey discharge, malodorous (fishy), recent copper IUD, douching
- Dx (Amsel Criteria - ≥ 3 of): thin white-grey vaginal discharge, >20% clue cells¹ on microscopy, pH > 4.5, +ve whiff test (fishy odor)
 - 1 - vaginal epithelial cells w/ distinctive stippling from being cover by bacteria
- Mgmt: Flagyl 500mg BID x 7d. Ø routinely tx partner.

Bartholin Gland Abscess:

- Hx: Severe vulvar pain, unilateral swelling with erythema
- O/E: erythematous + tender + palpable gland at 4 or 7 o'clock
- Mgmt: *Abx usually not needed unless systemic sx*
 - Non-ruptured: incise + drain, word catheter, marsupialization
 - Spontaneous rupture: sitz bath, analgesics
 - If Cystic (i.e. non-tender): self-resolves; biopsy if > 40 yo to r/o Ca

Non-Infectious:

Vulvar Dermatitis:

- Hx: itching, pain, ± discharge; aggravated by anti-fungals, exposure (irritants¹, allergens²)
 - 1 - irritants: spermicide, douching, spray | 2 - allergens: latex, lube, semen
- O/E: erythema, fissure, lichenification, ± mons psoriasis
- Mgmt:
 - Non-Rx: sitz bath, vulvar hygiene (no soaps/cloths, irritant ctrl)
 - Rx: *R/A tx efficacy q2-4 wk*
 - [1st Line]: triamcinolone 0.1% BID or clobetasol 0.05% BID
 - [2nd Line]: tacrolimus 0.1% ointment BID

Vulvodynia:

- Etiology: unknown. Dx of exclusion.
- Hx: vulvar pain > 3mo worse w/ light touch, burning, pruritis, swelling sensation, dyspareunia¹
 - 1 - other pain-evoking activities: bicycle riding, tampon insertion, prolonged sitting, wearing tight clothes
- Mgmt:
 - Non-Rx: hygiene, cotton underwear, Ø daily pads/tight clothes
 - Rx: Lyrica 50mg OD, Amitriptyline 5-25 qhs, lidocaine 5% on cotton ball qhs
 - Vestibule excision surgery if severe

HEMATOLOGY, ALLERGY & IMMUNOLOGY

Allergic Rhinitis and Chronic Rhinosinusitis

Allergic Rhinitis

Differential Diagnoses: infectious sinusitis, URTI, gustatory (post EtOH, food), NARES, drug-induced, vasomotor, hormonal (e.g. pregnancy) CF, ciliary dyskinesia, GPA, CSF rhinorrhea, foreign body, hypothyroidism, idiopathic

History:

- Basics: duration, triggers/exposure¹, patterns (seasonal, chronicity), fn impact², full medication history, family hx atopy
 - 1 - e.g. mold, pets, occupation, environment. Ask about home: regular vacuuming, frequency of bed sheet, flooring, upholstery, humidity, tobacco exposure Δ. Can ask if watches AQI or daily allergen reports – any trends?
 - 2 - e.g. abnormal sleep, time off from school/work, sports, leisure
- Sx:
 - Allergic Rhinitis (IgE-mediated): congestion (e.g. mouth breathing), HA, malaise, fatigue, itchy eyes or throat, clear rhinorrhea, nasal mucosa swelling, postnasal drip, snoring/apnea, impaired smell/taste
 - Non-Allergic:
 - Infectious Sinusitis: acute, ± low grade fever, unilateral sx, purulent discharge, cough/URTI sx. See “*Rhinosinusitis, Acute*”
 - Drug-induced (rhinitis medicamentosa): rx overuse (nasal decongestants, B blockers, ASA), cocaine
 - Vasomotor (dx of exclusion): chronic + intermittent, triggers¹
 - 1 - dust, pollen, perfumes, pollution, temperature/pressure Δ
 - NARES (non-allergic rhinitis with eosinophilia syndrome): anosmia, ASA triggered, snoring/apnea
- PMHx: asthma¹, atopic dermatitis, nasal polyps, conjunctivitis
 - 1 - Sampter’s Triad: NSAID triggered rhinitis or asthma + asthma + inflammatory sinusitis with recurring nasal polyps ± chronic hyperplastic sinusitis

Typical Environmental Allergens in Southern Ontario:

	Tree Pollen	Grass Pollen	Weed Pollen	Mold Spores
Season	Early April till frost	Peaks in late May, mid-June	Early or mid- Aug till frost	Summer, Fall
Etiology	Deciduous trees (birch, oak, etc.)		Ragweed	Alternaria, Cladosporium

Physical Exam:

- Inspection:
 - Allergic Conjunctivitis: peri-limbal sparing, allergic shiner, Dennie’s lines, allergic salute, tonsillar hypertrophy, pharyngeal cobblestone¹, lymphoid hyperplasia
 - 1 - polygonal lymphoid hypertrophy of posterior pharyngeal wall

- Other Causes: nasal polyps (Sampter's, NARES), septal deviation or perforation (cocaine use)
- Palpation: lymphadenopathy (URTI, sinusitis)

Diagnosis: clinical, after R/O sinusitis and URTI

- Classification:
 - Frequency: intermittent (sx < 4d/wk or < 4 consecutive wk) vs. persistent (sx ≥ 4d/wk or > 4 consecutive wk)
 - Severity: mild (no fn impact) vs. moderate-severe (fn impact)
- Allergy testing (skin test, allergen specific IgE): only if it impacts mgmt¹
 - 1 - e.g. severe fn impact → consideration for de-sensitization therapy

Management

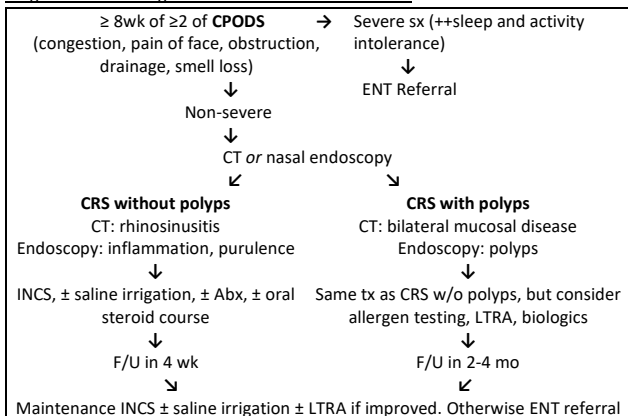
- Non-Rx: HEPA vacuuming, keep home humidity < 50%, Ø pets, dust frequently, watch daily allergen report
- Rx:
 - Mild/intermittent sx: PRN anti-His PO¹ or intranasal²
 - 1 - e.g. Cetirizine 5-10mg OD, Loratadine 10mg OD, bilastine 20mg OD, rupatadine 10mg OD
 - 2 - e.g. Azelastine 0.1% 1-2 sparys/nostril BID
 - Persistent, qoL impact:
 - [Step 1]: intranasal CS (e.g. Fluticasone 1-2 spray/nostril OD)
 - [Step 2]: if sx persist, adjunctive therapy based on sx —
 - Congestion: nasal irrigation prior to use (e.g. Hydrasense), pseudoephedrine 60mg PO q4-6hr [max 3 days]
 - Rhinorrhea: Atrovent 0.03% 2 spray/nostril BID-TID, intranasal anti-His (e.g. combo product Dymista 1 spray/nostril BID)
 - Nasal-ocular sx: intranasal anti-His (e.g. combo product Dymista 1 spray/nostril BID)
 - Severe persistent sx: intranasal CS + 1 of – intranasal anti-His¹, Montelukast² 10mg qPM (not currently approved <15 yo), cromolyn¹ 1 spray/nostril 3-6/d, consult Allergist for immunotherapy
 - 1 - Anti-His, Cromolyn ↓: nasopharyngeal itching, sneezing rhinorrhea
 - 2 - LTRA ↓: ocular sx, sneezing, rhinorrhea
- Allergist referral (for desensitization tx): severe sx, other tx fail, cannot avoid allergen (e.g. occupational exposure)

Chronic Rhinosinusitis

Background:

- Inflammatory disease of paranasal sinuses ≥ 8-12 wk
- Subcategories: CRS w nasal polyps, CRS w/o nasal polyps
- DDx: allergic rhinitis, bacterial rhinosinusitis, vasomotor rhinitis, migraine, TMJ dysfunction, trigeminal neuralgia, nasal septal deformation

Diagnosis and Management of Chronic Rhinosinusitis:



Adapted from: CFP - Canadian guidelines for chronic rhinosinusitis

Management:

- Rx:
 - [1st Line]: intranasal saline¹ + INCS (e.g. ciclesonide or mometasone 2 spray/nostril OD)
 - 1 - isotonic, low-pressure high volume [240cc]; e.g. Hydrasense
 - [2nd Line, severe/persistent symptoms]: prednisone 40mg OD x 5d, then 20mg OD x 5d
- Adjuncts if nasal polyps: LTRA (montelukast), biologics (dupilumab)
- Abx: if infection (i.e. mucopurulent discharge); Clavulin 875mg BID x 10 days
- Referrals:
 - Allergist: if comorbidities (e.g. immunodeficient, vasculitis, sarcoid, CF)
 - Otolaryngologist: if tx failure

Approach to Red Eye & Conjunctivitis

Differential Diagnosis of the Red Eye:

- Acute: acute angle closure glaucoma, anterior uveitis (e.g. iritis, reactive arthritis), keratitis, scleritis, corneal abrasion, endophthalmitis, HSV/HZV
- Conjunctivitis: infectious, allergic, keratoconjunctivitis¹, toxin (e.g. OTC eye drop), foreign body
 - 1 - aka dry eye - e.g. Sjogren, idiopathic
- Eyelid abnormalities: entropion, trichiasis, molluscum, lagophthalmos, blepharitis

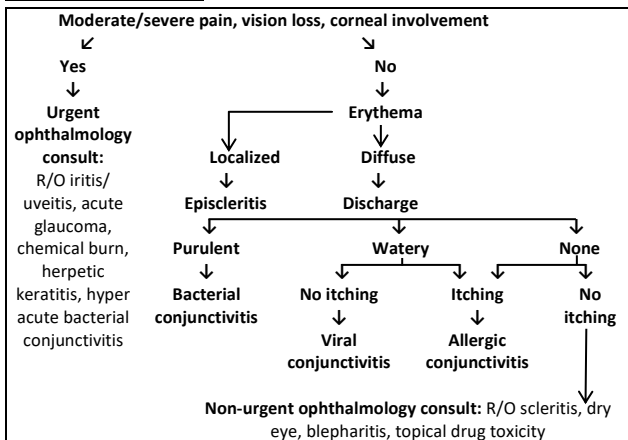
History:

- Red flags: pain¹, ↓ vision, blurry vision², photophobia³, tingling + pain preceding dermatomal rash⁴
 - 1 - True pain vs. conjunctivitis (gritty, FB sensation). DDx true pain: scleritis (boring), acute glaucoma (throbbing), anterior uveitis (e.g. iritis radiates to brow), keratitis, uveitis, corneal abrasion
 - 2 - Chlamydia conjunctivitis, iritis | 3 - same DDx as pain (see 1)
 - 3 - Herpes Zoster ophthalmicus
- Sx:
 - Basics: duration (chronic ≥ 4wk), age¹, discharge^{2,3}, lacrimation (dry eyes), unilateral vs. bilateral⁴, itching (non-specific), FB sensation (infectious, dry eyes), exposure⁵
 - 1 - Bacterial more likely than viral etiology in children < 6yo
 - 2 - Discharge: viral (serous), allergic (serous-mucoid – “stringy/ropy”), muco-purulent to purulent (bacterial), serous to muco-purulent (toxic)
 - 3 - Purulent often presents as AM crusting, difficulty opening eyelids
 - 4 - Conjunctivitis (bilateral) vs. infectious (unilateral or started unilateral and progressed bilateral)
 - 5 - Environment, sick contact, contact lens, eye drops, trauma. If yes to contact lens: ask about poor use (leaving on during sleep, lack of cleaning solution)
 - Allergic: rhinorrhea, seasonality
 - Infectious: burning, recent URTI, oral sex + STI testing (i.e. Chlamydia)
 - Less Common: Raynaud (SLE), xerostomia + anhidrosis (Sjogren), periodic facial flushing (rosacea), joint pain + dysuria (reactive arthritis)
- PMHx: asthma + atopic dermatitis (allergic), SLE/RA
- Rx: diuretics or anti-depressants (drug induced dry eyes), eye drops (toxin)

Physical Exam:

- Inspection:
 - Acute: peri-limbal sparing, chemosis¹, trachoma (under eyelid), dermatomal eruption (HZV), herpes labialis (HSV)
 - 1 - mild is non-specific, but severe (chemosis) concerning for acute bacterial conjunctivitis
 - Chronic Red Eye (≥ 4wk): chalazion/erythema (rosacea), meibomianitis, styes
- Palpation: tender preauricular/submandibular lymphadenopathy (viral, Chlamydia, Gonorrhea), Tonopen¹
 - 1 - use Proparacaine 0.05% 1 drop [30 s onset; upto 5 min anesthesia]; normal range 12-22 mmHg
- Special tests (if any vision Δ): pupils (direct/indirect, RAPD¹), visual acuity^{2,3}, visual fields, EOM
 - 1 - “swinging light test”: optic neuropathy/neuritis; constrict
 - 2 - Pin hole occluder (to r/o simple refractive error vs. bad pathology)
 - 3 - Start w/ Snellen’s eye chart. If cannot see at 1 ft try hand motions and final see if can distinguish room light on vs. off

Evaluation of the Red Eye:



Adapted from AAFP - Diagnosis and Management of Red Eye in Primary Care

Investigations and Management of Conjunctivitis:

- Allergic:
 - Non-Rx: allergen avoidance, artificial tears, cold compress
 - Rx: Naphazoline (Clear Eyes) 2 drops/eye QID, Livostin 1 drop/eye BID-QID, Acular 0.5% 1 drop/eye QID, Cromolyn 2 drop/eye 4-6x/d
- Bacterial:
 - Containment: *highly contagious*; self-isolate till resolved, strict hand washing, avoid sharing belongings
 - Neonates or Hyperacute (esp. suspected gonococcal): hospitalization
 - Acute:
 - Ix: unnecessary except in children or severe disease
 - Etiology: *S. pneumoniae*¹, *Haemophilus influenzae*¹, *S. aureus*²
 - 1 - Children | 2 - Adults
 - Mgmt: hygiene¹ ± antibiotic² ointment or solution based on cost-effectiveness and local resistance patterns
 - 1 - Warm compress, eye irrigation
 - 2 - May allow quicker recovery, prevention of further complications
 - Consider delaying antibiotic therapy in patients with low risk factors¹, have access to follow up care, and prefer delaying antibiotic therapy, as many bacterial conjunctivitis are self-limiting²
 - 1 - Health care workers, hospitalized patients, immune compromise, contact lens use, dry eye, recent ocular procedure, uncontrolled diabetes mellitus
 - 2 - Non-resolving after one week, consider ophthalmologist referral
- Hyperacute:

- Etiology: *N. gonorrhoeae*
- Mgmt: prompt ophthalmology referral
- Chronic (≥ 4 wk):
 - Ix: get conjunctival smear + gram stain + culture
 - Mgmt: hygiene (warm compress, margin scrub) + erythromycin 0.5% eye ointment upto 6x/d ± PO tetracycline (for Rosacea meibomianitis), non-acute referral to ophthalmologist
- Chlamydia:
 - Subtypes: trachoma (major cause of blindness), inclusion conjunctivitis
 - Ix: conjunctival chlamydial culture¹ ± genital samples²
 - 1 - conjunctival NAAT not FDA approved, but can try, anyways
 - 2 - See "*Chlamydia, Gonorrhea & Syphilis*"
 - Also get syphilis + gonorrhea testing if +ve
 - Mgmt: erythromycin ophthalmic ointment, doxy 100mg PO BID x 14 d or azithromycin 1g single dose then re-evaluate; tx partners
- Viral:
 - Etiology: adenovirus, HSV
 - Mgmt:
 - Containment: *highly contagious*; self-isolate x 1wk, strict hand washing, avoid sharing belongings
 - Supportive tx: cold compress, ± Naphazoline 0.1% 1-2 drops/eye q3-4 h PRN

Iron Deficiency Anemia

Background:

- Etiology:
 - Children: diet (#1 cause), celiac, blood loss¹, rx ↓ Fe absorption (PPI, ranitidine), pyruvate kinase deficiency
 - 1 - epistaxis, IBD, HSP, Berger, paroxysmal nocturnal hemoglobinuria, Goodpasture, parasite
 - Adults: above + NSAIDs, menorrhagia, ca (colon, gastric, esophageal), PUD, angiodysplasia, *H. pylori*, blood donation
- Screening CBC: consider in 1 yo from low SES or new immigrants

History:

- Sx: CP/SOB, palpitations, fatigue, HA, fn impact, developmental delay, RLS, alopecia
- Etiology:
 - Common: diet¹/low SES, bleeding sx², recent surgery/trauma, PMHx³
 - 1 - vegetarian, kids (breastfeeding vs. formula, iron supplementation, cow's milk, solids rich in Fe)
 - 2 - epistaxis, coffee ground emesis, melena, hematuria, hematochezia, menorrhagia
 - 3 - previous Fe deficiency + tx; other: RA, IBD, CKD, hypogonadism, hypothyroid
 - Peds: prenatal maternal Fe deficiency, delayed cord clamping
 - Adults: FIT tests/colonoscopies, constipation/diarrhea + constitutional sx (colon c), FHx colon ca, bariatric surgery, GERD (*H. pylori*), blood donations
 - Less Common: recent gastroenteritis or PNA (e.g. mycoplasma hemolytic anemia), travel (e.g. malaria), dysphagia (Plummer-Vinson)

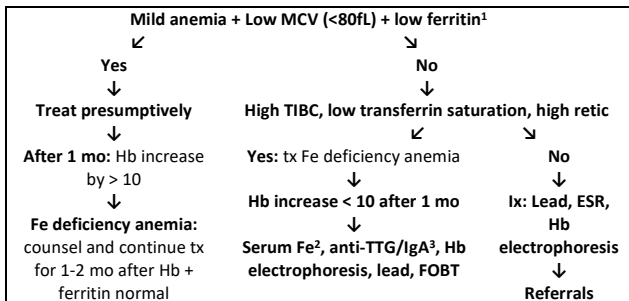
Physical Exam:

- Vitals: orthostatics, ht + wt + head circumference (peds)
- Inspection: conjunctival pallor, scleral icterus, nailbed pallor, petechiae/purpura (palpable), angular cheilitis, koilonychia, glossitis (chronic anemia), leukemia cutis¹ (leukemia)
 - 1 - non painful, non-pruritic red/brown/skin coloured papules and nodules
- Palpation: lymphadenopathy, splenomegaly (chronic anemia, Plummer Vinson)
- Auscultation: flow murmur (↑ cardiac output 2° to anemia)

Diagnosis, Investigations and Management:

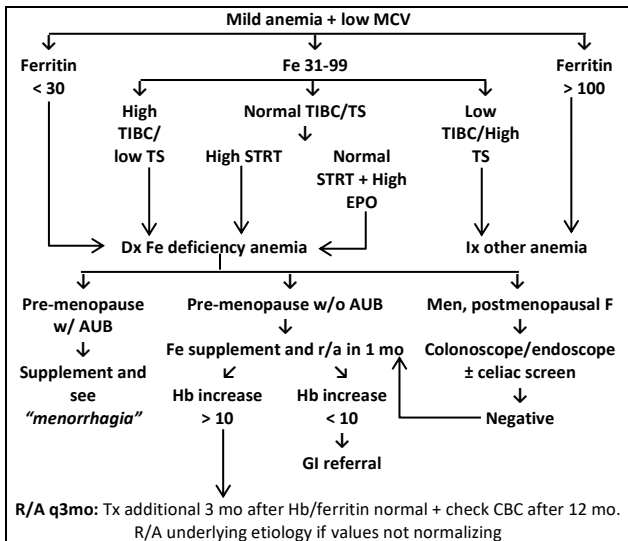
Beware acute on chronic anemia: acute blood loss w/ low MCV in setting of longstanding anemia

Diagnosis of Fe Deficiency Anemia in Children: must use age specific Hb & ferritin



1 - May appear normal during acute illness | 2 - useful to test compliance/absorption (e.g. "I took Fe this am" → serum Fe should be elevated few hr later) | 3 - Celiac can be a-sx; unusually high prevalence in Canada
Adapted from: AAFP - Iron Deficiency and Other Types of Anemia in Infants and Children

Diagnosis of Iron Deficiency Anemia in Adults:



STRT – soluble transferrin receptor test, TS – transferrin saturation | Adapted from: AAFP - Iron Deficiency Anemia

Management:

- Non-Rx: diet (spinach, lentils, beef), fortified baby cereal (e.g. *Nestle Cerelac*), limit cow's milk in children (none till 1 yo, <500c/d 1-2 yo)
- Rx:
 - Adults and adolescents: target 60-120mg elemental Fe/d
 - E.g. ferrous fumarate 325mg OD [106mg Fe], ferrous gluconate 324mg [38mg Fe] TID, ferrous sulfate elixir 5cc [44mg Fe] BID, ferrous sulfate 325mg [60mg Fe]
 - Take 1-2 hr before/after meal; take w/ Vit C tablet (esp. if using PPIs)
 - Pediatric Targets: infants - 3mg/kg/d elemental Fe/d, school children - 60 mg elemental Fe/d
 - Take 1-2 hr before/after meals; can give w/ orange juice, but NOT milk [reduces absorption]
 - Fe Therapy S/E: NV, abdo pain, constipation, black stools; can ↓ S/E by ↓ dose, taking w/ meals (↓ absorption 40%), trying elixir

Primary Immunodeficiency

Warning Signs:

Children	Adults
≥4 ear infections in one yr	≥2 ear infections in one yr
≥2 severe sinus infections in one yr	≥2 severe sinus infections in one yr (if no allergies)
Non-resolved infection after ≥2mo Abx	Recurrent viral infections (URTI, herpes, warts, condyloma)
≥2 pneumonias in one yr	1 pneumonia/yr for ≥1yr
Poor wt gain/growth	Chronic diarrhea with wt loss
Recurrent cellulitis or organ abscesses	Recurrent cellulitis or organ abscesses
Non-resolving/recurrent oral or corporeal thrush	Non-resolving/recurrent oral or corporeal thrush
Need for IV Abx to clear infections	Recurrent need for IV Abx to clear infections
≥2 deep seated infections (e.g. septicaemia)	Infection with normally harmless tuberculosis-like bacteria
FHx 1° immunodeficiency	FHx 1° immunodeficiency

Adapted from the Jeffery Modell Foundation Medical Board

Investigations and Etiology:

- Review ON newborn screening: *did pt receive screening?*

Investigations: for informative purposes only (immunologist will likely order):

Infectious Presentation	Category	Investigations
Encapsulated bacteria, sino-oto-pulmonary infection	Humoral (B cells, Ab production)	IgG/A/M/E, Ab response to vaccines
Opportunistic bacteria, viruses, fungi	Cell-Mediated (T-cell) or Combined (T and B cells)	Lymphopenia, flow cytometry, lymphocyte stimulation test, T cell receptor diversity, Ab response to vaccines
Neisseria, pyogenic or lack of/mild inflammation	Innate (phagocytes, PRRs, complement)	Neutrophil oxidative burst (if pyogenic), complement pathway assessment

Adapted from: Canadian Pediatric Society - Primary immunodeficiency for the primary care provider

Management:

- Immunologist referral
- Vaccines:

- Acceptable (recombinant, inactivated): influenza, pneumococcal, Tdap, HPV, Hep B
- Contraindicated (Live): MMR, varicella, LAIV, yellow fever, oral typhoid, BCG, OPV, smallpox, rotavirus

Urticaria

Background:

- Triggers: influenza¹, rx (codeine, NSAIDs, sulfonamides), food (shellfish, nuts, eggs, wheat, soy, preservatives), dermatographia, pressure, cholinergic/sweating (exercise, hot water, heat), sun, cold, stress, water, H. Pylori
 - 1 - wheals usually appear 3-5 days after illness onset
- Etiology:
 - Immunologic (IgE mediated): allergic, autoimmune (RA, Sjogren, SLE)
 - Non-immunologic¹: rx (NSAIDs, opiates), radiocontrast, pseudo allergen (azo dyes, preservatives, sulfites)
 - 1 - sx usually delayed, GI involvement, non-anaphylactic

History:

- R/O Anaphylaxis¹: CVS (CP, presyncope), HEENT (lacrimation, pruritis, injection, angioedema), respiratory (SOB, rhinorrhea, cough, hoarseness), GI (abdo pain, NVD), neuro (dizziness, “feeling of doom”)
 - 1 - Urticaria + 1 of: CVS, HEENT, respiratory, GI, neuro
- Basics: pruritic, duration/frequency, trigger, timing, pattern of recurrence, shape, size, distribution, sleep disturbance,
- Other Hx: PMHx (previous tx, atopy), FHx (atopy, autoimmune disease)

Physical Exam:

- Vitals: BP, HR, AOX3
- Inspection: “Flare and Wheals”¹, conjunctival lacrimation/injection, angioedema²
 - 1 - pale central swelling + surrounding erythema, mm- few cm diameter, transient (< 24hr, but up to 48hr w/o scarring)
 - 2 - Swelling below the skin esp. face, extremities, abdo, other organs
- Auscultation: wheezes, stridor

Diagnosis and Classification:

- Single episode > 48 hrs: Urticarial vasculitis
- Single episode < 48hrs + recurrent flares:
 - Recurrent flares < 6 weeks: acute Urticaria
 - Etiology: Spontaneous, Infection, Food, Medication, Latex, Contact
 - Recurrent flares > 6 weeks: Chronic Urticaria
 - Etiology: Chronic Spontaneous Urticaria (CSU), Inducible (Dermatographism, cholinergic, cold induced, solar, water, exercise, delayed-pressure); other

Management:

- Rx:
 - [Step 1]: 2nd generation H1-receptor anti-His¹
 - 1- e.g. Cetririzine (Reactine) 10-20mg OD, desloratadine (Aerius) 5mg OD, fexofenadine (Allegra) 120mg OD, loratadine (Claritin) 10mg OD, bilastine (Blexten) 20mg OD, rupatadine (Rupall) 10mg OD
 - [Step 2]: if inadequate after 2-4 wk, ↑ step 1 rx 4-fold
 - [Step 3] allergist referral (for omalizumab, cyclosporine)
- Other:
 - Consider early allergist referral
 - Acute Exacerbation: consider prednisone 40mg PO x 10d max
 - CSU: typically self-resolves in 6mo-2yr

INFECTIOUS DISEASES

Approach to Antibiotics

Principles:

- Use IV agents in serious infections (e.g. osteomyelitis, sepsis, septic arthritis)
- Agent Type:
 - Bactericidal: β -lactams, glycopeptides, quinolones, metronidazole, nitrofurantoin, TMP/SMX
 - Bacteriostatic (not always appropriate, especially if more serious infection): 30S, 50S, lipopeptides

5 Step Antibiotic Selection:

- [1] Coverage?: typical microbes of the infection, hx or risk of MRSA/P. aeruginosa, recent Abx use, international travel
- [2] Route of administration?: e.g. NPO, unconscious
- [3] Severe disease?: use bactericidal agents, broad spectrum, IV
- [4] Special indications?: e.g. in E. Faecalis endocarditis use Amp + CTX (synergistic effect, since cephalosporins lack enterococcal activity)
- [5] Hypersensitivity, contraindications, DDI, peds, pregnancy/breastfeeding concerns?

Antibiotics in Pregnancy: *always double check before prescribing*

- \emptyset all TM: tetracyclines, aminoglycosides, macrolides, Vancomycin, TMP¹, antifungals, acyclovir
 - 1 - ok in 2TM in TMP/SMX
- TM specific: \emptyset nitro past 36 wk¹, \emptyset Flagyl in 1TM, \emptyset SMX in 1TM and 3TM
 - 1 - hemolytic anemia newborn risk
- Safe: penicillins, cephalosporins, Clindamycin, Nystatin
- Avoid during lactation: quinolones, Flagyl, tetracyclines, nitrofurantoin in G6PD deficiency infant, TMP/SMX in G6PD deficiency or hyperbilirubinemia

Antibiotics

B-Lactams: *inhibit peptidoglycan synthesis by binding enzymes that produce it*

- Penicillins
 - Complications: SJS, AIN, anaphylaxis¹
 - 1 - True penicillin allergy in only 10-20% of self-reported cases. 4% cross-reactivity with cephalosporins and <1% cross-reactivity with carbapenems
 - Agents:
 - 1G (β -lactamase susceptible):
 - Pen V (PO)
 - Coverage: "letter streps"
 - Notable Uses: strep pharyngitis
 - Pen G (IV):
 - Coverage: "letter streps", N. meningitidis, Treponema, Clostridium (not C. Difficiles), Propionibacterium

- Notable Uses: neurosyphilis
- Benzathine Penicillin (IM):
 - Coverage: same as Pen G
 - Notable Uses: 1° and 2° syphilis
- 2G (β-lactamase resistant):
 - Cloxacillin (IV, PO), Nafcillin (IV), Oxacillin (IV) Coverage: MSSA
- Aminopenicillins: Ampicillin (IV), Amoxicillin (PO) Coverage: enterococci, Enterobacteriaceae, Hemophilus
- Penicillin/β-lactamase inhibitors:
 - Amoxicillin/Clavulanate (PO), Ampicillin/Sulbactam (IV) Coverage: same as Amox/Amp + MSSA, Bacteroides
 - Piperacillin/Tazobactam (IV) Coverage: same as clavulin + P. aeruginosa
- Monobactam (Aztreonam [IV])
 - Coverage: ESBL
 - Notable Use: PCN allergy
- Cephalosporins:
 - Notes:
 - 1G cephalosporins are strongest against g+ve and have no g-ve coverage. going 2G→4G, g+ve coverage ↓ and g-ve ↑
 - no activity against enterococci or listeria
 - 4% cross reactivity w/ PCN allergies
 - Agents:
 - 1G - Cephalexin (PO), Cefazolin (IV) Coverage: MSSA, oral anaerobes
 - 2G - Cefuroxime (PO/IV), Cefotetan (IV), Cefoxitin (IV) Coverage: oral anaerobes, S. pneumoniae, Enterobacteriaceae, Hemophilus
 - 3G - Ceftriaxone (IV), Ceftazidime (IV), Cefixime (PO):
 - Coverage: S. pneumoniae, N. gonorrhoeae, P. aeruginosa* (only Ceftazidime)
 - Contraindications: CTX in infants upto 28days corrected due to kernicterus risk
 - 4G - Cefepime (IV) Coverage: ESBL, S. pneumoniae
 - 5G - Ceftaroline (IV) Coverage: same as 3G + MRSA
- Carbapenems: Imipenem (IV), Meropenem (IV), Ertapenem (IV)
 - Coverage: ESBL, P. aeruginosa* (e/ ertapenem¹), listeria, Bacteroides, enterococci* (only imipenem)
 - 1 - ertapenem effective active against N. gonorrhoeae. This is an exception where the hierarchy doesn't work: ertapenem is active against ESBL but not p. aeruginosa
 - Caution: Imipenem ↓ seizure threshold; <1% cross reactivity w/ PCN allergy
 - Must consult ID if using carbapenem

Glycopeptide (Vancomycin): bind peptidoglycan precursors

- Vancomycin (IV)
 - Coverage: CONS
 - Complications: Red Man Syndrome, renal toxicity
- Vancomycin (PO)

- Coverage: C. Diff (no bioavailability in PO form, only stays in gut)

Ribosome Synthesis Inhibitor

- 30S

- Aminoglycosides: Gentamycin (IV), Tobramycin (IV), Amikacin (IV)
 - Coverage: P. aeruginosa
 - Complications: Ototoxic, nephrotoxic, vestibulotoxic
- Tetracyclines: Doxycycline (IV/PO), minocycline (IV/PO/topical)
 - Coverage: MRSA (Doxy PO only), enterococci, Enterobacteriaceae, Hemophilus, atypicals, Bacteroides, Malaria
 - Contraindications: in children¹ (bone/teeth/growth issues), pregnancy (teratogenic)
 - 1 - sort of. Use another agent, if available. In some causes (e.g. Lyme disease) other agents N/A
 - S/E: pill esophagitis, dairy interaction, photosensitivity, minocycline-Induced Blue-Gray Discoloration

- 40S

- Macrolides: Azithromycin (IV/PO), Clarithromycin (PO), Erythromycin (IV)
 - Coverage: atypicals, S. pneumoniae, N. gonorrhoeae
 - Notable Use: Azithromycin (indicated in CAP), Clarithromycin (CAP and caution in CAD)
- Clindamycin (IV/PO):
 - Coverage: MRSA, Bacteroides, anaerobes
 - Notable Uses: dental infection/abscess, necrotizing fasciitis, toxic shock
- Linezolid (IV/PO)
 - Coverage: Propionibacterium, VRE, MRSA

DNA Agents:

- Nitrofurantoin (PO): *inhibits DNA synthesis*
 - Coverage: Enterobacteriaceae, enterococcus
 - Contraindications: G6PD deficiency
 - Complications: nitrofurantoin lung (ILD) w/ long term use
 - Notable Uses: simple cystitis, UTI prophylaxis
- Metronidazole (IV,PO): *DNA-toxic metabolites*
 - Coverage: B. Fragilis, C. Diff, protozoa (giardia, trichomonas, Entamoeba), anaerobes
 - Notable Uses: not effective in enteritis (e.g. traveler's diarrhea) e/ C. Difficile

Other:

- Lipopeptide (Daptomycin - IV): *inserts into membrane and depolarizes cell*
 - Coverage: MRSA
 - Complications: nephrotoxic
- Quinolones: *DNA gyrase inhibitor*
 - Complications: innumerable DDI, long QT, hepatitis, psychosis, spontaneous Achilles tendon rupture, SJS
 - Agents:
 - 2G - Ciprofloxacin (IV/PO)
 - Coverage: P. aeruginosa (only PO anti-pseudomonal), atypicals

- 3G - Levofloxacin (IV/PO) Coverage: P. aeruginosa¹ + MSSA
 - A "respiratory quinolone"
 - 1 – but cipro far more potent
- 4G - Moxifloxacin (IV/PO) Coverage: MSSA, Bacteroides, N. gonorrhoeae
 - A "respiratory quinolones"
- TMP/SMX (IV/PO): *blocks folic acid synthesis*
 - Coverage: MRSA, listeria (but not enterococci) Enterobacteriaceae, Hemophilus, protozoa (toxoplasma), fungi (esp. pneumocystis)
 - Contraindications: G6PD deficiency, sulfa allergy

Unusual Agents:

- Examples: Dapsone, rifaximin, rifampin, isoniazid, pyrazinamide, etc.
- Uses: mycobacterium infection, recurrent C. Diff, hepatic encephalopathy, etc.

Chlamydia, Gonorrhea, & Syphilis

Background:

- DDx: BV, trichomoniasis, endometriosis, UTI, prostatitis, genital herpes
- Stages of Syphilis: 1° (chancre), 2° (generalized lymphadenopathy, rash), latent (no further complication) vs. 3° (arteritis, gumma, tabes dorsalis, neurosyphilis)

Screening:

- Prenatal: 1st prenatal visit; repeat based on RF, outbreaks
- Annual: if < 25 yo, gay, bisexual, MSM, transgender
- PRN (based on RF): if ≥ 25 yo

History:

- Risk Factors:
 - Partners: MSM, transgender, new, multiple
 - Activity: types of sex, unprotected sex, sex under EtOH, survival sex, sex tourism, previous STI
- Symptoms:
 - Chlamydia/Gonorrhea: discharge¹, post-coital or inter-menstrual bleeding, dysuria, scrotal pain/swelling, pelvic pain, joint pain (gonorrhea), ± pharyngitis, ± anal pruritis/discharge (gonorrhea proctitis)
 - 1 - chlamydia discharge (foul yellow) vs. gonorrhea (copious amounts; thick yellow-green)
 - Syphilis: 1° (painless chancre), 2° (maculopapular rash palms/soles, oral ulcer), 3° (gumma, seizure, weakness, AMS, paresthesia, abnormal gait, neck stiffness, CP)

Physical exam:

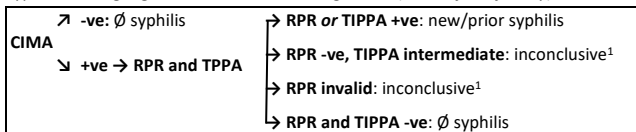
- Vitals: ±febrile
- Inspection: uveitis, disseminated gonococcal skin lesion (sparse, non-pruritic macules/papules/pustules esp. on trunk/limbs)

- Palpation: lymphadenopathy¹, RUQ pain (Fitz-Hugh-Curtis; chlamydia/gonorrhea)
 - 1 - cervical: chlamydia/gonorrhea; non-tender inguinal: syphilis
- Genital Exam: chancre, discharge, friable cervix, adnexal or CMT (chlamydia/gonorrhea)

Investigations:

- Screen/test all 3 together *and* offer HIV testing¹, \pm β -hCG
 - 1 - no exact recommendations for frequency of testing, but at least annually if high risk (MSM, IVDU, multiple partners)
 - Chlamydia and Gonorrhea: Urine NAAT¹ + Swab NAAT²
 - 1 - 20-60ml first void (in M/F) or self-collected vaginal swab (in F), \pm rectal / oropharyngeal swabs. Must use separate swabs for chlamydia and gonorrhea. Label location of swabs!
 - 2 - vaginal swab (in F), urethral swab (in M)

Syphilis Testing Algorithm: automatic lab algorithm (shown for info only)



1 - Inconclusive: may indicate false +ve, early, old, or treated syphilis. Repeat in 4 weeks.

Management:

- Prevention: use condom (\downarrow Chlamydia risk 60%)
- Abx:
 - Chlamydia, Gonorrhea: *treat empirically for both as high co-infection risk*
 - CTX 250mg IM x 1 + Azithromycin 1g PO x 1
 - Alternative: Cefixime 800mg Pox1 + Azithromycin 1g PO x1
 - Post azithromycin vomiting common. Repeat dose if vomiting < 1 hr post dose
 - PCN anaphylaxis: Spectinomycin 2g IMx1 + Azithromycin 1g PO x1 or Azithromycin 2g PO x 1
 - Disseminated gonococcal infection: in-pt mgmt
 - Syphilis: *inform pt of Jarisch-Herxheimer rxn to Abx*¹
 - 1 - occurs in 31% of pt; 1-12hr after injection; fever, myalgias, tachycardia, worsening skin lesions; self-resolving w/ supportive NSAIDs, but causes AMS, hemodynamic instability in some
 - 1°, 2°, early latent [$<$ 1 yr post-infection]: Pen G Benzathine 2.4 million U IM x 1
 - PCN Anaphylaxis: Doxycycline 100mg BID x 14d (if pregnant, use erythromycin 500mg PO QID x 14d)
 - Late latent [$>$ 1yr post-infection]: Pen G Benzathine 2.4million U q1wk x 3
 - PCN Anaphylaxis: Doxycycline 100mg BID x 30d (if pregnant, use erythromycin 500mg PO QID x 30d)
 - 3°: ID consult. If no neuro sx, use same tx as late latent. If neurologic sx, in-pt mgmt.
- Prevent Spread:

- Abstinence x 7 d after single dose or until tx complete for multi-dose
- Should test all partners w/in: 60 days (Chlamydia, Gonorrhoea), 3 mo (1° syphilis), 6 mo (2° syphilis), 1 yr (early latent), late latent (as appropriate including their children)
- Public health automatically notified by +ve test
- Test of Cure: take *specimens from all positive sites*
 - Chlamydia: usually none, but use NAAT at 3-4 wk post-tx if compliance questionable, pregnant, pre-pubertal, symptomatic
 - Gonorrhoea: culture 3-7d post-tx or NAAT 2-3wk post cure
 - Syphilis: numerous sequential negatives
 - 1°, 2°, early latent: at 3 + 6 + 12 mo; if pregnant 1 + 3 + 6 + 12 mo or q1mo if risk
 - late and 3°: at 12 + 24 mo; if pregnant, at delivery also
 - co-infection HIV: 3mo + 6 mo, then q1yr for life

Fungal Infections

History (common to all):

- infectious contacts, immunosuppression (HIV¹, DM, Cushing, heme ca), steroid use (OTC, inhaler technique), recent Abx, nutrition, smoking
 - 1 - can be a-sx; review/offer STI testing
 - See "*Vulvar and Vaginal Disease*" for vulvovaginal candida

Thrush (oropharyngeal Candida):

Additional History:

- Core Sx: burning, sour/↓ taste of food, plaques (scrapable + easily bleed)
- Esophageal involvement¹: dysphagia, odynophagia, retrosternal pain
 - 1 - concerning for HIV, poor inhaler technique
- RF: oral hygiene, breast feeding, soother use

Treatment:

- Non-Rx: dental or denture hygiene, ↓ soother use + wash after use
- Rx:
 - Infants: nystatin 200,000-400,000u QID after feeds x 2 wk (or until 48h after resolution)
 - Anecdotally may be effective: clotrimazole suppositories in pacifier
 - > 3yo: clotrimazole trouche 10mg 5x/d x 7-14d
 - Mod-severe disease: Fluconazole 200mg PO x 1 then 100-200mg OD x 7-14d
 - Angular cheilitis: Viaderm-K.C. BID-QID
 - Esophageal: fluconazole 400mg PO x1 then 200-400 mg OD PO x14-21d. Endoscopy if no improvement after 72 hr

Diaper Candidiasis:

DDx: zinc deficiency, atopic/irritant dermatitis, histiocytosis, bacterial infection

History: baby usually not irritable + no bloody streaks in stool¹

- 1 - otherwise could indicate GAS infection – potentially serious; tx w/ PO Abx

Physical Exam: erythematous papules, red plaques; involves skin folds¹

- 1 - vs. irritant dermatitis spares skin folds

Treatment:

- Non-rx: change diaper frequently + leave diaper off for period of time (i.e. keep dry) + gentle wipes/washcloth (nothing abrasive)
- Rx: topical miconazole BID x 7-14d

Tinea (Dermatophytes):

DDx of Subtypes:

- Corporis: erythema multiforme, SLE, pityriasis rosea
- Cruris: inverse psoriasis, erythrasma, dermatitis, candidal intertrigo
- Capitis: trichotillomania, alopecia areata, bacterial scalp abscess
- Other forms: pedis, unguium

History:

- Basic: pruritis, ± immunocompromised (CS use, HIV testing, etc.)
- RF:
 - Pedis: occlusive footwear + walking barefoot (pedis), PAD (smoker, DM foot checks, numbness/burning/paresthesias)
 - Cruris: sexual contact
- Pertinent negatives: no FHx atopy, distribution doesn't match shoes (atopic dermatitis), no correlation w/ sun exposure (SLE)

Physical Exam:

- Rash:
 - General: annular w/ raised border, central clearing, scaling, non-greasy¹, no lichenification²
 - 1 – if present consider seborrheic dermatitis
 - 2 – could indicate atopic dermatitis
 - Cruris: scrotum¹ + penile sparing (else ?candidal intertrigo, esp. if no central clearing)
 - Capitis: non painful pluck (else ?bacterial scalp abscess)
- Other: evidence of PAD¹, no nail pitting², ± lymphadenopathy, ± DM foot check
 - 1 - CHUSE (color – pale, hair – sparse, ulcers, skin – thin/shiny, edema – none unless critical ischemia), low grade posterior tibialis + dorsalis pedis
 - 2 - else consider psoriasis, lichen planus

Investigations: mandatory C&S for tinea capitis or unguium before tx. For other tinea, C&S if unsure of dx

Treatment of Tinea Infections:

Subtype	Rx	Rx Notes
Corporis, cruris, pedis	Terbinafine 1% cr OD/BID x 2wk	available in cream or spray
Capitis	Terbinafine 4-6mg/kg/d (max 250mg) PO OD x 2-6 wk	Baseline AST/ALT; CBC at 6 wk if longer than 6 wk
Unguium	Ciclopirox 8% lacquer OD x 48 wk; remove w/ alcohol q7d;	Tx optional, but frequently fails / recurs

Adapted from: AAFP Diagnosis and Management of Tinea Infections

- Other Tx Considerations:
 - Do not test asymptomatic household members for tinea capitis. However, consider empiric 2.5% selenium sulfide shampoo (OTC)
 - Abstain from sex with active jock itch infection

Pityriasis Versicolor (Malassezia)

Background:

- AKA tinea versicolor (misleading name, since not caused by dermatophytes)
- DDx: esp. vitiligo¹ and pityriasis alba¹
 - 1 - both non-fluorescing under wood light and sun exposure associated

Treatment: Terbinafine cream BID x2 weeks, selenium sulfide 2.5% shampoo to area OD for 5-10min x 1 wk, ketoconazole 2% to areas OD x 2 wk

Herpes, Genital & Zoster

Genital Herpes

Background:

- Pathogen: genital Herpes (HSV-1 or HSV-2) vs. oral (HSV-1)
 - Pathogen differentiation not as relevant due to prevalence of oral sex
- DDx: infectious (chancroid, chancre, fungal, lymphogranuloma venereum, granuloma inguinale), non-infectious (aphthous ulcer, Bechet, neoplasm)

History:

- Sexual Hx: partners¹, type of sex, condom use, STI testing (pt, partner)
 - 1 - new, multiple, MSM, transgender
- Sx:
 - Prodrome (starts 4-7 d after sex, lasts couple days): pain/tingling/pruritis/ burning at site, dysuria, fever, malaise, HA
 - Active infection: ulcerating vesicles x 2-4 wk (genital, perianal, upper thighs)
 - Subsequent outbreaks: milder, x1-2wk, frequency¹
 - 1 - once/yr in HSV-1 but 4-5x/yr in HSV-2

Physical Exam: painful vesicles on erythematous base, ± lymphadenopathy

Diagnosis: PCR (swab ulcer base), or HSV 1 and 2 ELISA¹

- 1 - if hx but no current lesion, or for partner testing; 2 wk-6mo time before Ab formed

Management:

- Pain relief: NSAIDs, Sitz bath
- Rx: *most effective at prodrome or within 24 hr of first lesion (up to 72 h)*
 - Episodic tx: valacyclovir 1g BID x10d (1st episode) or 1g OD x5d (recurrence)
 - Suppressive tx: if ≥4 eruptions/yr and distress; valacyclovir 1g OD and r/a in 1 yr (b/c eruption risk ↓ over time)
- Abstinence during prodrome + active infection
- Pregnancy: prophylactic acyclovir 36wk-delivery if any hx. Active genital HSV is contraindication to vaginal delivery

Herpes Zoster

History:

- PMHx: chicken pox
- Prodrome (precede rash 1-5d): itching/tingling, allodynia
- Ophthalmic: nasal blisters, eye pain, discharge vision Δ (loss, floaters, flashing lights, diplopia), ± swelling

Physical Exam:

- Skin: unilateral dermatomal (∅ cross midline)¹, proximal to distal papules, vesicles, crusting
 - 1 - although, overlap to adjacent dermatome occurs in 20%
- Ophthalmic: visual acuity^{1, 2}, pseudodendrites³ (fluorescein 1% + blue light)
 - 1 - Consider pin hole occluder (to r/o simple refractive error vs. bad pathology)
 - 2 - Use Snellen eye chart (up to 1ft away); if can't see try hand motion and then turn room light on/off
 - 3 - Dendrites (have terminal bulbs; HSV) vs. pseudodendrites (smaller, no bulbs; HZV)

Investigations and Diagnosis:

- Clinical dx: rash + neurologic prodrome
- Consider PCR¹ (of vesicle + blood ± corneal swab)
 - 1 - to r/o sine herpette (HZV infection w/ pain, but no lesion)

Prevention: *vaccinate even if hx of shingles (but wait ≥ 1 yr after shingles to vaccinate)*

- Shingrix (NNT = 32): 2 doses SCT 2-6 mo apart; ∅ in immunocompromised, breastfeeding, pregnancy; total cost ~\$300
- Zostavax (NNT = 59; effectiveness ↓ w/ age): 1 dose IM; OHIP covers 65-70 yo

Management:

- Pain: Tylenol + NSAIDs, +/- opioid
- Rx: Valacyclovir 1g TID x 7d:

- Who: > 50 yo, moderate-severe sx, immunocompromise, non-truncal involvement, ophthalmologic sx
- When: ideally within 72h of rash, but still consider if > 72h (esp. if new vesicles, etc.)
- In-pt Mgmt: disseminated (e.g. 2 non-contiguous dermatomes), resistant (tx w/ IV Foscavir)
- Referrals: urgent ophthalmology (consider optometry first if uncertain of eye involvement) , otolaryngologist (ear involvement)

Post-herpetic neuralgia: post-infection burning + hyperesthesia

- Rx:
 - Gabapentin 300-600mg TID (monitor SI, edema)
 - Sx may not resolve for years; to d/c taper over 7d
 - In elderly w/ falls risk: Lidocaine 5% patch (upto 3/d), capsaicin 0.075% QID

Lyme Disease

Background:

- Etiology: spirochetes *Borrelia burgdorferi* in *Ixodes* (blacklegged/deer ticks)
- Complications: arthritis, Baker's cyst, meningitis, carditis (AV block)
- DDx: cellulitis, tinea corporis, pityriasis rosea, spider bite, sarcoid, nummular eczema, hypersensitivity. Co-infections: babesiosis, ehrlichiosis.

History:

- Tick: location/travel hx, duration of engorgement, date (esp. Apr-Nov)
- Sx:
 - Early Localized (< 30d): fevers, arthralgia, myalgias, HA, erythema migrans^{1, 2}
 - 1 - painless, non-pruritic, slowly increasing size to several cm. Bull's eye or uniform erythematous/violet patch w/ central blister.
 - 2 - Develops 1-4wk after bite vs. acute tick bite hypersensitivity w/in 1-2d
 - Early Disseminated (< 3mo): fatigue, diffuse or focal weakness, cognitive ↓, ± CP/SOB/palpitations (i.e. carditis)
 - Late Lyme (> 3mo): ↓ memory/concentration, asymmetric oligoarthritis (esp. knee; maybe transient/migratory), distal paresthesia

Physical Exam:

- Early Localized:
 - Rash: erythema migrans (> 5cm, red bull's eye, well demarcated), variants (central blister, no middle clearing, purple-blue)
 - Palpation: lymphadenopathy
- Early Disseminated:
 - Vitals: bradycardia
 - Inspection: uveitis, splenomegaly, RUQ pain (hepatitis)
 - Special test: neuro¹
 - 1 - e.g. straight leg raise for radiculopathy, sensory for mononeuritis multiplex, CNV exam for palsy

- Late Lyme: inspection (Acrodermatitis chronica atrophicans¹, baker's cyst), ± neuro exam
 - 1 - unilateral ill-defined, violaceous-reddish thin skin w/ loss of hair + sweat glands. Affects extensors (esp. dorsum hand, ankle)

Investigations: *don't send serology in early Lyme disease (re false negatives)*

- Two tiered: EIA screen → Western Blot IgG ± IgM (no IgM if sx > 1mo)
 - Note: must specify European Lyme for specific test set
 - Beware false +ves from pt-sought, private, for-profit "Lyme clinics"
- PRN: ECG (AV nodal block), skin biopsy, intrathecal IgG/IgM (Lyme meningitis)

Management:

- Notify public health + submit tick for testing (if possible)
- Lyme prophylaxis if all 3 of below: doxycycline 200mg x 1 [4mg/kg under 45kg]
 - [1] blacklegged tick attached for >24 hr
 - [2] local Lyme infection in tics > 20%
 - [3] Tic was removed w/in last 72h {if not, watch x 32d}
- Rx:
 - Early Lyme: doxycycline 100mg PO BID x 21d
 - Other: Amoxicillin 500mg PO TID x 21d (if pregnant/lactating), Amoxicillin 50mg/kg/d div. in 3 doses x 21d (children)
 - Late Lyme: same dosing as above, but x28 d
 - Hospitalize for: Lyme carditis, neurologic Lyme disease
- Post-Lyme Syndrome: unknown pathophysiology, as not a residual infection. Tx sx or ix other etiology

Otitis Media and Otagia

Otagia DDx:

- Inner Ear: *doesn't cause otagia in isolation. However, pathology (e.g. OM) can spread here. Typical inner ear sx: NV, vertigo, oscillopsia*
- Middle Ear: OM (acute, secretory), mastoiditis, barotrauma, eustachian tube obstruction
- External Ear: otitis externa, impacted cerumen, FB
- Nonotological: tonsillitis, peritonsillar abscess, TMJ disorder, cancer (local mass effect), neuralgia (trigeminal, glossopharyngeal)

History:

- Sx: pain/ear-tugging/irritable, poor sleep, fever, otorrhea, URTI symptoms, fullness, hearing, imbalance, balance, duration
- RF: hx OM, daycare/siblings, swimming/earplugs
- Other causes: crackling/popping noise [eustachian tube obstruction], pain w/ jaw mvmt [mastoiditis],odynophagia [abscess]

Physical Exam:

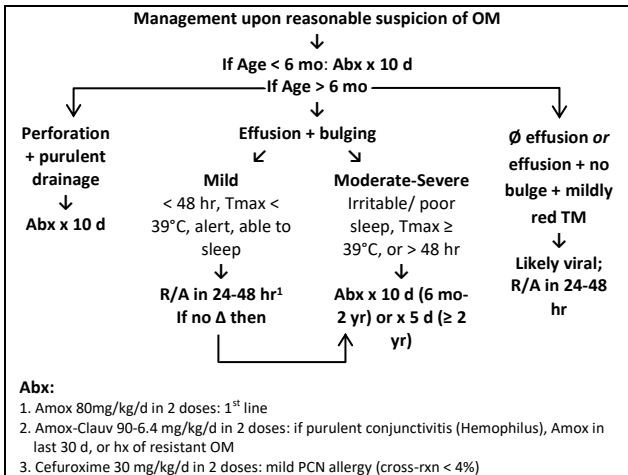
- Vitals: febrile, tachycardia

- Inspection:
- Otoscopy: red TM, effusion¹, canal rubor + purulent debris (otitis externa)
 - 1 - air/fluid level, loss of bony landmarks, bulging
- Other: inspection (conjunctivitis, enlarged tonsil ± exudate), palpation (mastoid process tenderness), Rinne/Weber¹
 - 1 - may show conductive loss (Weber lateralizes to affected ear; Rinne AC < BC)

Acute Otitis Media:

- Etiology: GAS, S. pneumoniae, M. Catarrhalis, H. Influenzae, viral (RSV, influenzae)
- Dx: < 48 hr pain + bulging/red TM

Managing OM in Children:



1 - Mild OM resolves w/in 72h. R/A in 24-48 h. Abx may speed recovery. In the meantime, give analgesia if > 6 mo.

Adapted from: Canadian Pediatric Society - Management of acute otitis media in children six months of age and older

- Analgesia (safe if > 6mo): Ibuprofen or Acetaminophen
- Chronic Suppurative OM: *complication of acute OM*
 - Dx: TM perforation + ≥ 2 wk otorrhea
 - Mgmt: keep ear dry (re showers) + AgNO₃ cauterly of granulosas + Ciprodex 4 drops BID x 10 d → R/A
 - If persists: biopsy granuloma, CT (? Cholesteatoma)

OM with effusion (secretory): non-purulent mucoid/serous effusion

- Etiology: URTI, OM, angiofibroma
 - In adults, also: sinusitis, adenoid hyperplasia, Ca
- Hx: ↓ hearing/speech-language delay, fullness/pressure
- PE: otoscopy (effusion w/o redness)
- Mgmt: *Abx, CS, ant-His, decongestant aren't helpful*
 - Usually self-resolves so R/A in 3 mo
 - Persists after 3 mo: hearing test + tympanometry + ENT referral (for myringotomy + tympanostomy)
 - If recurrent: ix etiology ± adenoidectomy

Management of Otitis Externa:

- Rx: Ciprodex 4 drops BID x 7 d
- Prevention: avoid cotton swabs¹
 - 1 - cause micro-abrasions and push debris deeper → bacterial growth

Pharyngitis & Influenza

Differential Diagnoses: GERD, allergic rhinosinusitis, asthma, sinusitis, acute bronchitis (cough is predominant sx), PNA, smoking

History:

- General: sputum (↑ volume, purulence), SOB/CP, fevers (low vs. high grade), fx impact, sick contacts (or vulnerable contacts e.g. geriatrician), comorbidities
- Sx:
 - Viral Pharyngitis: cough, coryza (profuse nasal discharge), conjunctivitis, hoarseness, ± NVD
 - Bacterial Pharyngitis: ∅ coryza, ∅ cough, ∅ conjunctivitis, PMHx strep throat
 - Other sx: fatigue (mono), dysuria (gonococcal), hematuria (strep PIGN)
- Background: vaccinations (influenza, pneumococcal), close contacts (dorm, military), travel hx
- Other: neck stiffness, < 5 yo + fever > 5d (Kawasaki),

Physical Exam:

- Inspection: "hot potato voice"¹, palatal petechiae (strep, mono), exudate², rash³, strawberry tongue (strep, Kawasaki), cracked lips (Kawasaki), SCT nodules (rheumatic fever), serosanguineous nasal discharge (diphtheria),
 - 1 - epiglottitis/retropharyngeal or peritonsillar abscess— airway emergency. Do not stress child. Get anesthesiologist on site.
 - 2 - Exudate: whitish (diphtheria – including uvula, mono), green (gonococcal)
 - 3 - Rash: blanchable (scarlet fever, Kawasaki –peeling, erythema marginatum), non-blanching (meningitis – esp. legs, gonococcal)
- Bilateral Lymphadenopathy: strep (ant. cervical), mono (hepatosplenomegaly, posterior cervical, axillary), diphtheria
 - Unilateral: Kawasaki, cat-scratch disease, bacterial adenitis (overlying cellulitis), TB, lymphoma; but also reactive adenitis
- Auscultation: murmur (strep), crackles/bronchial sound (PNA)

Viral URTI Management:

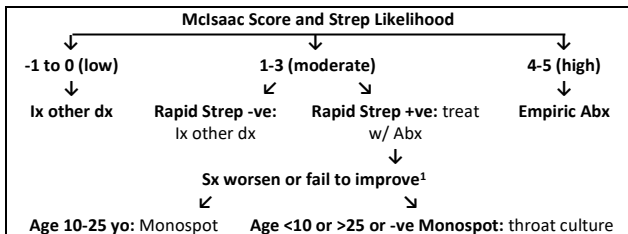
- ACCP recommends *against* OTC cold meds (anti-His, decongestants, NSAIDs), however for sx-relief, can trial:
 - Combo anti-His/analgesic/decongestant (e.g. Dimetapp Nighttime Cold, Children's Tylenol Cold, Benadryl Allergy & Sinus Headache) can ↓ sx 25%
 - Evidence for adults: dextromethorphan (Robitussin), guaifenesin (Mucinex)
 - NSAIDs: provide analgesia; inconsistent evidence for Tylenol
 - Anecdotally, HydraSense Baby may relieve congestion
 - Anti-pyretics do NOT prevent febrile seizures
- Non-rx: PO fluids, heated/humidified air, zinc lozenges (≥80mg/d)
- Not effective: Vit C, stand-alone anti-His, intranasal CS

Streptococcal Pharyngitis and Infectious Mononucleosis

Modified Centor Score (aka Mclsaac) for Diagnosis of Strep Throat:

Finding	Points	
Tonsillar Exudate	+1	Rapid Strep Test: 80% sensitive, 95% specific
Swollen tender ant. cervical nodes	+1	
No cough	+1	Monospot: 86% sensitive, 99% specific
Hx fever > 38°C	+1	
Age < 15 yo	+1	
Age > 15 yo	-1	

Diagnostic Algorithm for Strep Throat and Mononucleosis:



1 - Consider dx of mono earlier if ++fatigue, hepatosplenomegaly | Adapted from AAFP Pharyngitis

Management:

- Strep Throat: Pen V 600mg BID x 10d (wt based for children), Clindamycin (7mg/ kg max 300mg TID x10 days if PCN allergy)
 - Tx reduces sx by only 1d, but prevent peritonsillar abscess and rheumatic fever
 - Note: 90% w/ mono develop benign maculopapular rash w/ Amox/Amp use
- Mononucleosis: fluids + NSAIDs (fever, malaise) + restrict strenuous/contact sports while symptomatic (minimum 3 wk; splenic rupture risk <1%)
 - Return to school/work as tolerated (casual contact won't spread mono)

Influenza:

ABFM clinical prediction rule for Diagnosis of Influenza:

Symptom	Points
Fever + cough	2
Myalgias	2
Chills or sweats	1
Onset w/in 48 hr (i.e. acute)	1

Score ≤ 2 : low risk

Score > 4 : high risk; consider empiric tx

- Other Influenza features: worsening COPD/asthma, arthralgias, anorexia, fatigue, chest discomfort
 - vs. common cold features: sore throat, sneezing, congestion
- NP swab (PCR) *only if it affects mgmt* (e.g. pt w/ high risk of complications)

Management of Influenza:

- Tamiflu 75mg BID x 5d: if high complication risk¹ or other considerations²; start rx and send of NP swab; d/c rx if -ve
 - 1 - High complication risk: severe illness, age (<2 yo, ≥ 65 yo), chronic illness (COPD/asthma, DM, CVD, CKD, hematologic [e.g. HbS], neurologic), BMI ≥ 40 , FNIM, immunocompromised (HIV, transplant, biologics), pregnant or w/in 2wk post-partum, < 19 yo + taking ASA [Reye risk], LTC resident
 - 2 - Consider in: low risk + ≤ 2 d of sx onset, sx + high risk household member (e.g. HIV), sx + healthcare worker caring for high risk pt (e.g. geriatrician)
- Prophylaxis: Tamiflu 75mg OD
 - Short-term: resident \pm staff of LTC w/ known outbreak; Tamiflu x 2wk minimum, up to 1wk after last known cause
 - Duration of flu season: ≥ 3 mo + high complication risk + (vaccine \emptyset or low efficacy [e.g. B-cell disorder])

Rhinosinusitis, Acute

Background:

- See “Allergic Rhinitis and Chronic Sinusitis”
- Pathogens: *Rhinoviruses*, *S. pneumoniae*, *H. Influenzae*, *M. Catarrhalis*

History:

- Main sx (PODS): pain/pressure of unilateral maxilla (usually w/ HA), obstruction of nose/PND, discharge purulent (esp. unilateral), smell disorder (anosmia)
 - Supportive sx: unilateral eustachian tube dysfunction (muffled hearing, fullness), fever, fatigue, cough
- Course: duration, worsening after initial improvement (double sickening)
- PMHx: atopy/asthma (?allergic rhinosinusitis), recent URTI, immunodeficiency
- Other: NV + neck stiffness + photophobia (meningitis)

Physical Exam:

- Vitals: febrile
- Inspection: bilateral periorbital edema, facial pain when bending forward, speech indicating “sinus fullness”, secretions on nasal otoscopy
- Palpation: tenderness to tap over maxillae, palpable lymph nodes

- Extra-sinus involvement: facial cellulitis, Kernig, limited EOM, bony tenderness (osteomyelitis)

Diagnosis: presumed viral origin, unless bacterial features —

- Bacterial: sx > 10d w/o improvement, purulent discharge ≥ 3 days, double sickening [w/ HA, ↑ discharge, fever]

Management:

- Mild-moderate viral or bacterial: NSAIDs PRN + nasal CS¹ ± Hydrasense (use prior to CS to clear cavity mucous)
 - 1 - e.g. Budesonide 1-4 sprays/nostril OD [32mcg/spray]
- Severe (e.g. fever), worsening, tx failure w/in 7d: Amoxicillin 500mg PO TID, clavulin 875/125mg BID or doxycycline 100mg BID x 7 d
 - if above fails: Levofloxacin 500mg OD x 7 d, possibly go to ER
- Other: antihistamine only if significant allergy component (e.g. OTC Claritin, Benadryl)

Travel

History: location(s), dates, reason for travel, itinerary, special activities (climbing, diving, rafting, sex tourism), safety

Management:

- Immunizations: *routine + influenza + below*
 - Hepatitis:
 - Hep A (AVAXIM or AVAXIM Pediatric [6mo – 16 yo]): any time before travel for short term protection [then booster at 6-36 mo]
 - Hep B (ENERGIX-B or ENERGIX-B Pediatric [neonate-19 yo]): 0, 1 and 6 mo
 - Hep A + Hep B (Twinrix): > 18 yo + w/in 21 d of departure (else give separate Hep A + Hep B) at 0, 1 and 6 mo
 - Travel specific: see <https://travel.gc.ca/travelling/advisories>
 - e.g. yellow fever [often by law], cholera, typhoid, polio, rabies, Japanese encephalitis
- Emergency Medical Insurance: esp. older adults, chronic illness, high risk activities (e.g. climbing)
- Chronic Conditions:
 - Carry list of rx + physician contact info, adequate supply rx in pharmacy labelled bottles in carry-on luggage
 - Other: tolerate higher BG in DM, order EKG if hx cardiac events¹, arrange O2 beforehand in COPD²
 - 1 - if no recent ones available | 2- cannot bring your own on airplanes
- Pregnancy: cannot fly ≥ 36 wk, Ø scuba diving (risk fetal malformations), avoid Zika endemic areas
- Travel clinic referral: may not be OHIP covered

Notable Topics:

- Malaria Prophylaxis: see CDC¹ for chloroquine sensitive vs. resistant prevalence
 - 1 - https://www.cdc.gov/malaria/travelers/country_table/a.html

- Chloroquine sensitive: Plaquenil 400mg q1wk (6.5mg/kg peds) start 2 wk before travel upto 4 wk after return
 - Locations: e.g. Mexico, Central America
 - Consider Primaquine for short travel where *plasmodium vivax* > 90% species (52.6mg OD, 0.8mg/kg; start 1-2 d before upto 1 wk after return)
- Chloroquine resistant: Atovaquone-Proguanil 1 tab OD started 2 days before travel and 7 days after return *OR* doxycycline 100mg OD started 2 days before travel and upto 4wk after return
 - If pregnant: mefloquine \emptyset epilepsy, MDD/anxiety, conduction issues]
 - Locations: e.g. South America, Asia, Africa
- Prevention: bed net, mosquito repellent [w/ 20-50% DEET], avoid activity at night/dusk, long sleeves/pants (if possible)
- Zika Endemic Areas:
 - Avoid travel to area if pregnant. If partner travels to area, then condoms/abstinence for entire pregnancy
 - Prevention: condoms/abstinence during travel + 3 mo after return for M (2 mo for F)
- Traveler's Diarrhea:
 - Sx: abdo pain, fever, emesis, \pm hematochezia
 - Prevention: hand washing or sanitizer (> 60% alcohol); \downarrow risk 30%), Pepto-Bismol 2tab QID (\downarrow risk 50%)
 - Less evidence but worth trying: "Boil it, cook it, peel it or leave it!", avoid street vendors, sealed water beverages, etc.
 - Tx:
 - Self-resolving in 3-7 d + PO fluids (juice, water, soda, etc.)
 - IDSA Recommendation: provide prescription for self-administered Loperamide¹ \pm Abx² (to use if need)
 - 1 - Loperamide 4mg OD +2mg after each loose stool max 8mg/d [\emptyset : dysentery or abdo pain w/o diarrhea. Peds: 1-2mg OD + 1mg/loose stool; max 3mg/d in 2-5 yo, 4mg 6-8 yo, 6mg 9-11 yo]
 - 2 - Abx (reduce sx to just 24 h): Azithromycin 500mg OD x 1-3d, Rifaximin 200mg TID x 3d
- Some contraindications to flying: blebs, chest/abdo surgery w/in 10d, jaw immobilization¹, recent MI²
 - 1 - Unless have quick release device; re aspiration risk
 - 2 - MI w/in 3 d (if age < 65 + EF > 45% + no complications), w/in 10d (EF > 40%), defer altogether (complications, EF < 40%)

Other Risk Reduction:

- Sun protection, DVT prevention (calf exercise, walk often, 15-30mmHg compression socks), safe sex, avoid tattoos

MUSCULOSKELETAL DISORDERS & RHEUMATOLOGY

Back Pain

Background:

- Red flags (BACKPAIN): bowel/bladder dysfunction, anesthesia of saddle, constitutional sx, "Khronic" disease (immunocompromised), paresthesias, age > 50, IVDU, neuro deficits
- DDx: aortic dissection, cauda equina, slipped disc, spinal stenosis, abscess, osteomyelitis, tumor, TB, compression #, osteomalacia, nephrolithiasis, pyelonephritis, pancreatitis, sprain/strain, spondyloarthropathy

History:

- Onset/hx of trauma, red flags, quality of pain¹, precipitating factors², palliating efforts³, fn impact
 - 1 - specifically: tearing (dissection) | 2 - worse at night/lying down (tumor), worse w/ ROM (strain) | 3 - ask how much NSAIDs - may not be taking enough
- Associated Hx: IVDU (abscess), burning/shooting down limbs (slipped disc), nocturnal awakening + reduced side bending (Ankylosing spondylitis), urinary frequency + straining (prostate ca w/ mets), dysuria + hematuria (stone), abdo pain (pancreatitis)
- PMHx: back injuries, Ca, osteoporosis screening
- Yellow flags: belief that pain is harmful, extended rest, time off work, low mood, hx back pain

Physical Exam:

- Vitals: febrile
- Inspection: ROM, occiput-wall distance, pelvis-rib distance
- Palpation: muscle, vertebral point tenderness (? #)
- Special tests: straight leg raise, femoral nerve stretch, FABER + Gaenslen, lower limb reflexes/strength/sensory, heel walking (L4-5), toe walking (S1)
 - Optional: pulsatile abdo mass, CVA tenderness

Investigations: *most pt require none*

- Consider imaging if red flags present OR pain >6 weeks
- If indicated: XR lumbar spine, ESR (? discitis, abscess, spondyloarthropathy), MRI, BMD

Management:

Acute (<6 wk):

- Non-rx: encourage activity, PT, hot/cold, massage, return to work
- Rx: Tylenol¹ ± NSAIDs², ± Cyclobenzaprine IR (5-10mg TID x2 wk max)
 - 1 - Tylenol 650mg q4-6h [2x regular strength]

- 2 - up to 5d of NSAID (e.g. ibuprofen 200mg q4-6h or Diclofenac 50mg BID-TID). Vimovo 250mg q8hr gentler on stomach.
- If on XR opioids, increase them 20-25% or add IR opioid
- F/u if pain persists: 1 wk if severe, 3 wk if moderate, 6 wk if not mostly gone

Chronic (> 3 mo):

- Non-Rx: same as acute ± CBT (esp. if yellow flags)
- [1st Line] Tylenol
- [2nd Line] NSAIDs
- [3rd Line] Duloxetine 30mg daily x1-2 weeks, then 60mg daily as tolerated
- [4th Line] Tramadol IR 25-50mg q6-8h PRN, up to 50-100mg q6h
 - Can be used on a standing basis and switched to extended release
 - Combined opioid and SNRI effects, potential for both misuse/dependency and serotonin syndrome
- [5th Line] Other opioid therapy: Morphine, hydromorphone, oxycodone
 - 1 - serotonin syndrome risk; ∅ w/in 14d of MAOI + avoid excess aged cheese
 - Assess risk prior to initiating: substance use, psychiatric disorders – consider urine drug screen
- Pain clinic: consider early referral, e.g. after 3rd line fails

Special

- Neuropathic Pain:
 - [1st Line]: Gabapentin 100mg qHS-1200mg TID [titrate over 6 wk]
 - [2nd Line]: Duloxetine 30-60mg OD
 - [3rd Line]: Tramadol 25 OD/25mg q3d/25mg QID
 - Radiculopathy (i.e. leg dominant): conservative tx x 6 wk; if fails then do MRI and refer to pain clinic (for steroid injections) or spinal surgeon
- Sleep disturbance: Nortriptyline or add Trazadone 25-100mg qHS

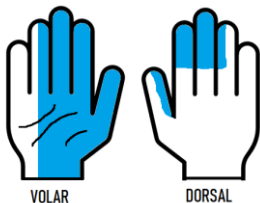
Carpal Tunnel Syndrome (CTS)

Differential Diagnoses:

- Neuropathies: C6 radiculopathy, peripheral neuropathy (B12, DM), pronator syndrome [median nerve compression at elbow], cubital tunnel syndrome
- Other: De Quervain tenosynovitis, CMC or wrist arthritis, vibration white finger, Raynaud

History:

- Key Qs:
 - Numbness/tingling/burning, location, difficulty holding objects/opening jars/buttoning, unilateral vs. bilateral
 - Occupation (e.g. machinery operator, computer work), fn impact (work, ADLs), Flick sign (shaking hand for relief in AM), nocturnal sx
- PMHx (RF): DM, active pregnancy, RA, hypothyroidism



Distal Median Nerve Distribution

Physical Exam:

- Inspection: thenar atrophy, square wrist
- Palpation: Tinel (40% sen.), unilateral palmar 2nd digit hyperalgesia (40% sen.)
- Special Tests: Phalen + median nerve compression test (80% sen.), thumb abduction weakness (45% sen.)

Diagnosis and Investigations: *clinical dx*

- Mild (no sensory loss, no sleep disruption, normal hand function): no ix
- Moderate-severe (motor or sensory issues, disabling symptoms): EMG
- PRN: XR (arthritis), U/S (tenosynovitis)

Management:

- Pregnant: wrist splinting, usually resolves gradually following delivery
- Non-pharmacologic: modified work (OT), splinting (x4-12 wk, nighttime ± daytime), local CS injection¹ (62% success at 1 mo, 50% at 1 yr), oral Prednisone 20mg daily x2wk [less effective vs. injection]; insufficient evidence for NSAIDs
 - 1 - Methylprednisolone 40-80mg x 1
- Refer for surgical decompression if treatment failure, acute/progressive symptoms, or evidence of axonal loss/denervation on EMG
 - Usually 1-2 weeks recovery, severe cases up to 1 year

Diabetic Foot Disease

Screening Frequency:

- No PAD, deformity, or loss of protective sensation (LOPS) → q1yr
- LOPS → q6mo
- LOPS + at least one of: PAD, deformity, onychomycosis → q3-6mo
- Previous ulcer/amputation → q1-3mo

History:

- Background: latest A1C, self-foot checks, previous ulcer/amputation, smoking, trauma, foot soaking (discouraged)
- Sx: numbness, burning, paresthesias, fevers/chills

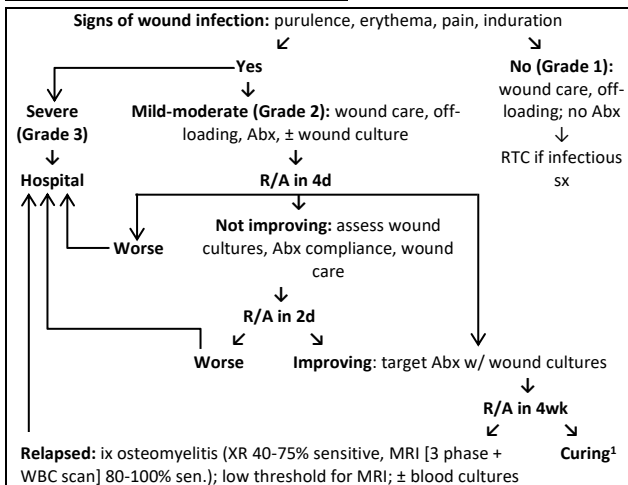
Physical Exam:

- Vitals: temp, HR, BP
- Inspection: gait, morphology (Charcot, claw toe, hammer toes), skin (CHUSE¹, erythema, ulcers²), toenails (onychomycosis), dependent rubor, hallux ROM
 - 1 - CHUSE (color - pale, hairless, ulcers, surface - shiny, edema - none) | 2 - look between toes as well; if present - size, purulence, probe to bone
- Palpation: pedal pulses, cool vs. warm (cellulitis, Charcot neuroarthropathy)
- Special Tests: monofilament, footwear inspection (wear, penetrating objects, orthotics, foreign bodies)
- Optional: toe proprioception, vibration, ankle-brachial Index

University of Texas Diabetic Wound Classification System

Stage	Grade 0	Grade 1	Grade 2	Grade 3
A	Pre- or post-ulcerative lesion	Superficial wound	Wound penetrating to tendon or capsule	Wound penetrating to bone or joint
B	Infection			
C	Ischemia			
D	Infection & ischemia			

Diabetic Foot Infection Treatment Algorithm:



1 - most ulcers need > 20wk to heal | Adapted from AAFP Diabetic Foot Infection

- Antibiotics:
 - Mild (tx for 1-2wk): Cephalexin 500mg PO QID, Amox-Clav 875/125mg PO BID
 - Moderate (tx for 2-4 wk; need CCAC): Ancef 1-2g IV q8h, Amp.-Sulbactam 3g IV q6h [if polymicrobial risk – recent Abx use, foot ischemia, chronic ulcers]
 - Add pseudomonal coverage if: hx severe/chronic ulcers, foot soaking
- Wound care: CCAC, suction dressing for advanced case/post-debridement
- Off-loading: walker boot, crutch, wheelchair
- Referrals: orthopedic surgery (Charcot foot), vascular surgery (hx ulcers + PAD)
- Prevention: glycemic ctrl, self-foot checks, regular callous debridement, fitted orthotics

Osteoarthritis

Differential Diagnoses:

- Monoarthritis: septic joint, trauma¹, patellofemoral syndrome, bursitis, plica syndrome, gout/CPPD, baker's cyst, IT band syndrome, osteomyelitis
 - 1 - ACL tear, intra-articular #, meniscus tear
 - Pediatrics: patellar subluxation, Osgood-Schlatter, patellar tendonitis, slipped capital femoral epiphysis (SCFE), osteochondritis dissecans, transient synovitis, Legg-Calvé-Perthes
- Polyarthritis: septic arthritis (gonococcal, endocarditis), Lyme, viral (Parvovirus B19), spondyloarthropathy¹, vasculitis², rheumatoid, SLE, gout/CPPD, endocrine³, Ca (MM, mets), Sweet's, serum sickness
 - 1 - ankylosing, psoriatic, IBD, Reiter | 2 - HSP, polyarteritis nodosa, GCA, GPA, Bechet | 3 – hyperthyroid, hypoparathyroidism, osteomalacia
 - Pediatrics: JIA (systemic, oligo, poly RF +ve, poly RF -ve psoriatic, enthesitis)

History:

- Red Flags: rapid onset + warmth + rubor + fevers/chills (septic arthritis), recent trauma, IVDU (abscess), constitutional sx, jaw claudication, high risk sexual activity (gonococcal, esp. if younger)
- OA: pain (quality¹, triggers²), AM stiffness, Δ w/rest/activity, fatigue, age > 50, duration, location, remote trauma, fn impact (social, ADLs)
 - 1 - typically intermittent sharp \pm constant dull | 2 - usually climbing stairs, walking; w/ deep squats only may indicate patellofemoral syndrome

Distinguishing Degenerative and Inflammatory Arthritis

Feature	Degenerative	Inflammatory
AM Stiffness	< 30 min (usually ~10min)	> 30 min
Activity	Worsens sx	Improves sx (better at end of day)
Rest	Improves sx	Worsens sx
Fatigue	Significant	Minimal
Location	Hip, knee, shoulder, 1st CMC, PIP, DIP, 1st MTP, cervical vert.	MCP, PIP, carpals, tibiotalar, TMT, MTP, atlanto-axial, TMJ, thoracic vert., SC usually symmetric

- MDD screen¹, yellow flags²
 - 1 - "In the past two weeks, how often have you felt down or low energy?"
 - 2 - "Do you think your pain will improve?", "Do you think you'd benefit from activity?", "How are you emotionally coping?"
- Other Causes:
 - Knee locking/catching (meniscal tear)
 - Inflammatory: seronegative (vision Δ, dysuria, recent diarrhea, FHx psoriasis /IBD, nocturnal waking, buttock pain), SLE (Raynaud, mood Δ, FHx), Sjögren (dry eyes/mouth), PMR (affects *bilateral* neck/hip/shoulder girdle)

Physical Exam:

- General: SEADS (swelling, erythema, atrophy, deformities, skin Δ), crepitus
- Hip & Knee:
 - OA: gait, 30s sit to stand, deformities (varus, valgus), relative leg length discrepancy (measure ASIS to heel), effusions (milking or ballottement), ROM, Thomas test (hip contracture)
 - Other Causes: joint line tenderness ± Thessaly test or Apley (meniscus), patellar apprehension test (patellar dislocation), Ober (IT band syndrome), FABER + Gaenslen (sacroiliac pathology)

Key Hip & Knee Osteoarthritis Exam Findings:

Disease	30s sit to stand ¹	Hip Flexion	Hip Internal Rotation	Knee Flexion
Early	> 15 reps	> 115°	Normal range w/ pain	> 115°
Moderate	1-3 reps	90-115°	5-10°	90-115°
Advanced	0 reps	< 90°	Neutral position	< 90°

¹ - with normal cardiac + neurological fn. | Adapted from AAC Osteoarthritis Tool

- Hand:
 - Deformities:
 - OA: Heberden nodes [DIP], Bouchard nodes [PIP], squaring of thumb
 - RA: ulnar deviation, Boutonniere [PIP flexion], swan neck [PIP extension], RA nodules
 - Psoriatic: dactylitis
 - OA Special Tests: squeeze test (multiple joint pain), grip and pinch strengths [advanced disease (2/5), moderate (3-4/5), early (4-5/5)]

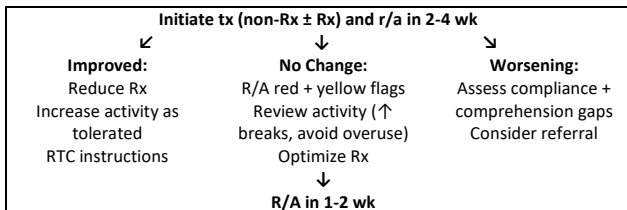
- Other Causes: Finklestein (DeQuervain tenosynovitis)
- Inflammatory: RA (episcleritis, rales, splenomegaly – Felty’s), clubbing (IBD)

Investigations:

- XR¹ Indications: at OA dx, tx failure after 12 wk, pre-rheum/ortho referral
 - 1 - OA: joint space loss, spurs, geodes, subchondral sclerosis. Q-angle > 15° (patellar subluxation)
- Inflammatory Screen¹: ESR, RF | other: anti-CCP, ANA panel, HLA-B27
 - 1 - Consider based on location, AM stiffness > 30 min or pain w/ rest

Osteoarthritis Management:

Approach to Treatment:



Adapted from AAC Osteoarthritis Tool

- Hip & Knee OA:
 - Non-Rx: 5% wt loss (BMI ≥ 25), exercise¹ 30min x5d/wk, joint protection², gait aids³, heat pad (x15min PRN)
 - 1 - walking, yoga; aqua fit or walking in pool if advanced
 - 2 - avoid kneeling/ squats, raised toilet seat, pillow between legs while sleeping, rest q5-10min x60s when stretching joints
 - 3 - Fitted single point cane (persistent limp) → wheeled walker (esp. if asymmetric gait); unloader brace (if one side of joint worse than the other); shock absorbing orthotic gel; shoe insert if leg-length Δ > 1.5cm
 - Rx: Voltaren ES gel BID ± Acetaminophen XR 1300mg q8h ± Duloxetine¹ 30-60mg OD | ∅ capsacian
 - 1 - bipolar screen prior to use; d/c if SI
 - Other: tramadol (but not other opioids), intra-articular CS | inconclusive evidence for hyaluronic acid (but can trial if < 65 yo + not advanced OA)
- Hand OA:
 - Non-Rx: hand/thumb splint, exercise¹, joint protection², heat pad (x15 min PRN)
 - 1 - refer pt to <https://www.nrao.edu/wellness/MayoClinicHandExercises.pdf>
 - 2 - distribute wt using 2 hands, avoid repetitive thumb mvmt, rest q5-10min x60s when stretching joints
 - Rx: Voltaren ES gel BID or Capsaicin 0.05% QID ± Acetaminophen XR 1300mg q8h
 - Other: tramadol | inconclusive evidence for Synvisc | ∅ articular CS
- Other:
 - NSAIDs: caution in elderly, poor renal fn, hx PUD, OAC, bleeding diathesis, hyperkalemia; > 10d/mo of NSAID or Tylenol can cause overuse HA

- Herbal: if pt requests, can suggest turmeric, Omega-3
- Referrals:
 - Rheumatology: inflammatory arthritis, polyarthritis, constitutional sx
 - Pain clinic ± CBT: yellow flags, high constant pain + fn impairment
 - Orthopedic Surgeon: 12 wk tx failure, worsening pain + fn impairment
 - Sports Medicine: exercise recommendations, rehab/pain mgmt

Osteoporosis

Background: F:M ratio is 4:1. Hip Fracture 1-yr mortality is 37% M/28% F

History:

- RF: falls/balance in last 12 mo, hx #, EtOH, smoking, chronic diarrhea (?malabsorption), low wt or major wt loss (>10%)
- Background: parenteral hip #, PMHx (menopause < 40yo, RA, chronic CS use)

Physical Exam:

- Osteoporosis: Annual height (loss > 2 cm or historical > 6 cm), palpate for vertebral fractures, rib to pelvis ≥ 2 finger
- Falls risk: Get-Up-And-Go test¹ > 30s
 - 1 - Get up from chair → walk 10 ft → return to sitting in chair

Diagnosis and Screening:

- Standard Ix: CBC, Alb corrected Ca, ALP, TSH
- Other: 25-OH-D¹, SPEP + free chains (if vertebral #)
 - 1 - measure 4 mo after supplementation; ∅ repeat if > 75 nmol/L

Screening Indications:

Age	Indications for BMD testing
> 50	Fragility #, hypogonadism, malabsorption syndrome, chronic inflammatory disease (e.g. IBD, RA), 1° hyperparathyroidism, rapid bone loss/turnover (e.g. Acromegaly)
50-64	Fragility # after 40 yo, high-risk meds ¹ , parenteral hip #, vertebral # or osteopenia on XR, current smoker or high EtOH use, < 60 kg or wt. loss > 10% of wt. at 25 yo, disorders associated w/ osteoporosis
≥ 65	Everyone

1 - High-risk meds: prednisone > 7.5 mg x > 3 mo, aromatase inhibitor, long-term PPI/ OAC/lithium/glitazones, anti-androgen, high dose inhaled CS | Adapted from Osteoporosis Canada 2010 Clinical Guidelines

- BMD Results: Osteoporosis (t-score¹ < -2.5) vs. Osteopenia (t-score < -1.5)
 - If z-score² < -1.5, consider concurrent secondary causes
 - 1 - t-score (comparison to 30yo) | 2 - z-score (comparison to person of same age + gender)
- Use QCT (instead of DEXA) for extensive disc disease, bilat hip prosthesis

Management:

- Non-Rx: wt bearing exercise, balance exercises/Tai chi, diet (daily Ca 1200mg, supplement 1-2000 U Vit D), hip protectors (only evidence in LTC)
- Calculate CAROC score from BMD:
 - Low risk (10 yr # risk < 10%): repeat BMD + CAROC in 5 yr
 - Moderate risk (10 yr # risk 10-20%): repeat BMD + CAROC in 1-3 yr; ± lateral T4-L4 XR or VFA; ± start Rx¹
 - 1 – If: lateral XR/VFA #, (> 65 yo or t-score ≤ -2.5)+ hx wrist #, on aromatase inhibitor for breast Ca, on anti-androgen for prostate Ca, ≥2 falls in last 12 mo, long term CS use, rapid bone loss/turnover disorder
 - High risk (10 yr # risk > 20%, hx fragility spine/hip #, ≥1 other fragility #): start Rx
- Rx:
 - [1st line]: bisphosphonates (alendronate 10 mg po daily/70 mg po weekly, risedronate 5 mg po daily/35 mg po weekly/150 mg po monthly, zoledronic acid 5 mg IV annually)
 - Small risk of AVN of jaw, atypical femur #s – consider drug holiday on reassessment after 3-5
 - [2nd line]: RANKL inhibitor (denosumab - SC injection q6mo)
 - [3rd line]: synthetic PTH (teriparatide - SC injections daily), Sclerostin inhibitor (romosozumab - SC injections monthly)
 - [Other]:
 - SERMs (raloxifene>tamoxifen) only if taking for cancer prophylaxis
 - Hormone therapy
 - Estrogen ± progesterone if postmenopausal female with vasomotor symptoms (risk of VTE, stroke)
 - Testosterone if male with hypogonadism (can be adjunct to 1st/2nd line)

Rotator Cuff Impingement

Differential Diagnoses: bicep or rotator cuff tear, calcific tendonitis, adhesive capsulitis, GH instability, labral tear, OA, RA, SLE, spondyloarthropathy, Lyme, septic arthritis, AVN, radiculopathy, thoracic outlet syndrome

History:

- Basics: onset (injury, insidious), pain (exacerbated by overhead activity), limited ROM, weakness, nocturnal sx, fn impact
- RF: occupation, activity (ADL, sports), smoking, hx shoulder surgery
- Other causes: fever/chills, shooting/burning (radiculopathy), constitutional sx (inflammatory arthritis, MM #, Lyme), hx gout, hx DM/hypothyroid (adhesive capsulitis), EtOH/CS use (#)

Physical Exam:

- Impingement: ROM [painful arc (60-120°)], Neer's, Hawkins-Kennedy, empty can
- Tear: drop-arm (supraspinatus tear), lift-off (subscapularis tear)
- Other causes: Popeye sign (\pm Speeds, Yergason), greater tuberosity pain (calcific tendonitis), crepitus (OA), Spurling test (radiculopathy), Apprehension-Relocation (anterior GH instability)

Investigations:

- XR¹: if traumatic onset, age > 50, drop arm, ?calcific tendonitis, ?OA
 - 1 - Three views (anteroposterior, Y, axillary). Findings: type II or III acromion (RF for impingement), high riding humeral head (sign of tear)
- U/S or MRI (more sensitive)

Diagnosis: clinical; consider imaging if uncertain

- Neer Classification:
 - Stage I: < 25 yo, overuse injury, reversible
 - Stage II: 25-40 yo, fibrosis, partially reversible
 - Stage III: > 50 yo, fibrosis + tendinosis, usually some tear, irreversible

Management:

- [1st Line]: PT, sports/job modification, ice pack x 20min TID, Voltaren ES BID
 - Never sling! (adhesive capsulitis risk)
- [Other]:
 - Steroid injection: efficacious x 4-8 wk; no benefit beyond 3 mo
 - Surgery: cuff tear is *NOT indication for surgery*
 - Considerations:
 - Partial tear and 6 mo conservative tx failure
 - Full thickness tear and 3-4 mo conservative tx failure
 - < 60 yo w/ debilitating tear (can consider > 60 yo if loss of independence)

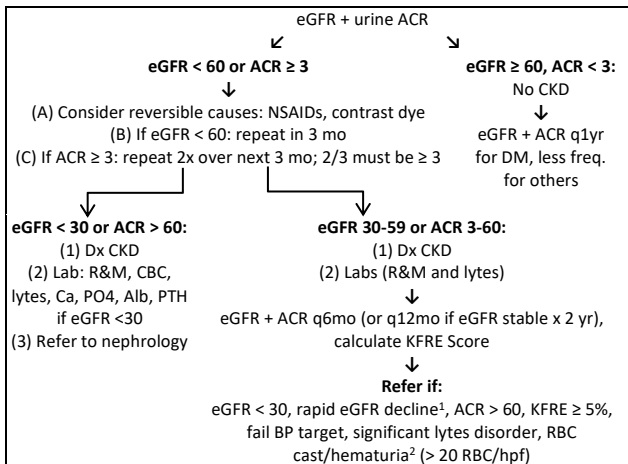
NEPHROLOGY

Chronic Kidney Disease

Background:

- At Risk: DM, HTN, age 60-75 with CVD, 1^o relative with CKD, FNIM \geq 18 yo
- Screen at risk q1-2yrs (DM q1yr) with Cr, U/A, ACR, then follow algorithm below
- Modify renally cleared medication doses as eGFR < 60
- Urine Alb:Cr (ACR): > 300 mg/mmol (macroalbuminuria), 30-300 (microalbuminuria), < 3 (normal)

Screening and Diagnosis:



1 - if eGFR < 45 & > 5 \downarrow in 6 mo in absence of self-limited illness \rightarrow repeat in 2-4 wk | 2 - query GN, vasculitis
Adapted from Ontario Renal Network *KidneyWise Clinical Toolkit*

Consider in workup:

- BP, BW (Cr, BUN, lytes/ext lytes, FBG, CBC/Ferritin/TIBC, albumin, SPEP), U/A, Kidney US (stones, cyst, mass, hydronephrosis)

Manage in primary care:

- Lifestyle: diet, smoking cessation, weight control/exercise, assess alcohol consumption
- BP¹ Targets: < 120/90 w/o diabetes, < 130/80 (CKD+ DM)
 - 1 - ACE/ARB preferred; Repeat Cr and K 2 wk after starting ACE/ARB/diuretic; keep DBP > 60
- Treat dyslipidemia:

- KDIGO guidelines: statin for DM>18y/o, all pts >50 and pts with FRS >10% vs CCA guidelines: CKD >3 months
- Labs: *baseline* TC, LDL, HDL, TG, non-HDL, AST, ALT
- Rx: Atorvastatin 20mg (4D trial), Rosuvastatin 10mg (AURORA trial), Simvastatin/ezetimibe 20/10mg (SHARP trial)
- Dosing (per KDIGO): ∅ adjust due to AE risk, keep CKD trial doses; no benefit to tracking LDL
 - CCS guidelines recommend tx target LDL <2 or dec in LDL by >50%
- DM: target A1C <7%
- Risk Reduction: avoid NSAIDs, caution w/ IV contrast, hold sick day meds¹, consider empagliflozin² (CREDESCENCE trial), tx complications associated with CKD
 - 1 - SADMANS – sulfonyleureas, ACEI, diuretics, metformin, ARB, NSAIDs, SGLT2-I
 - 2 - trial: canagliflozin in eGFR 30-89 + ACR 34-565 for T2DM ↓ death + ESRD end-pt. However, empagliflozin may have better S/E tolerance vs. canagliflozin (anecdotally)

A Screening Neurological Exam

1. Global Assessment: *perform while observing the pt*

- LOC, GCS, abnormal mvmt, inappropriate behaviour, language

2. Cranial Nerves:

- CN1 (olfactory): smell; use a readily identifiable smell (e.g. coffee)
- CN2 (optic): sight; visual acuity¹, visual fields², pupillary response³, fundoscopy
 - 1 - Visual acuity: Snellen eye chart (held @ arm's length). Corrected vision.
 - 2 - Visual fields: perform at an arms-length away; incl. all 4 visual quadrants
 - 3 - Pupillary response: PERRLA, RAPD test
- CN3 (oculomotor), CN4 (trochlear), CN6 (abducens): EOM in an H-pattern
- CN5 (trigeminal):
 - Motor: pt clenches jaw → palpate masseter, temporalis, pterygoids
 - Sensory: ophthalmic (V1), maxillary (V2), mandibular (V3)
- CN7 (facial): raise eyebrows, close eyes, puff-out cheeks, smile + show teeth
 - UMN lesion; spares forehead, LMN does not
- CN8 (vestibulocochlear): Rub fingers together equidistant from each ear
- CN9 (glossopharyngeal), CN10 (vagus): Soft palate elevation ("say ahh")
- CN11 (spinal accessory): resisted shoulder shrug (trapezius muscle), head turn (sternocleidomastoid muscle)
- CN12 (hypoglossal): tongue movement and protrusion

3. Motor Examination: bulk, tone¹, power²

- 1 - Tone: Rigidity is velocity-independent, and spasticity is velocity-dependent
- 2 - Power:
 - Upper Limb: shoulder abduction/adduction, elbow flexion/extension, forearm pronation/supination, finger grip/extension, wrist flexion/extension, grip strength, finger abduction/adduction, MCP flexion
 - Lower Limb: hip flexion/extension, knee flexion/extension, ankle dorsiflexion/plantarflexion, hallux dorsiflexion

4. Sensory examination:

- Dorsal column-medial lemniscus pathway: fine touch, proprioception, vibration
- Anterolateral (spinothalamic) pathway: pain, temperature, crude touch

5. Reflex examination: deep tendon reflexes¹, clonus, Babinski,

- 1 - Deep tendon reflexes: brachioradialis, biceps, triceps, patella, ankle jerk

6. Coordination examination:

- Dysmetria: Finger-to-nose, heel-to-shin
- Dysdiadochokinesia: rapid and alternating supination/pronation into open palm, toe tapping

7. Stance:

- Abnormalities: wide based, postural instability

- Romberg (vision, proprioception, vestibular): unsteadiness with feet together and eyes closed

8. Gait: normal gait, tandem gait

Adapted Neurologic Exam: *consider if screening for TIA*

- Abnormal speech, facial droop, arm drift (pronator drift)
- pupils, EOM, finger extension strength, abnormal gait

Fatigue

Differential Diagnoses:

- Physiologic: ↓ sleep, ↑ activity, poor nutritional intake
- Hematology¹, cardioresp (COPD, CHF, OSA), infectious (mono, HIV, TB, Lyme), Gastro (celiac, cirrhosis, chronic liver), malignancy, psychiatric (anxiety/depression), endocrine², MSK³, Neuro (MS, myasthenia gravis, PD, ALS), chronic illness⁴, medications⁵
 - 1 - Anemia, autoimmune (chronic fatigue syndrome, etc.), hemochromatosis, lymphoma/leukemia
 - 2 - Hypothyroid, hyperthyroid [late], Addison, hypercalcemia, Cushing, DM
 - 3 - RA, fibromyalgia, deconditioning
 - 4 - chronic pain, CKD, pulmonary, CAD, autoimmune
 - 5 - Narcotics, Antihistamines, anti-HTN, muscle relaxants, sedative-hypnotics, SSRI, sudden stop of CS

History:

- General
 - 1 – differentiate between ↓ motivation, ↓ ability, and mental fatigue
 - 2 – level of activity, impact on function
 - 3 – onset, duration, timing, exertional
 - 4 – associated symptoms: SOB, CP, N/V, bleeding (melena, menorrhagia), fever, pain, palpitations, syncope, dizziness, mood changes, bowels, joint pain
- Red flags: weight loss, fever, night sweats, neurologic deficits
- PMHX: FIT tests, last colonoscopy
- New meds
- FHx: colon or heme ca
- SoChx: diet (e.g. vegan, poor intake), sleep, EtOH/drugs/smoking, exercise
- Based on clinical suspicion: dry skin or hot/cold intolerance (thyroid), “bones-groans-moans-stones-psych overtones” + polyuria/polydipsia (hyper-Ca), URTI sx (mono), anorexia + NV + abdo pain + crave salt (Addison), sexual hx (HIV, neurosyphilis)

Physical Exam:

- Vitals: orthostatic, high BP (Cushing)
- Inspection: AOX3, conjunctival pallor, axillary dryness, skin turgor, muscle bulk, fine tremor (hyperthyroid), thyroid (goiter) high JVP (CHF), high BMI (Cushing, hypothyroid), dorsal fat pad (Cushing), bronze skin (Addison), rash joint swelling/deformities

- Palpation: lymph nodes (ca, infection), bilateral pitting edema (CHF), hepato/splenomegaly
- Auscultation: S3 (CHF), thyroid bruit, crackles/wheeze
- Special tests: lid lag, can't sit-up-from chair test (PMW - hypothyroid), reflexes

Investigations:

- CBC, ferritin, Cr, lytes, extended lytes, LFTs, TSH, urine β -hCG, fasting blood glucose, CK, urinalysis (protein/blood/glucose), Ca
- Based on clinical suspicion: HIV testing, CXR, echo, ESR, Alb, tuberculin skin test or IFN- γ (if BCG hx), Lyme EIA, RPR/VDRL, Addison W/U¹
 - 1 - [step 1] low 8AM serum cortisol \pm low Na \pm high K
[step 2] ACTH stimulation test (1° adrenal insufficiency (AI) – low cortisol + high ACTH, 2° AI – low cortisol + low ACTH)

Chronic Fatigue Syndrome Diagnosis:

Criteria	Values
	>6mo of unexplained fatigue, no resolution w/ bed rest, \downarrow daily activity to < 50%, other dx excluded
\geq 4 of the following:	New HA, multi joint pain (without swelling or erythema), muscle pain, postexertional malaise for >24 hrs, impairment in ST memory or concentration, sore throat, tender lymph nodes, unrefreshing sleep

Management of Physiologic and Chronic Illness Fatigue:

- Non-Rx: sleep hygiene, naps limited to <1hr in early afternoon, exercise (150 mins/week)
- Treat underlying medical condition/ manage concurrent MDD if present
- Rx: Stimulants - coffee, Modafinil¹ 100-200mg PRN for shift work or MS/ca/HIV
 - 1 – caution: long-term use can cause MDD
- Chronic Fatigue Syndrome: SSRI or SNRI (if depressive symptoms) and/or CBT and/or exercise therapy
 - scheduled visits (q2wk-2mo) may reduce urgent care visits

Headaches

Differential Diagnoses:

- 1° HA: migraine, tension-type, cluster (trigeminal autonomic cephalgia)
- 2° HA:
 - Serious: stroke, SAH, hematoma, PRES, RCVS, arterial dissection, mass, acute glaucoma, GCA, abscess, meningitis, Chiari malformation, aneurysm, AVM
 - Less serious: rx-overuse HA, post-dural, sinusitis, TMJ disorder, post-concussive, idiopathic intercranial HTN, 1° cough HA, hemicrania continua

History:

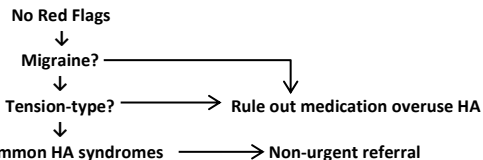
- General: onset (thunderclap, trauma), location (unilat/bilat), severity, duration, frequency, precipitants/triggers, palliating factors, relieving factors progression from previous HA (change), fn impact
- Associated sx: aura¹, N/V, photophobia/phonophobia, vision changes, vertigo, dizziness, autonomic symptoms (rhinorrhea, congestion, eyelid ptosis/edema)
 - 1 – vision Δ, tingling, speech/thought issues
- Red flag symptoms: new HA >50 yo, worse in am (inc ICP), new/different HA, thunderclap, precipitated by 110alsalva, exertional, systemic features, jaw claudication, neck stiffness
- PMHx: insomnia, MDD/anxiety, HTN, CVD, stroke, IVDU, HIV, Cancer, caffeine/drugs

Physical Exam:

- Vitals: BP, HR, temp
- Neuro: mental status, CN¹, Muscle tone/strength²/reflexes, cerebellar, tandem gait
 - 1 - esp. fundoscopy, EOM, visual fields, facial symmetry | 2 – e.g. grip + finger extension + hallux extension
- Meningeal irritation: ROM, tender vertebrae, Kernig/Brudzinski (meningitis),
- Tender temporal area (GCA), carotids, sinus
- PRN: if jaw complaint (jaw opening, palpate muscles of mastication), Babinski (if reflex asymmetry)

Evaluation Pathway of Headaches

- **Red Flags¹ or indicators of possible 2° HA:** → investigate and refer
- **Emergent red flags:** thunderclap, fever/meningismus, papilledema + focal signs/reduced LOC, acute glaucoma²
- **Urgent red flags:** GCA, papilledema, illness [e.g. HIV], new onset in elderly w/ AMS, ± am HA [?neoplasm]
- Indicators of 2° HA: focal signs, unusual aura³, unusual triggers⁴, atypical HA⁵, onset > 50 yo, aggravated by neck mvmt (? Cervogenic HA), jaw sx (? TMJ disorder)



1 – Red flags – think SNOOP mnemonic : systemic sx/illness [fever, OAC, Ca], neuro sx [AMS, focal deficit], onset > 50 y/o or thunderclap, other sx [jaw claudication, scalp tender, worse / exercise], provocation/pattern [change from previous, worse w/ exercise]

2 - CC: red eye, blurry vision, ocular pain, halo around light

3 - Sx > 60 min, begins after HA dissipates

4 - exertion, orgasm, Valsalva, sneeze/cough, posture

5 - Δ in frequency/intensity of HA, awoken from sleep, >72 h, refractory to tx despite previous efficacy, onset w/ non-acute trauma

Adapted from Headache Society Guideline for primary care management of headache in adults

Diagnosis:

- Migraine:
 - ID Migraine Rules ($\geq 2 = \text{LR } 3.2$): photophobia, NV, disabling intensity
 - HIS Criteria ($\geq 3 = \text{LR } 3.5$): pulsatile, 4-72h, unilateral, NV, disabling intensity
 - POUND ($\geq 4 = \text{LR } 24$), Pulsatile, Ongoing (4-72hrs), Unilateral, Nausea, Disabling
 - Typical Aura: fully reversible, precede or during HA for 5-60 min; visual¹ [scintillations, scotomata, blindness], sensory [spreading unilateral numbness/tingling], thought/speech disturbance
 - 1 – typically unilateral; bilateral visual aura suspicious for retrochiasmal disorder (e.g. PRES, glioblastoma, etc.)
- Tension: <15d/month, duration: 30mins-7 days
 - (≥ 2): bilateral, pressing/tightness (non-pulsatile), mild-moderate, not worse w/ activity
 - \emptyset nausea or vision changes, ≤ 1 photophobia/phonophobia
 - Note: bilateral HA w/ significant fn impact is likely migraine, not tension-type; migraines are under-dx
- Medication Overuse: HA frequency \uparrow to $\geq 15\text{d}/\text{mo} + \text{rx overuse}$ —
 - Ergot/triptan/opioids/combo $\geq 10\text{d}/\text{mo}$ or acetaminophen/NSAID $\geq 15\text{d}/\text{mo} \times 3$ months
- Cluster HA (all 5 criteria): frequent, severe, <3h, unilateral (always same side), ipsilateral eye redness/tearing/restlessness
- Hemicrania Continua (all 3): unilateral (always same side), continuous, very responsive to indomethacin

Management:

Lifestyle: sleep hygiene, diet, exercise, avoid triggers

- Migraine:
 - Acute:
 - Mild to mod: NSAID (ibuprofen 400mg) +/- acetaminophen 1000mg
 - Mod to severe: triptans (ex: zolmitriptan 2.5mg) +/- antiemetics
 - Prophylaxis: if HA $> 3\text{d}/\text{mo}$ and acute tx not effective, HA $> 8\text{d}/\text{mo}$, or disabling despite acute tx:
 - Beta blocker (Propranolol 120-240 mg/day(\emptyset in asthma)), TCA (amitriptyline 10-150 mg/day esp. if associated with MDD, anxiety, insomnia, tension-type HA)
 - Trial 6-8 wk after titrating; taper and d/c after 6-12 mo of success (50% reduction in sx); wait longer if disabling
- Tension HA:
 - Message therapy, hot/cold pack, ergonomics
 - Acute: ibuprofen 400mg, acetaminophen 1000mg, ASA (<9 d/month to avoid overuse HA)
 - Prophylaxis: Amitriptyline 10-125mg qHS

- Cluster HA: *early referral and* –
 - Acute: intranasal zolmitriptan 5mg or sumatriptan SC 6mg ± O2 12 L/min x 15 min via NRB
 - Bridging tx options, Prophylaxis: Verapamil (max 360/day)
- Medication Overuse HA:
 - Stop offending rx immediately (unless opioid – taper), self-mgmt (trigger ctrl, relaxation, HA diary), screen mood/anxiety
 - Bridging tx options, Prophylactic Rx (esp. Topiramate in migraine w/ medication overuse HA)

Vertigo

DDx for True Vertigo:

- Peripheral Vertigo: labyrinthitis, vestibular neuronitis, BPPV, Meniere's, osteosclerosis, perilymphatic fistula, HZV
- Central Vertigo: Cerebrovascular disease (stroke/TIA), cerebellopontine angle and posterior fossa hemangiomas (ex acoustic neuroma), tumor, vestibular migraine, MS
- Other: Drug-induced (EtOH, Dilantin, aminoglycosides), psychiatric

History:

- **Type of dizziness:** true vertigo vs. lightheadedness, presyncope, disequilibrium
- Onset, episode duration/number of episodes, triggers¹, course², head trauma
 - 1 - head position Δ (esp. BPPV), recent URTI (Meniere's, neuronitis), stressors (migraine, psychogenic), straining/trauma (fistula)
 - 2 - neuronitis (severe → mild), Meniere's (mild → severe → mild)
- Associated symptoms: N/V, imbalance, HA, hearing loss/tinnitus, aural fullness (neuroma, Meniere's), facial tingling/burning (HZV), HA/photophobia (migraine), ear pain (neuroma, OM, HZV), weakness + ataxia + paresthesia (cerebrovascular disease)
- 5 D's of central vertigo: dizziness (vertigo), diplopia, dysarthria, dysphagia, dysmetria (cerebellar ataxia)

Central vs. Peripheral Vertigo

Type	Onset	Episode Length	NV	Imbalance	Hearing Loss/tinnitus
Peripheral	Sudden	sec-hr	++	Mild (can walk)	Common
Central	Gradual ¹	hr-days	±	Severe (∅ stand)	Uncommon

¹ – except stroke/TIA | Adapted from AAFP Initial Evaluation of Vertigo

- PMHx: cerebrovascular disease; DM, HTN
- SHx: meds, caffeine, nicotine, alcohol
- FHx: stroke/vasculitis

Physical Exam:

- orthostatic vitals, gait/tandem gait, arrhythmia, carotid bruits
- ENT: Dix-Hallpike, mastoid tenderness (OM, HSV), conductive hearing loss¹ (cholesteatoma, osteosclerosis), sensorineural loss² (acoustic neuroma), otoscopy³, Hennebert's sign⁴
 - 1 - Weber lateralizes to affected ear, Rinne BC > AC | 2 - Weber lateralizes to contralateral ear, Rinne AC > BC of affected ear | 3 - r/o perforation, otitis, etc. | 4 - induce vertigo/nystagmus by pushing tragus + ext. auditory meatus
- Neuro: nystagmus, Romberg, adapted neuro screen¹ (full exam is ideal), cerebellar testing, Dix-Hallpike, CN
 - 1 - speech, facial droop, pupils, EOM, finger extension strength, abnormal gait, pronator drift. *High yield findings to R/O TIA.*
- HINTS protocol
 - Head-impulse, nystagmus, tests of skew

Nystagmus Features

Type	Direction ¹	Inhibition	Δ w/ Gaze	Latency ²	Duration
Peripheral	Horizontal + torsional	w/ object fixation	None	< 20s	few days
Central	Pure vertical, horizontal or torsional	None	\pm direction Δ w/ gaze	< 5s	wk-mo

1 - defined by fast phase | 2 - delay between provocative maneuver and sx | Adapted from AAFP Initial Evaluation of Vertigo

Investigations:

- MRI¹, CT head/CTA (vascular etiology), audiology (confirms Meniere's)
 - 1 - if neuro signs, cerebrovascular RF, progressive unilateral hearing loss
- Based on clinical picture: CBC, lytes, BG, TSH, echo/ECG/cardiac doppler

Management:

- BPPV: Dix Hallpike or Epley maneuver
- Meniere's:
 - Non-Rx: diet (\downarrow EtOH + caffeine + Na [consider adding diuretic]), self-vestibular rehab
 - Rx: prochlorperazine¹ (5-10mg TID-QID), trial betahistine 16mg TID \rightarrow otolaryngology referral
 - 1 - but prolonged use delays central compensatory mechanisms
- Vestibular neuronitis:
 - Symptomatic tx: antiemetics, antihistamines, anticholinergics, and benzos
 - Disease specific: glucocorticoids, antivirals
 - Vestibular rehab

Weakness, A Diagnostic Approach

Background:

- DDx:

- UMN (corticospinal/corticobulbar): TIA [<24 hr]/stroke, brain/spinal cord space occupying lesion (abscess, tumor, hematoma), demyelinating (e.g. MS, NMO), degenerative (ALS¹, pseudobulbar palsy), AVM
 - 1 - ALS presents w/ mixed UMN + LMN
- LMN: anterior horn (polio, West Nile, Lyme, CMV), motor nerve root (e.g. slipped disc, spinal stenosis), nerve plexus injury, peripheral nerve¹
 - 1 - DM, EtOH, GBS, heavy metals, tick paralysis, vasculitis (esp. mononeuritis multiplex), MM
- NMJ: MG, LEMS, botulism, organo-PO₄ and carbamate poisoning, aminoglycosides
- Muscle: polymyositis, dermatomyositis, Duchenne, inclusion body myositis, CS induced
- Metabolic conditions: hypoglycemia, K disorders, Ca disorders, Mg/Phosphate disorders
- Causes of generalized weakness: hypothyroid, infection, anemia, hypovolemia, meds, rheumatologic diseases (RA, SLE), sepsis, ACS, CO poisoning, influenza, adrenal insufficiency
- Anatomy: dual innervation (forehead, tongue, throat) vs. one-sided (face, arm, legs)

History:

- Weakness¹ vs. fatigue, onset, progression², location, unilateral vs. bilateral³, pattern/distribution⁴, constant vs. intermittent, triggers?⁵, tasks impacted⁶
 - 1 - weakness ("can't do first rep of task") vs. fatigue ("can't continue after multiple reps", exhaustion)
 - 2 - rapid = GBS, cauda equina, inflammatory, vasculitis
 - 3 - brain usually unilateral vs. spinal cord bilateral – but beware unilateral onset → bilateral
 - 4 - Broad (CNS or systemic illness), single limb (spinal cord, nerve roots, plexus), PMW (most myopathies), DMW (polyneuropathy), symmetry (myopathy)
 - 5 - Triggers: repetition (MG), movements/posture (entrapment neuropathy, radiculopathy, local vascular occlusion), random w/ recovery in 30 min (TIA), post-exercise/post heavy carb meal (ion channelopathy), heat (MS)
 - 6 - PMW (can't rise from chair, brush teeth) vs. DMW (can't stand on toes, do fine work w/ hands)
- Red Flags: signs of resp distress, cardiovasc collapse, bowel/bladder dysfunction (cauda equina), recent URTI (GBS), SOB (GBS, dermatomyositis), cortical/bulbar signs, face involvement, change in mental status
- Associated sx:
 - Sensory: numbness/burning/pain (peripheral neuropathy), back pain + radiating pains (slipped disc)
 - CN: Diplopia (brainstem lesion, MG¹), tinnitus (pseudobulbar palsy), hearing loss (Madras MND), vertigo + ataxia (brainstem)
 - Constitutional sx: MM, LEMS, space occupying tumor
 - Psych: emotional lability (Cushing, pseudobulbar), MDD (hypothyroid, SLE)
 - Other: arthralgia + myalgia + URTI (influenza, EBV), Raynaud + arthralgia (SLE, RA), bulbar sx (MG/LEMS, dermatomyositis; altered voice, nasal regurgitation, dysphagia), thin skin + obese (Cushing)
- FHx: neuropathy (e.g. Charcot Marie Tooth), myopathy, periodic paralysis (ion channelopathy)
- PMHx: rx (statins, CS, aminoglycosides), ca (LEMS), DM, Celiac/bariatric surgery (B12 deficiency), FHx autoimmune disease (MG, RA, SLE)

- SocHx: occupation (organophosphates, heavy metals), sexual hx (HIV, syphilis)

Physical Exam:

- Vitals: temp, BP, AOX3 (\pm MOCA)
- Inspection: malar rash (SLE), Gottron papules/ heliotrope (dermatomyositis), toe walking (Duchenne), ptosis (MG, Horner)
- Auscultation: S3/S4 (cardiomyopathy; musc. Dystrophy, amyloidosis)
- Complete neurologic exam, including:
 - CN, strength (tone, bulk, power), reflexes, sensation, cerebellar, gait (UMN vs. LMN)
 - NMJ: ice pack test, rest test (if ophthalmoparesis), tensilon test
 - Myopathy: PMW¹, DMW², myotonia³
 - 1 - sit up from chair w/o using hands, extend arm at 90° against gravity
 - 2 - finger + hallux extension
 - 3 - cannot open hand quickly after making fist; myotonic dystrophy

UMN vs. LMN Lesion

Lesion	DTR	Tone ¹	Fasciculations	Other Findings
UMN	↑	Increased Spasticity ²	No	Babinski, \emptyset abdo reflex
LMN	↓	Decreased	Yes ³	Atrophy, distribution (stocking-glove, mononeuritis multiplex), fasciculations

1 - rigidity vs. spasticity (velocity dependent; test w/ sudden extension in arms and sudden flexion in legs (since biceps stronger than triceps, quads stronger than hamstrings)

2 - if sudden/severe, tone initially *low* then \uparrow over days-wk ("spinal cord shock")

3 - esp. ant. horn; persistent vs. benign temporary twitches of local nerve overuse irritation

Investigations:

- If unclear etiology: CBC, Ca + Alb, CK, TSH, A1C, \pm 24-hr U_{cortisol}
- Lesion specific:
 - UMN: CT, MRI brain/spinal cord, \pm CSF analysis (LP)
 - LMN: needle EMG¹, peripheral neuropathy BW²
 - 1 - also confirms LMN twitch vs. benign nerve irritation
 - 2 - CBC, A1C, ESR, SPEP, ANA, B12 +/- VDRL/RPR, Lyme EIA, HIV Ab + Ag
 - NMJ: repeated nerve stimulation test¹, single fiber EMG, AchR Ab \pm MuSK
 - 1 - \downarrow w/ contractions (MG), \uparrow w/ contractions (LEMS)
 - Myopathy: CK, ESR, RF, muscle biopsy, \pm echo (cardiomyopathy)

Management:

- ER if airway/breathing compromise, GBS, cauda equina, stroke/TIA
- Referrals:
 - Rheumatology: myopathies, vasculitis/inflammatory neuropathies
 - Orthopedics: slipped discs
 - Neurosurgery: traumatic plexus injury
 - Neurology: all other cases

- If BRCA2 +ve, screen for: ovarian ca¹, prostate ca (annual PSA + DRE from 40 yo), melanoma (annual dermatology exam)
 - 1 - Ø mortality benefit w/ screening TV U/S, CA-125, or pelvic exam. Offer salpingo-oophorectomy at 40-45 yo for BRCA2.

Cervical Cancer Screening

Screening:

- Who: age ≥ 21 yo + sexually active (otherwise delay until sexually active)
 - Screen even if: WSW, pregnant, subtotal hysterectomy, transgender M w/ cervix
 - Do not screen if total hysterectomy (i.e. no cervix)
- Tool: combi-brush (preferred); otherwise spatula (younger pt), cytobrush (menopausal)
- Vulvar atrophy: use small speculum (Pederson), ++ lubricant jelly, ± 2% topical lidocaine (3-5 min onset)
- Note: correct size speculum, lubricant jelly, and trauma-informed approach

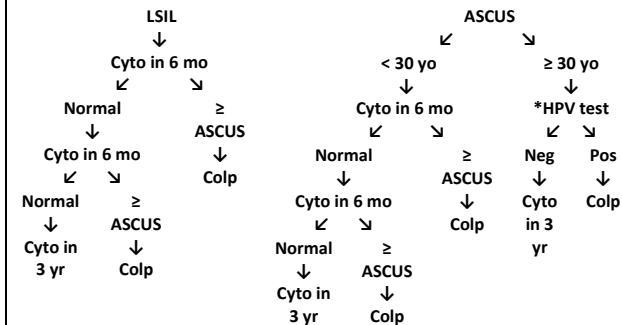
Results and Management

Normal: repeat cytology (pap) in 3 yr (or 1 yr if immunocompromised e.g. HIV, post-transplant)

HSIL, ASC-H, AGC, atypical (endocervical, endometrial), carcinoma: colposcopy

Unsatisfactory: repeat cytology in 3 mo

Benign Endometrial Cells: if asymptomatic + pre-menopausal, repeat cytology in 3 yr. If post-menopausal or have AUB, do an endometrial biopsy.



Colp = colposcopy, Cyto = cytology. *No OHIP coverage for HPV testing (cost: \$80-100)

Adapted from Cancer Care Ontario Cervical Cancer Screening Guidelines

Screening post colposcopy discharge:

- Annual: normal/ASCUS/LSIL + positive HPV
- Every 3 years: normal/ASCUS/LSIL + negative HPV

- Follow recommendations from colposcopist if HPV status unknown
- Screening Cessation: at age ≥ 70 yr and ≥ 3 -ve cytology in last 10 yr

Colon Cancer Screening

Background:

- Screening: asymptomatic pt only (if symptomatic, needs diagnostic Ix)
- Promptly Ix: unexplained Fe deficiency anemia, bloody/pencil thin stool, constitutional sx, new persistent diarrhea/abdo pain

History:

- Sx: abnormal BM (constipation, diarrhea, pencil thin stool), hematochezia/melena, abdo pain, sensation of incomplete evacuation, constitutional sx
- RF: FHx ca + age of dx, Lynch syndrome/FAP, obesity, smoking, alcohol, diet (\uparrow red meat or \downarrow fibre), anal sex (rectal ca), IBD

Screening:

- Average Risk: no hx IBD or colorectal polyps, no 1° relative w/ colorectal ca
 - When: age 50–74
 - What: FIT q2yr [82% sensitive, 94% specific] or flexible sigmoidoscopy q10yr
 - Abnormal FIT: colonoscopy within 8 wk
 - Fe supplements / NSAIDs ok with FIT. Wait 3 days after bleeding stops from dental surgery, menses or hemorrhoids for FIT.
- High Risk: 1° relative w/ colorectal ca (parent, sibling, child)
 - When: start 10 yr before relative's age at dx or 50 yo (whichever earlier), until 74 yo
 - What:
 - Relative's age at dx < 60 yo: colonoscopy q5yr
 - Relative age at dx ≥ 60 yo: colonoscopy q10 yr
- If colonoscopy finds polyps (adenomas):
 - Low risk adenoma: FIT in 5 years
 - High risk adenoma: colonoscopy in 3 years
 - Always confirm follow-up interval with the colonoscopist
- Referrals: to GI (IBD – esp. UC), to Genetics (Hereditary cancer syndromes – Lynch, FAP, Peutz-Jeghers, Turcot, MYH-associated polyposis)

Attention-Deficit Hyperactivity Disorder

Background:

- Subtypes: inattentive, hyperactive-impulse, combined
- DDX (commonly misdiagnosed as ADHD): developmental variants (intellectual disability, normal behaviours), neurological or developmental (learning disorder, vision/hearing deficit), neurodevelopmental syndromes, emotional and behavioural disorders (ODD, anxiety, depression, mania), ASD, sleep disorder (OSA, restless leg), fetal EtOH syndrome

History:

- Background:
 - Perinatal: birth wt, delivery issues, prenatal care, maternal tobacco/EtOH
 - PMHx, family history, meds, Looksee (formally Nipissing) milestones
 - Domestic/Personal: parenting style/discipline, screen time, sleep, siblings, diet/stooling, school, friends, childhood life events¹
 - 1 - abuse, bullying, divorce, death
- CC:
 - Children: aggressive, dangerous activities, ∅ completing tasks, forgetful, "zoned out", school issues (inattentive, lack of friends, disruptive)
 - Adults: reckless driving, smoking/drugs, sexual activity, difficulty focusing
- Forms:
 - Weiss Symptom Record II (Child)
 - Weiss Functional Impairment Rating Scale (Parent)
 - SNAP-IV 26 (Teacher and Parent)
 - CADDRA Teacher Assessment Form

Physical Exam: vitals (BP, HR, ht, wt), inspection (dysmorphic features), neurological exam, hearing/vision assessment

Diagnosis:

- SNAP-IV Criteria¹: ≥ 6 mo and onset before 12 yo
 - 1 - subtypes: inattentive (6/9 from q. 1-9), hyperactive-impulsive (6/9 from q. 10-18), combined (satisfy both). Adults (> 17 yo) must meet 5/9 of criteria.
 - Symptoms should be present across at least two settings- i.e. school and at home

Management:

- Non-Rx:
 - CADDRA Psychosocial Chart of suggestions for home/school
 - School accommodation: IEP, psychologist assessment¹
 - 1 - \$1000, but valid into post-2nd education
- Rx: *see CADDRA guide for full list*
 - [1st line]: Stimulants → Dexedrine¹, Concerta²
 - 1 - 2.5-5mg qAM initial; ↑ 2.5mg q1wk; max 40mg/day in 2-3 divided doses
 - 2 - 18mg qAM initial; ↑ 18mg q1wk; max 54mg for children or 72mg for adults

- Ø: HTN, CVD¹, hyperthyroidism (FHx), hx illicit drugs, glaucoma, concurrent MAOI, psychotic disorder
 - 1 - complete CPS Cardiac Risk Assessment before starting stimulants
- S/E: abdo pain, HA, ↓ appetite/wt/sleep, ↑ anxiety, cardiac death (rare)
- Monitoring:
 - When: F/U q1 mo till adequate response, then q3-4 mo
 - What: BP¹, HR, growth retardation, Raynaud's, Response to medication with SNAP-IV
 - 1 - if HTN, refer to Peds
- Switching:
 - Best done during school break or weekend
 - Rx w/in methylphenidate class: calculate equivalent dose
 - Others: use starting dose of new rx (no need to taper previous rx)
- [2nd line]: Non-stimulants → Atomoxetine (SNRI), Guanfacine XR (α-agonist)
- Concurrent Mood Disorder: Wellbutrin (usually at high maintenance dose)

Autism Spectrum Disorder

Background:

- Age of onset: core sx at 12-24 mo, but signs as early as 6 mo
- DDx/co-occurrences: abuse, developmental disability, language disorder, nonverbal learning disorder, ADHD, childhood schizophrenia, juvenile bipolar, social phobia, OCD, hearing/visual impairment, epilepsy (esp. absence seizures), cerebral palsy, myopathy, Landau-Kleffner, Rett, Fragile X, Turner, Tourette

History:

- CC: motor delay, ↓ response to own name, inattention, plateauing language + social skills, self-injury
- Background: parental age¹, prenatal care, delivery complications, previous visit concerns (see Looksee), ON newborn screening, newborn hearing screening, FHx ASD
 - 1 - mother > 40 yo, father > 50 yo
- Domestic/Personal: caregivers, adverse life events, siblings, sleeping, eating + toileting, school, friends

Physical Exam:

- Vitals: ht, wt, head circumference
- Inspection: skin (tuberous sclerosis, neurofibroma), dysmorphic features¹
 - 1 - Tri21 (prominent epicanthal folds, up/down slanting of palpebral fissures, low set ears, macroglossia), Turner (webbed neck)
- Neurological exam
 - CN: move flashlight/toy [3, 4, 6], face during cry [7], crumple paper and they turn to it [8], voice [9, 10, 12], view palate [11]
 - Muscle: tone (passive ROM), strength (inspect bulk symmetry, strength of kicking, pincer grip on toys)
 - DTR [use your fingers], Babinski, cerebellar (balance, smooth mvmt)

Investigations:

- Standard: vision, hearing

- PRN: EEG, MRI¹, chromosome², lead (if pica or living in risk area), CBC/BMP (if cyclic vomiting or lethargy)
 - 1 - microcephaly, abnormal neuro exam | 2 - if dev. disability, dysmorphic, congenital anomaly

Diagnosis:

- DSM-5:
 - Persistent deficits in social communication and interaction (all 3 of):
 - Social-emotional reciprocity
 - Failure of normal back-and forth conversation, ↓ sharing of interests/emotions/affect
 - Non-verbal communicative behaviours
 - Abnormal eye contact/body language/facial expression, difficulty understanding/using gestures
 - Difficulty w/ relationships
 - Difficulty adjusting behaviour for social context, ↓/absent interest in peers
 - Restricted, repetitive behaviour (≥ 2 of):
 - Stereotyped/repetitive speech or motor
 - Insistence on sameness/inflexible routine
 - Highly restricted fixated interests
 - Hyper-/hypo-reaction to sensory input¹
 - 1 - distress or fascination w/ certain smell, sound, sight, etc.
- Age onset (per ICD-10): ≤ 3 yr, but sx may not be fully evident until later
- Assessment: audiology + vision testing, clinical observation, hx, DSM-5 criteria
 - If uncertain (mild/atypical sx, complex medical/psych, < 2 yo): refer to Peds or ASD Diagnostic Hub
 - Optional: other ASD diagnostic tools (expensive)

Management:

- Approach: early intensive behavioural interventions during age 2-5 may ↑ IQ + language skills
- Core Management:
 - Community programs: e.g. KidsAbility in Kitchener-Waterloo (behavioural support¹, respite, recreation)
 - 1 - e.g. family strategies: structured routines, positive reinforcement, play, etc.
 - Allied health: SLP, OT, PT, SW, educational support
 - Family support: parental/sibling mental health, ON childhood budget, ON disability tax credit
- Other:
 - Irritability/aggression: Risperidone 0.25 (< 5 yo or < 20 kg) or 0.5 mg BID, Aripiprazole 2mg OD
 - Co-morbidities: dental (public health referral), GI¹, nutrition (refer dietician), sleep (sleep hygiene ± melatonin 1-3mg qhs), psych²
 - 1 - celiac, esophagitis, etc.: consider GI referral
 - 2 - Psych: anxiety (SSRI), ADHD (see section), depression (SSRI)

Emergent Neonate Surgical Presentations

Bilious Vomiting:

- **Immediate transfer to ED**
- **DDx:** atresia (congenital), malrotation, volvulus, Hirschsprung, intussusception, NEC, meconium ileus (CF)
- **Conditions:**
 - Hirschsprung: \emptyset ganglia to relax anal sphincter; meconium delay/plugs, intermittent explosive stools
 - Intussusception: 3mo-5yr; episodic pain, distended, post-viral illness, red currant jelly stool (late); 10% recurrence w/ air-CO2 enema

Non-bilious Vomiting:

- **DDx:** bilious causes, pyloric stenosis, GERD
- **Conditions:**
 - Pyloric Stenosis: 2-8 wk old; projectile vomiting, palpable olive mass; hypo-Na/hypo-K/hypo-Cl metabolic alkalosis
 - GERD: try position Δ , thicker feeds

Delayed Meconium Passage:

- **Background:** normally passes w/in 24 h, must w/in 48; > 24 hr suspicious
- **DDx:** Hirschsprung, small left colon syndrome, neuronal intestinal dysplasia, anorectal malformation, CF

Bloody Stools:

- **DDx:** milk protein-associated enterocolitis, intussusception, midgut volvulus, NEC, Meckel diverticulum, Burkitt lymphoma
- **NEC:** onset w/in first few wk, low birth wt/premature, hx feeding intolerance, abdo distension, abdo discoloration (perforation)

Drooling:

- **DDx:** esophageal atresia, tracheoesophageal fistula
 - VACTERL association: vertebral anomaly, anal imperforate, congenital heart disease, tracheoesophageal anomaly (atresia, fistula, stenosis), renal/radial abnormal, limb ab., single umbilical art.

Groin Swelling:

- **DDx:** hernia, hydrocele, lymphadenopathy, ectopic testicle descent, torsion (more red, painful), incarcerated ovary, Fournier's gangrene
- **Conditions:**
 - Hernias: non-reducible \rightarrow emergency
 - Physical Exam: silk glove sign, frog leg maneuver
 - If reducible: umbilical hernia (watch till 3 yo), inguinal (\leq 1 yo gets urgent surgery w/in 1 mo, else w/in 6-12 mo)
 - Hydrocele: trans-illuminate, palpable cord, Δ size through day/position (communicating) \rightarrow if sx, or communicating beyond 1 yo \rightarrow Urology

Failure to Thrive

Background:

- Growth and Nutrition:
 - FTT: < 5th percentile or drop 2+ major percentile lines; may present as GDD
 - 2-3-4 rule: **2**x birth wt by 5 mo, **30** g/d till **3** mo, grow **3/4"** per mo till 5 mo
- Etiology:
 - Decreased intake: GERD, feeding habits, breastfeeding technique, neglect
 - Malabsorption: CF, celiac, biliary atresia, milk allergy, metabolic disorder
 - ↑ Metabolism: congenital heart disease, renal disease, ca, inflammation (IBD, asthma), hyperthyroid, infection (HIV, TB), Schwachman-Diamond

History:

- Background: prenatal care, delivery issues, Looksee records
- Feeding: diet¹, breastfeeding², frequency + quantity, who feeds them?, distractions (TV, toys), restrictions (cultural/religious, ?allergies)
 - 1 - formula (type, following bottle instruction), cow's milk use, solids, etc.
 - 2 - breastfeeding: normal q2-3 hr, 10-15min/breast. Mom: feel latching + milk letdown, breasts non-tender after feeds, cues for feeding [infant alertness, mouthing], difficulty weaning
- Sx: BM, emesis, GERD, voiding¹, sleep, activity
 - 1 - ≥ 6 wet diapers/d is normal
- Home (caregivers, stressors, siblings), FHx allergies

Physical Exam:

- Vitals: ht, wt (diaper off), head circumference, high BP (renal disease)
- Inspection: parent-child interaction, mucous membranes + skin turgor, dentition, dysmorphic features¹, alopecia (Zn Deficiency), rashes/bruises (e.g. dermatitis herpetiformis), muscle wasting (cerebral palsy, ca)
 - 1 - Tri21 (prominent epicanthal folds, up/down slanting of palpebral fissures, low set ears, macroglossia), Turner (webbed neck)
- Palpation: hepatosplenomegaly (infection, ca)
- Auscultation: murmurs, wheeze (CF)

Investigations:

- Most common cause: inadequate caloric intake
 - ∅ routine labs; consider 72h food diary
- PRN:
 - [Step 1]: CBC, lytes, Cr, BUN, serum protein, Alb, TSH, MCV + ferritin + TIBC, Ca/PO4/ALP, AST/ALT/GGT, ±ESR, ± Ig, ± TTG and IgA, urinalysis
 - [Step 2]: sweat chloride, vitamin levels, bone age, fecal elastase
 - [Step 3]: pediatrics referral

Management:

- Allied Health: Dietician, ± Lactation Consultant ± SW
- Refractory and after Peds consult: cyproheptadine (anti-His; ↑ appetite) 2mg QID x 1 wk, 4 mg QID

- Hospitalize if: extreme parental anxiety, safety risk, serious underlying etiology, severe malnutrition/dehydration

Well Child Visits

Background:

- When: 1 wk, 2-4-6-9-12-15-18 mo, 2-3-4-5 yr, then q1-2 yr until 18 yr
- Enhanced screen at 18 mo (i.e. longer duration + higher billing)

History:

- Rourke (1 wk-5yr), Looksee (formerly Nipissing) (1 mo-6 yr)
- General questions: feeding (diet, ease, dental care), home environment (stressors, caregivers, siblings), activity, screen time, school
- Parents: family planning, post-partum depression screening

Physical Exam:

- Growth Charts¹: head circumference (till 2 yo), ht, weight
 - 1 - WHO chart till 5 yo; then CDC till 18 yo. Correct WHO chart for premies (< 37 wk GA) until 2 yo [e.g. if 4 mo visit for 35 wk GA → plot at 11 wk] or use Fenton. Tri21, Turner and Noonan have their own curves
- Inspection: parent-child interaction, moist mucous membranes, dentition, fontanelles, vision tests, cardioresp:
 - Red reflex (birth - 5 yo)
 - Corneal light reflex + cover-uncover (6 mo - 5 yo)
 - Fix and follow (6 wks - until able)
 - Visual acuity (3 yo and up)
- Palpation: abdominal masses, testicular descent¹
 - 1 - testicles can still retreat even once fully descended, so continue routine checks
- Special tests: tone, Ortolani-Barlow, back for tufts/dimples, Babinski (normal up to 2 yo), reflexes-suck, grasp, moro

Newborns:

- Ensure completion of: comprehensive physical exam, hearing test (w/in 1 mo), Vit K injection, critical congenital heart disease oximetry screen, ON newborn screening
- Exclusively breastfed babies: supplement 400 IU Vit D¹/d + Fe² 1mg/kg/d
 - 1 - e.g. Enfamil D-Vi-Sol, until adequate other sources [e.g. formula]
 - 2 - e.g. Fer-In-Sol, until Formula or solids
- Parental education: low threshold for sepsis¹ 0-1 mo; go to ER if poor feeding, lethargy, high or low temp
 - 1 - RF: mom GBS +ve, maternal peripartum fever or vaginal lesions

Ontario Immunization Schedule:

Category	Values	15 mo	Var (SCT)
2 mo	DtaP-IPV-Hib (IM) Pneu-C-13 (IM) Rotavirus (PO)	18 mo	DtaP-IPV-Hib (IM)
		4-6 yo	Preferred at 4 yo MMRV (SCT) Tdap-IPV (IM)
4 mo	<u>Same as 2 mo</u>	Grade 7	At school: Hep-B, Men-C, HPV-9
6 mo	DtaP-IPV-Hib (IM) Rotavirus (PO)	Tdap (IM)	14-16 yo + 24-26yo, then q10 yr
12 mo	Pneu-C-13 (IM) Men-C-C (IM) MMR (SCT)	Shingrix	50 yo + see "Basics"
		Pneu-P-23	65 yo + see "Asthma"
		Influenza	Every fall

Adapted from: Publicly Funded Immunization Schedules for Ontario – December 2016

- Influenza vaccination:
 - start at 6 mo; best protection prior to this is family member vaccination
 - If *first* flu shot received ≤ 9 yr, need one-time 2nd dose 1 mo later (i.e. after this, only need one dose)

Topics of Discussion:

- Common allergenic foods: try one at a time to see rxn, continue a few times/wk to keep tolerance. Start at:
 - No/low risk: complementary feeds at 4-6 mo
 - High risk (personal or FHx atopy): introduce at 6 mo ($\emptyset \leq 4$ mo)
- Safety: with regards to food (honey), baby proofing, helmet use, caregiver mood/burnout, high risk siblings, dental care
- Feeding:
 - Begin solids at 4-6 mo (esp. Fe fortified cereal)
 - No cow's milk till 1 yo (and <500 c/d 1-2 yo; iron deficiency risk)
- Not meeting development milestones:
 - If language related: start w/ audiology, SLP, encourage reading, etc., but don't overly delay Peds referral
 - Motor delays: do full physical exam, consider OT involvement and involve pediatrics
- Adolescents (SSHADESS): strengths, school, home, activities/employment, drugs/EtOH, emotions/eating, sex, safety)

PSYCHIATRY

Adjustment Disorder

Diagnosis:

- Sx w/in 3 mo of stressor (work, marital, medical, poverty, etc.)
- \emptyset satisfy MDD/anxiety disorder criteria + significant fn impact. Once stressor in ctrl, sx stop w/in 6 mo.

Management: supportive psychotherapy, \pm short-term propranolol 10mg OD (at least \geq 4 wk post-event)

Alcohol Use Disorder

Background:

- Complications: psych (MDD/anxiety, insomnia), neuro (Wernicke's, peripheral neuropathy), CV (cardiomyopathy, holiday heart), GI¹, heme (macrocytic anemia, cytopenias), MSK (trauma), Gyne²
 - 1 - pancreatitis, hepatitis, fatty liver, PUD | 2 - \downarrow fertility, sexual dysfunction, fetal alcohol syndrome
- Maximal use¹: daily (2 F, 3 M), special occasion (3 F, 4 M), weekly (10 F, 15 M)
 - 1 - Standard drinks: 12 oz beer (1 can) = 5 oz wine (1 glass) = 1.5 oz spirit (1 shot)
 - Note - 1 bottle wine = 6 drinks

Screening:

- One-item screen [80% sen.]: "how many times in the last yr have you had \geq 5 (4 in F) drinks/d?"
- Others: CAGE¹ (+ve if \geq 2 in M, \geq 1 in F; 75% sen.), AUDIT-C² (better for at risk drinkers; 80% sen.)
 - 1 - "Ever felt you needed to **CUT** down on your drinking?; Have people **ANNOYED** you by criticizing your drinking?; Ever felt **GUILTY** about drinking?; Ever felt you needed an **EYE-OPENER** drink first thing in the morning to steady your nerves or to get rid of a hangover?"
 - 2 - "How often did you have a drink containing alcohol in the past year?; How many did you have on a typical day in the past year?; How often did you have \geq 6 drinks on one occasion in the past year?" See QxMD app to calculate score

History:

- Use:
 - Frequency, qt., w/ other drugs, w/ other ppl, when started using, when use became daily, when started to cause problems
 - Tolerance (\uparrow qt.), withdrawal¹, consequences (DUI, assault charges, social, health, job), mood and SI
 - 1 - withdrawal sx (HIP SATAN): hallucinations, insomnia, psychomotor agitation, seizure, autonomic \uparrow (sweating, palpitations), tremor, anxiety, NV
 - Abstinence hx ("Ever had significant time off? How'd you do it?"), past tx
- Background: FHx use, adverse childhood events, home/work, cultural context

Management:

FRAMES Protocol for at-risk behaviour: *alternative to 5A's*

Protocol	Explanation
Feedback	Identify EtOH use as problematic. Connect their use w/ indicators (LFTs, CAGE, etc.)
Responsibility	"The decision to quit is choice only you can make."
Advise to Δ	"For your health I strongly recommend you quit/cut down."
Menu of Options	Discuss rx, non-rx strategies to quit
Empathy	"Quitting after all these years is a challenge."
Self-Efficacy	"You've put thought into this plan. You seem determined to make a change."

- Withdrawal seizures 2° to EtOH reduction/abstinence:
 - When: at 48-72 hr (but up to 2 wk later); at risk if ≥ 6 drinks/d $\times \geq 1$ wk
 - Prevention: instruct pt to taper EtOH over 1-2 wk, \downarrow 1-2 drinks/d per sx
 - At home mgmt: CIWA by caregiver (usually q1hr; if more frequent may need in-pt mgmt) – Diazepam 10mg (ideal), Lorazepam (if liver disease)
- Tx:
 - Alcoholics Anonymous, CBT, in-pt rehab¹
 - 1 - Indications: living alone, poor support, everyone at home using, tx failure
 - Rx:
 - Naltrexone 50mg OD (\downarrow euphoria from drinking; "no need" abstinence)
 - Dose adjustment per hepatic function. Contraindicated in acute hepatic failure.
 - Acamprosate 666mg TID (\downarrow cravings; better w/ abstinence goals)
 - Disulfiram (unpleasant + DDIs; rarely used unless had previous success)
 - Gabapentin (\downarrow heavy drinking days; off label use and 2nd line rx if severe case of EtOH use disorder)
 - Risks: misuse, ++respiratory depression (w/ other CNS depressants)
 - Thiamine (prevent Wernicke's): 100mg PO OD during therapy

Anxiety and Related Disorders

Background:

- Disorders: panic disorder, SAD, GAD, OCD, PTSD; PA \emptyset tx
- DDx: endocrine (hyperthyroid, pheo, Cushing), anaphylaxis, ACS/asthma/COPD, psych (bipolar, MDD, schizophrenia), withdrawal (EtOH, benzo), brain injury, sleep disorder, arrhythmia, carcinoid, drugs (caffeine/THC/cocaine, meth)
- Comorbidities: chronic fatigue syndrome, fibromyalgia, IBS

History:

- Basics: onset, frequency, duration of sx, fn impact (work, family, school, sleep), SI/HI
- Disorder Specific Questions:
 - GAD-7 Questionnaire: feeling anxious, sources of worry, ctrl over worrying, ability to relax, feeling restless, irritable, -ve premonition

- Screening Question: “Some people are worriers, but they can handle it. Others worry so much it gets in the way of life and paralyzes them. Where do you fall?”
- Other: SCARED screen for children, MDICALC GAD-7 to assess severity
- Panic Attacks: duration of attacks, sx, pro-drome vs. “out of the blue”, feelings around attacks (e.g. so fearful of them, avoid certain places, sex)
 - Screening Question: “Do you have sudden panic/anxiety attacks with physical sensations, such as SOB, heart racing, sweating, shaking?”
 - Use PDSS on QxMD for severity assessment
- SAD: fear out of proportion + avoidance of social situations/scrutiny (e.g. performance, parties, restaurants)
 - Screening Question: “Do you avoid social situations w/ people you don’t know (e.g. parties)? Are you unable to eat in front of other people or do presentations? Do these things get in the way of life?”
- OCD: obsessions (fear of contamination, need for symmetry), compulsions (repetitive washing, checking doors, excess praying), time occupied by obsessions/compulsions every day
 - Use Yale Brown OCD Scale
 - Screening Question: “Do you have unusual thoughts that you know are silly, but you just can seem to stop them? Do you have certain rituals you have to do such as tapping your hand a certain way or do things in sets of three?”
- PTSD: exposure¹, involuntary flashbacks/dreams, avoid stimulus related to exposure, irritability, depression,
 - 1 - e.g. grief, MVA; PTSD (traumatic event) vs. adjustment disorder (stressful event)
 - Consider Using HealthLink BC PTSD Assessment
- Comorbid psych screens: MDD, hallucinations/delusions
- RF: FHx anxiety, childhood stress/trauma, chronic illness, behaviour inhibition¹
 - 1 - withdraw from unfamiliar situations when stressed
- Other causes: wt Δ (thyroid disease), pre-syncope (arrhythmia), CP + SOB + palpitation (angina, phéo), caffeine, smoking/EtOH/ drugs, sleep

Investigations: CBC, lytes, BG, TSH, LFTs, lipid panel, ± urine tox (w/ pt consent)

Diagnosis: *must cause fn impairment*

- Panic Disorder: ≥ 1 mo
 - Criteria: recurrent + unexpected panic attack¹ (≤ 10 min) + anticipatory anxiety of PA/location avoidance
 - 1 - Panic attack (≥ 4 of): STUDENTS fear the 3 Cs (sweating, trembling, unsteady/dizzy, derealization, excess HR, nausea, tingling, SOB); 3 Cs (CP, choking chills)
 - panic disorder (“out of the blue”) vs. panic attack (situational; expected)
- GAD: ≥ 6 mo more days feeling anxious than not
 - Criteria: excess worry about “everything”, fatigue, concentration, sleep issues, or irritability
- SAD: ≥ 6 mo
 - Criteria: persistent fear social/performance/judgement
- OCD: ≥ 60 min/d
 - Criteria: inappropriate + intrusive obsessions/compulsions
 - obsessions not about “real-life issues” e.g. worry about COVID ≠ OCD
- PTSD: ≥ 1 mo
 - Hx: exposure + intrusive memories/dreams + reactivity, avoidance

Management:

- Approach: can start rx while awaiting CBT

First Line Treatment Examples

	Therapy Options [start/uptitrating/max dose]	Adjunct	Avoid
PD	Venlafaxine XR 37.5mg x 1wk then 75/75/225mg OD Paroxetine XR 12.5/12.5/ 75mg OD	Lorazepam 0.5 mg PRN ¹	propranolol, tiagabine, trazadone
GAD	Duloxetine 30/60/120mg OD	Pregabalin 150-600mg OD	propranolol, tiagabine
SAD	Sertraline 25/25-50/200mg OD Fluvoxamine XR 100/50/300mg qhs	Propranolol 40mg PRN	<i>standing</i> propranolol, atenolol, quetiapine, buspirone, Keppra
OCD	Citalopram 20/20/80-120mg OD Fluoxetine 20/29/80-120 OD	N/A	clonidine, clonazepam, desipramine
PTSD	Sertraline 25/50/200mg OD Venlafaxine XR 75/75/300mg OD	N/A	alprazolam, citalopram, clonazepam, olanzapine

1 – at panic attack onset | 2 – if partial response with other meds | 3 – before performance

- Contraindications:
 - SSRI/SNRI/TCA: concomitant or w/in 14d of d/c MAOI or linezolid
 - TCA: post-MI recovery, concomitant motilium or cisapride
 - Sertraline: contaminant disulfiram
- Dosing:
 - Trial drug 12 wk: starting dose x 1 wk → up-titrate q2-3 wk till max dose. If inadequate → try two other 1st lines¹ → psych referral
 - 1 - Switching: lower drug-1 q5d by typical doses till start dose → start drug-2 at ½ starting dose + starting dose of drug1 x 5d → full starting dose drug-2 + stop drug-1
 - Good Response: continue dose x 6 mo before considering taper
- Adjuncts: given frequent concurrence of MDD and anxiety disorders, consider use of mood stabilizers (e.g. Abilify and Lutada. Topiramate and lamotrigine also options but not routine)
- Special Cases:
 - Concurrent ADHD: Wellbutrin (usually at high maintenance dose)
 - Chronic Pain Syndromes: duloxetine

Bipolar Disorder

Differential Diagnoses:

- DDX: psych (ADHD, schizophrenia, borderline PD), EtOH/substance use, endocrine (Cushing, thyroid disorder, Wilson's), neuro (Parkinson's, MS, Huntington) meds (CS, levodopa, fluoxetine)
- Consider 2° cause if mania before puberty or > 40 yo

History:

- Screening: "Have you ever had several days in a row where you felt so happy/energetic others thought you were behaving strangely, or so irritable/impatient you got into arguments?"
- Basics: onset, duration, stressors, home life¹, MSIGECAPS, MDQ (by Hirschfeld), fn impact
 - 1 - who they live w/, occupation, finances, recreation, friends/family support, etc.
- Other Hx: past psych hx¹, FHx bipolar disease
 - 1 - psychiatrists, ER visits, hospitalizations, past tx

Physical Exam:

- General: ↑ DTR (hyperthyroid), adapted neuro screen¹, cogwheel rigidity (Parkinson), ±MOCA
 - 1 - speech, facial droop, pupils, EOM, finger extension strength, abnormal gait, pronator drift. *High yield findings to R/O TIA.*
- Mania/Hypomania MSE:
 - Behaviour: overfamiliarity, distractible
 - Motor: restless
 - Affect: irritable/elevated, labile
 - Speech and Thought: pressured speech, flight of ideas
- Depression MSE:
 - Speech: soft, long pauses
 - Motor: psychomotor retardation
 - Thought content: rumination, delusions, hallucinations, SI/HI
 - Cognition: ± impaired 5-word recall

Diagnosis:

- States:
 - Mania: ≥ 1 wk of elevated/irritable mood + ≥ 3 of GST PAID¹ [4 if only irritable]
 - GST PAID: grandiosity, sleep deficit, talkative, pleasurable activity (sex, gambling, buying spree), activity (goal directed, psychomotor), ideas (flight of), distractible
 - Hypomania: ≥ 4d of ↑/irritable mood + ≥ 3 of GST PAID [4 if only irritable]
 - hypomania vs. mania (delusions/hallucinations, impaired social fn)
- Disorders:
 - Bipolar I: ≥ 1 episode of mania ± MDD ± hypomania
 - Subtypes: rapid cycling (≥ 4x episodes mania/hypomania/MDD per yr), mixed features (≥ 3 sx from opposite poles during episodes x ≥ 1 wk), mania w/ psychotic features (vs. schizoid [prominent bizarre psychotic sx incongruent w/ mood Δ])

- Bipolar II: MDD + hypomania. Ø mania
 - Bipolar (no emotional trigger) vs. Borderline PD emotional lability (emotional trigger)
- Cyclothymic Disorder:
 - Hx: alternating hypomania (≥4 days continuously) and MDD (≥ 2 wk continuously), neither meeting bipolar dx
 - Duration: ≥ 50% of ≥ 2 yr (≥1 yr for peds) and cannot be absent x ≥ 2 mo

Management and Investigations:

- Acute Mania: send to ER + fill out Form 1
- Rx: lifelong; special dosing for combo therapy

Medications for Non-Acute Bipolar Disease

Lithium			
Dose	Investigations	Side Effects	
Initial: 300mg BID-TID (150mg OD in elderly)	At start: CBC, lytes, Cr, U/A, Ca, TSH, β-hCG, EKG (if ≥ 40 yo)	S/E: wt gain, GI upset (give w/ food), tremor (give propranolol), DI (give HCTZ), AKI, hypothyroid, hyperparathyroid, leukocytosis	
Up-titrate: 300mg/d q1wk based on trough ¹	Routine: Cr q1yr, 12hr trough q3-4 mo (+ Cr if high), TSH q6-12 mo	Toxicity: coarse tremor, vomiting, vertigo, blurry vision	
Divalproex (Epival)			
Dose	Investigations	Side Effects	Ø
Initial: 250mg BID (125 OD in elderly)	At start: CBC, LFTs	S/E: agranulocytosis, tremor, hepatotoxicity (benign ALT AST ↓; consult GI if 2x normal), low plts (consult hematology if < 150);	PCOS, F of childbearing age
Up-titrate: 250mg q1wk based on level ²	Routine: CBC at 4 wk + q3-6mo, LFTs q6mo (if high then q1-3mo)		
Lamotrigine			
Note	Dose	Side Effects	
Not effective for Bipolar type I	Initial: 12.5-25mg OD Up titrate: 25mg q2wk Od	SJS, DRESS, HA, diplopia	

1 – Li 12 hr post dose; target 0.6-0.8 mmol/L on 2 consecutively | 2 – Epival level Target level 350-700 µmol/L

- Special Cases:
 - Breakthrough depression temporary measure: increase Li (trough 0.8-0.9), add quetiapine *or* add lamotrigine [SSRIs are 2nd line] ± CBT
 - Psych Consult: pregnancy planning, trt resistant bipolar disease
 - Pregnancy:
 - Epival: very teratogenic esp. 1TM (neural tube defects)
 - do serial U/S + AFP if accidental exposure

- Li: safer than Epival but can cause Ebstein anomaly (0.1%). May need to ↑ Li dose during pregnancy and ↓ postpartum re eGFR changes
- Other: MTO (e.g. if erratic driving), trigger control (poor sleep, substance use), disability (only while manic; rarely lifelong)

Eating Disorders

Background:

- DDx: endocrine (DM1, Addison's, hyperthyroid), intracerebral tumor (↓ appetite), leukemia/lymphoma, celiac, IBD, HIV, TB, OCD
- *Eating disorders carry high mortality. It can be reason to break confidentiality.*

History:

- Screen: "Any thoughts of restricting food or vomiting to change weight?"
- Basics: Weights (highest, lowest, course), diet (calorie counting, restrictions, 24hr meal hx), binging¹, purging², body image, thoughts around food
 - 1 - high/fast intake, "lack of ctrl", eating alone | 2 - emesis, diuretic/laxative, fasting, exercise
- Background: HEADSSS¹, friends, stressors, abuse
 - 1 - home, education/employment, activities, drugs, sex, safety, SI
- Psych Screen: MDD¹, anxiety², bipolar³, schizophrenia⁴
 - 1 - "Ever had period of deep sadness, not just for couple days, but many weeks; had no energy, interest and not eating-sleeping well?"
 - 2 - "Some people are worriers, but they can handle it. Others worry so much it gets in the way of life and paralyzes them. Where do you fall?"
 - 3 - "Ever had several days you felt so happy/energetic others thought you were behaving strangely, or so irritable/impatient you got into arguments?"
 - 4 - "Ever feel your mind was playing tricks on you: voices/seeing things others weren't? Unusual thoughts like people you don't know trying to harm you?"
- Sx: menstrual hx, syncope, melena/hematemesis (Mallory-Weiss), GERD, epigastric burning (PUD), BM + voiding

Physical Exam:

- Vitals: orthostatic, bradycardia, hypothermia, ht + wt (CDC curve), BMI
- Inspection: carotenosis, wasting, dentition, enlarged parotids, lanugo, Russell's sign¹, self-injuries, Tanner staging
 - 1 - calluses on knuckles/dorsal hand from repeated self-induced vomiting
- Auscultation: murmur
- Palpation: organomegaly, volume status (turgor, edema, cap refill),
- Special: PMW, Tanner staging, insight

Diagnosis:

- Anorexia: ↓ intake causing low wt + intense fear of wt gain + overvalue wt/shape on self-image
 - Subtypes: binge/purge, restricting, atypical w/ normal BMI
- Bulimia: binges & purges ≥ 1x/wk x ≥ 3 mo + overvalue wt/shape on self-image
 - Difference from anorexia: specific # binge/purge, normal BMI
- Binge Eating Disorder: binges ≥ 1x/wk x ≥ 3 mo + distress after binge + ∅ purge

- Avoidant Restrictive food intake disorder: ↓ intake causing low wt/nutrition + not due to cultural practice + no wt/shape self-image disturbance
 - Usual causes: fear of choking/emetesis, aversion to foods/textures

Investigations:

- Common: CBC, lytes, BUN/Cr, PO₄, Ca, Mg, BG, LFTs, Alb
- PRN: EKG, TSH, ESR, DEXA (if underweight ≥ 6 mo), β-hCG/LH/FSH/prolactin (if amenorrhea)

Management:

- Hospitalize if: BMI < 14 or 2nd percentile, wt loss 0.5 kg x ≥ 2 wk, HR < 50/long QTc, SBP < 90, orthostatic hypotension, T < 36, Mallory-Weiss/hematemesis, severe lytes abnormalities, ANC < 1.5, acute food refusal, SI
- Outpatient:
 - Referrals: dietician, CBT/family therapy (esp. for adolescents), eating disorder clinic or adolescent medicine
 - Anorexia: supervised eating, recognize interference¹, beware of refeeding syndrome², BMD q2yr during disorder
 - 1 - exercise in bathroom, falsifying wt, wearing little clothing to shiver
 - 2 - esp. if low PO₄/K/Mg, BMI < 16
 - Bulimia: ± adjunct fluoxetine 60mg qAM
 - Tx comorbidities: MDD, anxiety, constipation

Major Depressive Disorder

Background:

- DDx: Bipolar, dysthymic, schizophrenias, SAD, adjustment disorder, PTSD, EtOH, bereavement, anemia, Parkinson, dementia, hypercalcemia, hypothyroid, Cushing, neurosyphilis, Lyme
- Screening: *NOT* routinely recommended, *even if higher risk* (e.g. substance use, FHx depression, hx trauma, etc.)

History:

- MSIGCAPS (mood, sleep, interest, guilt/worth, energy, concentration, appetite/wt, psychomotor, SI¹), HI, hypomania screen², delusions/hallucinations³, EtOH/drugs, fn impact
 - 1 - if yes: passive vs. active, plan, preparations, past attempts/self-harm, what prevents them
 - 2 - "Ever had several days you felt so happy/energetic others thought you were behaving strangely, or so irritable/impatient you got into arguments?"
 - 3 - "Ever feel your mind was playing tricks on you: voices/seeing things others weren't? Unusual thoughts like people you don't know trying to harm you?"
- Background: psych hx, seasonality of sx, if pt is postpartum
- Screen for comorbid conditions: anxiety/panic disorder¹
 - 1 - "Do you worry more often than not? Do things make you extremely anxious? Ever had panic/anxiety attacks?"
- Optional: constipation + cold intolerance (hypothyroid), abdo pain + polyuria (hyper-Ca), weight Δ (Cushing, hypothyroid)

Physical Exam:

- Vitals: bradycardia (thyroid), HTN (Cushing)
- Inspection: bradykinesia + pill rolling (Parkinson), BMI (thyroid, Cushing)
- MSE:
 - Speech: soft, long pauses
 - Motor: psychomotor retardation
 - Thought content: rumination, delusions, hallucinations, SI/HI
 - Cognition: ± impaired 5 word recall
- Special Tests: palpable thyroid + slow relaxation phase of ankle-jerk (hypothyroid), MOCA (dementia)

Diagnosis: ≥ 5 of MSIGECAPS (which must include M or I) for ≥ 2 wk¹, most of every day + fn impact

- 1 - Anecdotally, consider waiting till 3-4 wk before starting Rx (to avoid overmedicating)
- PHQ-9 score to quantify severity
- In Geriatrics: MDD vs. cognitive impairment (although can occur concurrently)
 - MDD: ↓ motivation (e.g. doesn't finish MOCA clockface), self aware of sx
 - CI: motivated (clockface finished but wrong), unaware of sx

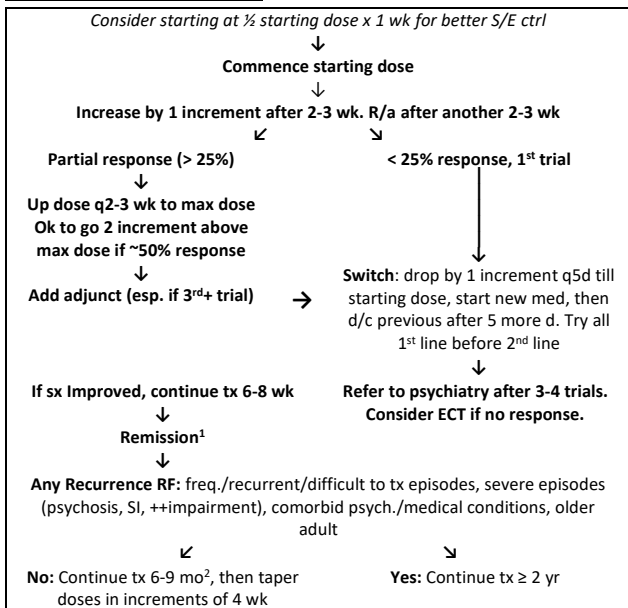
Investigations:

- Routine: CBC, TSH; if starting rx – LFTs, Cr, A1C, lipid panel
- Do full w/u¹ if: > 50 yo, clouded sensorium (Ø WORLD backward, disoriented) non-auditory hallucinations
 - 1 - lyses, Ca + Alb, B12, RPR/VDRL, HIV Ab + Ag, Lyme EIA, CT head, 24h urine cortisol

Management:

- Tx: CBT + Rx + Non-Rx Adjunct
 - Non-Rx: exercise (structured, mod intensity 45 min, 3x/wk), sleep hygiene
 - Rx: *check DDI before starting meds; usually 4-6wk before sx improvement*
 - [1st Line] Escitalopram (Ciprallex), Fluoxetine (Prozac; use esp. if 8-18 yo¹), Sertraline (Zoloft), Venlafaxine (Effexor), Mirtazapine
 - 1 - ↑ suicide if < 18 yo after starting anti-depressants, except w/ Prozac
 - [2nd Line] Citalopram (Celexa)
 - Adjunctive:
 - 1st Line: mood stabilizers¹ (e.g. Abilify and Latuda²), quetiapine, risperidone
 - 1 - Topiramate and lamotrigine also options but not routine
 - 2 - Latuda official use is bipolar disorder, but consider in MDD
 - 2nd Line: Wellbutrin, Olanzapine
 - See “Quick Reference Guide: Antidepressants” for S/E
- Special Cases:
 - Concurrent ADHD: tx w/ Wellbutrin (usually at high maintenance dose)
 - Chronic Pain Syndromes: tx w/ duloxetine

Dosing and Medication Switching:



1 - Consider d/c rx only if 1st/2nd episode. If 3rd/difficult 2nd, do lifetime tx

2 - Do NOT stop tx prematurely even if sx resolve, else risk recurrence

Original Work. Information based on: "Approach to Depression" by John Davine

Special Cases:

- Bereavement: CBT if < 2mo, then add rx
- Post-partum blues: 50% prevalence; w/in 3 days of delivery + self-resolves in 7-14 d → reassure ± CBT
- Post-partum depression: 10% prevalence (50% w/ hx of MDD)
 - Hx: Edinburgh postnatal depression scale
 - Dx: w/in 4 wk delivery + 5/9 MSIGECAPS x ≥ 2 wk
 - Mgmt: CBT + Rx (sertraline, escitalopram); Ø St John's Wort in breastfeeding
- Persistent depressive Disorder (aka Dysthymic): Ø meet MSIGECAPS, ≥ 2 yr → CBT ± short term rx
- SAD: winter mo; light therapy from 2 wk pre + post anticipated sx at 10,000 lux x 30 min qAM ± rx (if significant fn impact)

Personality Disorders

Overview:

- Definition: heterogeneous group of dx, often comorbid w/ other psych disorders (e.g. MDD, PTSD)
- Etiology: unclear, but likely multifactorial
- Features:
 - Pts often have ↑ use of primary care and mental health services
 - Pt often receive sub-optimal healthcare b/c of countertransference
- Mgmt: 1st line tx is DBT
 - Consider adjunct rx (i.e. mood stabilizers like Abilify, Latuda)

Types:

Cluster & Memory Aid	Disorder	Characteristics
A "Weird"	Paranoid	Pervasive distrust/suspicion of others
	Schizoid	Detachment from social relationships
	Schizotypal	Eccentric ideas and behaviour
B "Wild"	Antisocial	Manipulation of others for personal gain; deceitful
	Borderline	Unstable interpersonal relationships and self-image; impulsive
	Histrionic	Excessive emotionality and attention-seeking
	Narcissistic	Overt grandiosity; need for admiration; lack of empathy
C "Worried"	Avoidant	Social inhibition; feelings of inadequacy
	Dependent	Submissive behaviour; "clingy;" fear of separation
	Obsessive-compulsive	Preoccupation w/ orderliness, perfectionism, control

Schizophrenia Spectrum Disorders

Background:

- DDx: delirium¹, rx², neuro (Parkinson's, Huntington's, Lewy Body dementia), substances (EtOH, cannabis, narcotics), OCD
 - 1 - B12, thyroid, SLE, neoplasm, Wilson's, porphyria | 2 - CS, anti-cholinergic, anti-arrhythmic
- R/O organic for: old age onset, non-auditory hallucination, clouded sensorium
- Catatonic State DDx: NMS, EPS, non-convulsive status epilepticus, delirium, locked-in syndrome, stiff person syndrome, schizophrenia

History: will likely need to seek collateral

- Psychotic sx (duration, wax/wane): Hallucinations¹ (type², content, frequency/trigger) + delusions^{3, 4, 5}
 - 1 - "Ever feel your mind is playing tricks? Hearing voices/seeing things others can't? Unexplained smells?"
 - 2 - auditory (2nd/3rd person, running commentary, commands [high risk]), visual (substances, toxins, w/drawl), olfactory (temporal lobe epilepsy)

- 3 - "Any unusual thoughts? Special powers {grandeur}, a plot to harm you {persecution}, TV/radio has special messages for you {reference}? Feel your thoughts are broadcast, or inserted/ taken out of your head? Feel your actions/feelings ctrl by something else {ctrl & passivity}? Feel something unusually wrong w/ your body {somatic}?"
- 4 - likely schizotypal: predicting future, reading ppl's minds, etc.
- 5 - delusion vs. compulsion: "I think you may be misinterpreting things, what do you think?" – fixed (delusion) vs. non-fixed (compulsion)
- More psych sx: mania screen¹, MSIGECAPS, thoughts of aggression (physical, sexual, HI)
 - 1 "several days felt so happy/energetic others thought behaving strangely, several days so irritable/impatient got into arguments"
- PMHx (esp. psych hx¹), stressors, functional impact (social withdrawal, work, legal troubles), FHx schizophrenia, Substances/EtOH
 - 1 - past psychiatrists, hospitalizations, tx (successes, failures)

Physical Exam:

- MSE:
 - Mood & Affect: feeling of impending doom, flat affect
 - Motor: tardive dyskinesia, catatonia
 - Thoughts: disorganized, speaking thoughts out loud, responding to internal stimuli
 - Other: impaired cognition, poor insight
- Neuro: adapted neuro screen¹, finger-to-nose test, cogwheel rigidity (Parkinson's)
 - 1 - speech, facial droop, pupils, EOM, finger extension strength, abnormal gait, pronator drift. *High yield physical findings to R/O TIA.*

Investigations:

- Common: TSH, tox screen, lytes/Cr, CBC, LFTs,
- PRN: CT head (1st episode in older age), EEG (olfactory hallucination), MOCA (esp. older adults)

Diagnosis:

- Schizophrenia Criteria A: core (delusions, hallucination, disorganized thoughts), abnormal motor, negative sx (3 A's: avolition, affect flat, alolia)
- Disorders:
 - Brief psychotic Disorder: sudden onset (< 2 wk) of ≥1 core criteria A x 1d – 1 mo w/ resolution to pre-morbid state
 - Schizophrenia: criteria A (≥ 2, at least 1 core) x > 1 mo¹ + social/work/school dysfunction + overall disturbance ≥ 6 mo
 - 1 - may include prodrome/residual sx [-ve sx only, attenuated criteria A]
 - Schizophreniform: identical to Schizophrenia e/ overall disturbance 1-6mo
 - Schizoaffective: criteria A (≥ 2 [at least 1 core]) x ≥ 1 mo + concurrent mood disorder¹; in this time ≥ 2wk of delusion/hallucination w/o major mood sx
 - 1 - fulfills bipolar I or MDD
 - Bipolar vs. Schizoaffective [can have psychosis in absence MSIGECAPS or mania, where bipolar cannot]
 - Personality Disorders: schizotypal¹, schizoid²

- 1 - (≥ 5 of): ideas of reference, odd beliefs, magical thinking, odd thoughts/speech, suspicions/paranoia, eccentric behaviour, unusual perceptions (e.g. someone whispering their name), limited affect, few confidants (e/ 1st relatives), excess social anxiety
- 2 - (≥ 4 of): no desire for close relationships, anhedonia, few confidants (e/ 1st relatives), little interest in sex, indifference to praise/criticism, emotional coldness/detachment

Distinguishing from Other Disorders

Disorder	Hallucinations	Bizarre vs. non-bizarre	Downward Drift	Affect at psychosis
Schizophrenia	±	B or NB	Yes	-ve
Schizoaffective	±	B or NB	Yes	+ve
Affective Disorder	±	B or NB	No	+ve
Delusional Disorder	No	NB	No	-ve

Adapted from "Approach to Psychosis" by Jon Davine

Treatment of Schizophrenia, Schizophreniform & Schizoaffective Disorders:

1 st Line – Atypical Neuroleptics		
Rx	Dosing	Notable S/E
Risperidone	Initial: 0.5mg BID Up-titrate: 0.5mg BID q1wk Max: 8mg BID	More EPS (vs. others atypicals), prolactinemia (amenorrhea, galactorrhea), wt gain
Quetiapine XR	Initial: 100-300mg qhs Up-titrate: 50-300mg q1wk Max: 800mg/d	Somnolence; no affect on prolactin; less wt gain
Monitoring: LFTs prior to use and q6-12mo if hx liver issues, ECG at baseline, metabolic (A1C, lipid panel) at 12wk and annually thereafter		
Other: Clozapine (must try before calling schizophrenic tx resistant; but agranulocytosis risk w/ complex monitoring ¹)		
2 nd Line: Typical Neuroleptics (Haldol, perphenazine); significant EPS or TD		

1 - CBC q1wk x 6mo, then q2wk x 6mo, then q1mo forever; consider Clozapine clinic

- Notable S/E:
 - TD: iatrogenic Huntington's; ↑ *dopaminergic sensitivity due to rx*; buccal lingual facial mvmts [lip smacking, chewing motion], arm/leg mvmts
 - EPS: iatrogenic Parkinsonism; akathisia (e.g. pacing, fidgeting), dystonia, bradykinesia, pill rolling
 - Either TD and/or EPS could occur w/ anti-psychotics
 - Cogentin 2-6 mg OD can ↓ EPS
 - NMS tetrad: volatile HTN/pulse, FUO, rigidity, confusion
 - Mgmt: Go to ER; stop neuroleptic x 2wk, then try new neuroleptic
- Other Management:
 - Safety: firearms/weapons, MTO (if acute psychosis, severe perception issues, SI involving vehicle)
 - Special Considerations:

- Brief Psychotic disorders are usually stress induced and may never recur. Consult psych re: rx.
- Schizophreniform: likely won't need lifelong rx, so trial stopping

Sleep Disorders

Background:

- Prevalence: 12-20% in adults
- DDx: insomnia, OSA¹, CSA, obesity hypoventilation syndrome, narcolepsy, circadian rhythm disorder (shift work, jet lag), parasomnias², movement disorders (RLS, PLM, bruxism)
 - 1 - See "Obstructive Sleep Apnea"
 - 2 - Night terror, sleepwalking, sleep enuresis, hallucinations

History:

- Before bed: bedtime (consistency), exercise, smoking, EtOH/drugs, caffeine, screen time, stressors (including sleep), shiftwork
- In Bed: sleep latency, bed partner behavior, awakening at night¹, snoring/apnea
 - 1 - cause [nocturia, nightmares, PND, pain], what they do [ruminate, read], duration to fall asleep again; if nocturia then ask: dysuria, urgency, bedwetting, constipation, encopresis, DM hx]
 - Sx: restless legs, teeth grinding, sleep walking, nightmares, screams, paralysis/hallucinations (hypnagogic vs. hypnopompic)
- After waking up: time/consistency, somnolence, mood, cataplexy, naps

Diagnosis and Management of Select Disorders:

Insomnia

Diagnosis: ≥ 3x/wk for ≥ 3mo of ↓ sleep quality¹ + poor daytime fn²

- 1 - hard to initiate/maintain, non-refreshed, early awakening | 2 - fatigue, somnolence, mood, CI, work

Management:

- Sleep hygiene:
 - Basics: regular schedule, ∅ EtOH/smoking near bedtime, ∅ caffeine past noon, stimulus ctrl, ∅ daytime naps, exercise [> 4 hr from bedtime]
 - Techniques: bed only for sleep¹, don't go to bed until sleepy, no more than 20min in bed awake², regular wake time regardless of sleep duration
 - 1 - no reading, TV, worrying | 2 - else leave room and read/relax; no TV/food
- CBT, pt resources (e.g. *No More Sleepless Nights* by Hauri)
- Sleep Restriction (enhances sleep drive)
 - sleep log x 1 wk → set sleep/wake times for ≥ 85% efficiency [mean sleep time/time in bed] → trial 10d and if efficiency <85% ↓ sleep time by 15-30 min; if >85% ↑ by 15-30 min
- Rx:
 - Non-addictive: melatonin 3mg at 12 hr before wake time, Silenor¹, Mirtazapine² (7.5mg OD), Trazodone (50-100mg 1hr pre qHS)
 - 1 - esp. for difficulty staying asleep; 3-6mg 30min pre qHS | 2 - w/ concurrent depression
 - Addictive (short course only; avoid): Zopiclone, Temazepam
 - Other: wean off rx; ∅ Quetiapine due to DM risk; switch cholinesterase inhibitors (e.g. Galantamine) to qhs

Restless Leg Syndrome (RLS) and Periodic Limb Movement (PLM)

Etiology:

- 1°: usually +ve FHx
- 2°: iron deficiency, CKD, peripheral neuropathy, thyroid dysfunction, Parkinson, PAD, MS, meds (SSRI, Li, CCB, neuroleptics)

Investigations: ferritin, fBG, CBC, B12, TSH

Diagnosis: based on hx¹; consider polysomnography²

- 1 - Urge to move legs (± arms) during rest [e.g. watching TV, lying down] relieved by mvmt + causes distress
- 2 - 80-90% pt w/ RLS have PLM dx by polysomnography (> 5 PMLS/hour in children or > 15 PMLS/hour in adults)

Mgmt of RLS:

- Treat underlying cause: target ferritin > 45 ± Vit C, switch SSRI to Bupropion, TCA to gabapentin, etc.
- Mild (non-rx): exercise, sleep hygiene, avoid caffeine/EtOH, Vit C + E in ESRD
- Mod-severe: *non-rx as above and the following*–
 - Gabapentin¹ 150-300mg qHS, Pramipexole² 0.125-0.75mg 1hr pre qHS
 - 1 - S/E: daytime somnolence, dizziness | 2 - S/E: insomnia, paradoxical ↑ RLS
 - Oxycodone if refractory

Delayed Sleep Phase Syndrome

Background:

- Definition: sleep/wake times habitually delayed (≥ 7d) vs. societal conventions
- 11% prevalent in adolescents

Management:

- Non-Rx: sleep hygiene (esp. screen time), sleep diary, chronotherapy¹
 - 1 - delay sleep time 2-3 hr q1d till desired time
- Other: phototherapy (sunlight, SAD lamp 10,000 lux x 30 min qAM), Melatonin 3mg @ 12hr before desired wake time

Supportive Counselling

Background: appropriate for a wide variety of non-acute psychiatric presentations

Approach (BATHE)*: *adapted from AAFP*

- [1] Background: “Tell me what has been happening.”
- [2] Affect: “How do you feel about that?”
- [3] Troubles: “Out of all these problems, what troubles you the most?”
- [4] Handling: “How have you been handling things?” or “how have you managed up to this point?”
- [5] Empathetic statement: “That must’ve been difficult”

* - Adapted from AAFP: *Realistic Approaches to Counseling in the Office Setting*

Problem Solving (if appropriate)

[1] Generate Solutions: “What options have you considered?”

[2] Pt makes decision

[3] Verify and Implement: “Your plan is X. Do you foresee any challenges and how do you intend to face them?”

Quick Reference Guide: Antidepressants

Name	Initial Dose	Up-titration	Maintenance Dose	Max Dose
SSRI				
Citalopram (Celexa)	10-20	10-20	20-40	40
Escitalopram (Cipralext)	5-10	20	10-20	20
Fluoxetine (Prozac)	10	20	20-40	80
Fluvoxamine (Luvox)	50	50	50-300	300
Sertraline (Zoloft)	25	25	50-200	200
SNRI				
Duloxetine (Cymbalta)	30-60	30	60	120
Venlafaxine XR (Effexor XR)	37.5-75	37.5	75-225	375
Desvenlafaxine (Pristiq)	50	-	50	50
NaSSA				
Mirtazapine (Remeron)	15	15	15-45	60
NDRI				
Bupropion (Wellbutrin XR)	150	150	150	450
Mood Stabilizers				
Aripiprazole (Abilify)	2-5	5	2-15	15
Lurasidone (Latuda)	20	20	20-120	120
RIMA				
Moclobemide (Manerix)	150 BID	150 OD	300-600	600/d
SARI				
Trazodone (Desyrel XR)	75-150 qHS	75	75-375	375
Selected TCAs				
Desipramine (Norpramin)	25 qAM	25	75-200	300
Nortriptyline (Aventyl)	25 qHS	25	50-150	150
Amitriptyline (Elavil)	25 qHS	25	75-200	300
MAOI				
Phenelzine (Nardil)	15 TID	15 OD	45-90/d	90/d
Tranlycypromine (Parnate)	10 BID	10 OD	20-60	60/d

*Doses are in mg. Assume OD unless specified otherwise | Adapted from *The Yellow Card* (Dalhousie, 2012)**Medication Considerations:**

- ∅ combo with each other: MAOI, RIMA, SSRI, SNRI

- Pregnancy \emptyset : valproate, Paroxetine
- Antidepressant S/E:
 - \uparrow SI/HI: educate pt to stop rx and call office
 - Other S/E: *don't* switch rx immediately (may disappear after 1 wk)
 - SSRI/SNRI: HA, xerostomia, somnolence/insomnia, tremor/anxiety, wt gain, sexual dysfunction (ED, premature ejaculation, libido)
 - “Fixes”:
 - Lower sexual dysf in: Wellbutrin, mirtazapine
 - Other: take w/ food to \downarrow GI S/E, take agitating meds in AM (esp. Prozac, Wellbutrin), take sedating in PM
 - TCA: agranulocytosis, Torsade¹, orthostatic hypotension, blurry vision, SSRI/SNRI S/E
 - 1 - ECGs: at baseline, w/ dose changes, q1yr at high doses
- Rx withdrawal sx: FINISH¹; esp. for IR formulas and Paroxetine (which is why it has fallen out of favour)
 - 1 - flu-like, insomnia, nausea, imbalance, sensory disturbance, hyperarousal
- Washout: review when switching to/from RIMA or MAOI

Contraception

Contraception Selection Approach: (based on 5 steps)

[1] Any contraindications to CHCs?

- a. Active conditions: pregnancy, post-partum¹
 - i. VTE risk; start after 4 wk if breastfeeding and milk supply well established, 3-4w after if not breastfeeding; 6 wk if other VTE RF
- b. PMHx (*think head → toe*): Stroke, migraine w/ aura¹, Breast Ca, CAD, valvular heart disease, Pro-thrombotic², liver disease³
 1. ↑ strokes; ok without aura if < 35 yo
 2. hx of or active VTE, immobilization (e.g. pelvic #), lupus (APS), RA, thrombophilia (FV Leiden, protein S/C or ATIII deficiency), malignancy
 3. HCC, cirrhosis, active hepatitis
- c. SocHx: smoker (≥ 15 cigarettes/d) + > 35 yo
- d. O/E: HTN (∅ for BP >160/100, caution for 140-159/90-99)

[2] Any contraindications to IUDs or progestin (mini-pill/depo)? Any recommendations?

- a. Progestin (mini-pill/depo) Contraindications: pregnancy, VTE, breast cancer, unexplained PVB, acute liver disease, liver tumors
- b. IUD Contraindications:
 - i. Gynecologic: Ca (cervical, endometrial), active or recent (<3m) pelvic infection (PID, GC, Chlamydia, cervicitis), recent septic abortion, pregnancy, certain uterine anomalies, unexplained PVB
 - ii. Additional ∅ for Levonorgestrel IUD: breast ca, acute liver disease, liver tumors
- c. Recommendations: if perimenopausal (50 yo ± 10) use progestin or IUD. Can often use in case of contraindication to estrogen. Can start immediately PP if breastfeeding.

[3] Effectiveness vs. convenience

- a. Consider: failure rate and method of use, cost
- b. Oral: strict complianceⁱ, vomiting/diarrhea (↓ effectiveness)
 - i. if progestin pill taken 3+ hr late, then must use other contraception x 2 days (<https://www.sexandu.ca/sos/>)
- c. DDI w/ CHC, progestin pill: antiepileptics, rifampin, rifabutin, protease inhibitors (HIV rx), St. John's wort

[4] Risks, non-contraceptive benefits and other considerations:

- a. Common hormonal S/E: irregular bleeding, breast tenderness, wt gain, HA, GI s/e
- b. CHC:
 - i. Risks: ↑ VTE¹, ↑ risk breast/cervical ca
 1. highest in first months; pill breaks ↑ risk; RR of COCs w/ 30-35 mcg EE: 1G – 3.2, 2G – 2.8, 3G – 3.8. ↓ VTE risk w/ EE < 35 mcg
 - ii. Pros: ↓ acne (COC), ↓ PMS/dysmenorrhea/menorrhagia, ↓ PCOS, ↓ endometriosis symptoms, ↓ risk of ovarian/endometrial/colon ca
- c. Progestin:

- i. Risks: ↑ ovarian cysts, ↓ libido, HA, nausea, acne, breast tenderness, dec BMD (with depo), some delayed return to fertility with depo (~3m)
 - ii. Pros: no VTE risk, dec PID, dec anemia, dec menses flow, possible amenorrhea
 - d. IUDs: Cu (light-heavy bleeding x 3-6 mo), progestin (light bleeding x 3-6 mo, but oligo/amenorrhea by 2 yr), if preg more likely to be ectopic since protects uterus so well but no increased risk of ectopic overall
 - e. STI Prevention: must use barrier contraceptive (esp. male latex condom)
- [5] Plan for emergency contraception:
- a. Effectiveness at ≤ 1, 2, 3 days: Levonorgestrel [95, 85, 58%], Yuzpe [77, 36, 31%]. But ↓ % w/ liver-enzyme inducing rx, *maybe* BMI > 25. Ullipristal (requires Rx), ++effective up to 5d, more effective in BMI up to 35
 - b. Copper IUD: 0.09% w/in 5 d

Comparison of Contraception Methods:

Method	Examples and Costs	1 yr Failure: typical, ideal
Transdermal CHC patch	Evra - \$18/mo (1 patch/wk)	9%, 0.3%
Vaginal CHC ring	Nuvaring – \$16.75/mo (ring on x 3 wk, then off x 1 wk)	
Oral CHC [Monophasic is 1 st line]	Seasonale – \$61.50/3 mo pack (EE 30 mcg, LN 0.15 mg – 2G) Alysenia – \$9.75/21 or 28 d (EE 20 mcg, LN 0.1 mg – 2G) Yasmin - \$13.25 (EE 30 mcg, Drospirenone 3 mg – 3G)	
Progestin only pill	Micronor - \$24/28d	9%, 0.3%
Progestin only injection	Depo-Provera – \$30/3mo (150 mg IM q13wk)	6%, 0.2%
Progestin IUD	Mirena - \$367/5 yr Jaydess - \$294/5 yr	0.2%
Copper IUD	Mona Lisa – \$55/5 yr, \$65/10 yr	0.05%
Male Condom	--	18%, 2%
Diaphragm/Spermicide	--	12%, 6%
No contraception	--	94%

History:

- Pt preference¹, is pt already pregnant?² (LMP, abstinence)
 - 1 - Refer pt to sexandu.ca for more information (Society of OB/GYN Canada)
 - 2 - Reasonable to assume not pregnant if no sign/sx (breast tenderness /swelling, amenorrhea, am sickness) + any of:
 - ≤ 7 d after start of menses or spontaneous/therapeutic abortion
 - Abstinence since last menses or reliable/consistent contraception use
 - ≤ 4 wk post-partum, or (breastfeeding ≥ 85% feeds + amenorrhoeic + ≤ 6 mo post-partum)

- PRN: HA (migraines), STI sx (discharge, dysuria, dyspareunia, pelvic pain, postcoital bleeding), STI RF¹
 - 1 - M/F/both, #partners/new one, STI testing, vaginal/oral /anal, condom

Physical Exam:

- For CHC: BP, auscultate murmurs
- For IUD: cervical inspection + bimanual exam

Investigations:

- PRN: β -hCG; offer STI testing for everyone¹
 - 1 - Chlamydia + Gonorrhoea swabs, VDRL/RPR, HIV Ab + Ag

Starting Contraceptives: *ensure not pregnant first, esp. for IUD*

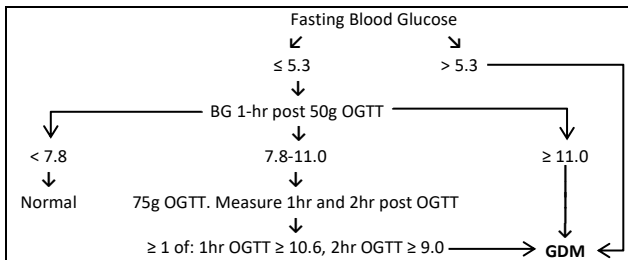
- CHC [ring/patch/oral]: initiate w/in 5d of menses start¹ or quick-start method²
 - Compliance: "missed COC pill" if late by > 24h. Consult drug monograph for instructions or <https://sexandu.ca/sos/>
 - 1 - Backup contraception x 5d. No need backup if post-partum < 6 mo + amenorrhoeic + breastfeeding \geq 85% feeds
 - Breastfeeding as standalone contraceptive is highly controversial. CHC contraindicated if breastfeeding up to 4 wk postpartum (6 wk if other VTE RF). Or, can start progestin-only pill immediately postpartum
 - 2 - start 1st pill on day of office visit (if \emptyset pregnant). Backup contraception x 7d unless first day of LMP \leq 5 days ago
- Progestin-only pill: initiate w/in 5d of menses start¹
 - Compliance: "missed progestin-only pill" if late by > 3h. Consult drug monograph for instructions or <https://sexandu.ca/sos/>
 - 1 - Backup contraception x 2d. No need backup if post-partum < 6 mo + amenorrhoeic + breastfeeding \geq 85% feeds
- Progestin IUD/injection:
 - Backup contraception: if w/in 7 d since menses start, no need backup. If \geq 7 d or amenorrhoea, backup x 7d
 - Compliance: Repeat injection upto 2 wk late (i.e. 15 wk) w/o backup; if \geq 2 wk, then ensure not pregnant + use backup x 7d
- Cu IUD: no need backup, effective immediately

Diabetes in Pregnancy

GDM Screening:

- If high Risk for T2DM: screen at < 24 wk \rightarrow negative \rightarrow screen again at 24-28 wk
- All others: screen once at 24-28 wk

Diagnosis and Screening of GDM:

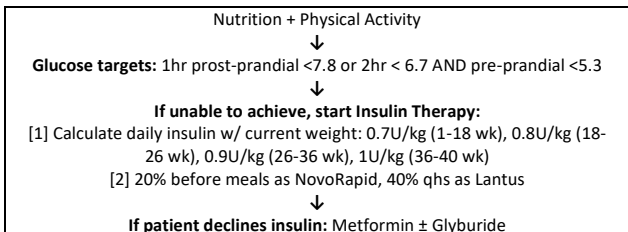


Adapted from: Diabetes Canada - Diabetes and Pregnancy

Management for pre-existing T1/T2DM:

- Pre-conception:
 - BG: keep A1C < 7% (to ↓ stillbirth, anomalies, LGA, shoulder dystocia, pre-eclampsia)
 - Other:
 - 1mg Folic Acid 3 mo pre-conception to 12wk gestation
 - Stop ACE/ARB and statins/fibrates
 - If on metformin ± glyburide & good ctrl → consider continuing vs insulin
- During Pregnancy:
 - Referrals: OB, diabetes nurse, dietician
 - BG:
 - Rx: insulin 1st line (see Figure below for doses). Metformin ± glyburide 2nd line
 - Targets: (1hr post-prandial < 7.8 or 2hr < 6.7) and pre-prandial < 5.3,
 - Other: A1C ≤ 6.1-6.5% (check more frequently, e.g. q1mo); hypoglycemia in pregnancy is < 3.7
 - Other:
 - Start ASA 81mg OD at 12-16 wk to ↓ pre-eclampsia
 - Fundoscopy in pre-conception period or 1TM + 1st yr post-partum
 - Delivery and Fetal Monitoring:
 - Fetal Surveillance: q1wk 34-36 wk (e.g. NST, AFI, BPP)
 - Induction: at 38-39 wk, <38 if poor glycemic ctrl
 - Post-partum: ↓ insulin immediately. Only Metformin ± glyburide safe while breastfeeding
 - TSH 2-4 mo post-partum if T1DM (post-partum thyroiditis)
 - Breastfeeding: start immediately post-partum to ↓ neonatal hypoglycemia. Continue at least 4mo to help prevent maternal T2DM.

Management of GDM:



Information based on Diabetes Canada - Diabetes and Pregnancy

Other Considerations:

- Fetal Surveillance: like non-GDM pt; but ↑ if poor ctrl or other co-morbidity
- Post-partum: repeat OGTT 75g at 6wk-6mo for DM screening

Erectile Dysfunction & Testosterone Deficiency Syndrome

Erectile Dysfunction

Etiology:

- Organic: CVD (HTN, PAD), metabolic (DM, hyperlipidemia), endocrine¹, neuro (stroke, Parkinson's, MS), structural (trauma, Peyronie, prostate surgery), drug-induced², smoking, EtOH recreational drugs (marijuana, heroin)
 - 1 - thyroid, hypogonadism, hyperprolactinemia, Cushing
 - 2 - SSRI/SNRI, anti-psych, thiazide, spironolactone, Dilantin, α-blocker
- Psychogenic: traumatic experiences, inadequate sex education, relationship stressors, adverse life events, MDD/anxiety

History:

- Erection: specifics of erection (position [6-12 o'clock, bent], not sustainable), progression + onset, am erections?¹, dysfunction w/ other partners or self-pleasuring
 - 1 - if absent, consider physiologic cause like low testosterone
- Associated hx: sexual hx, relationship/stressors, libido, mood
- Etiologies suggested by associated hx (or maybe you could call this section Ddx:?): CP + SOB + claudication + smoking (PAD), EtOH, penile pain + palpable plaque (Peyronie), ↓ muscle mass despite exercise (low testosterone), nipple discharge (hyperprolactin)

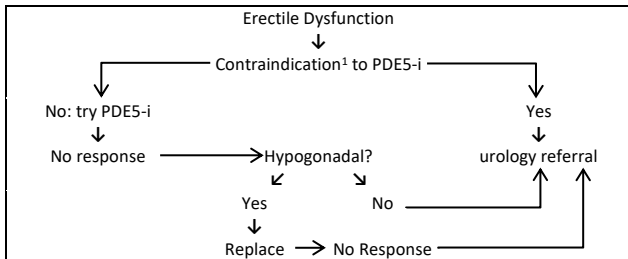
Physical Exam:

- Vitals: HTN¹, BMI + circumference
 - 1 - > 25 mmHg interarm difference indicates pathology like PAD (PPV 81%)
- Palpation: dorsalis pedis + posterior tibialis pulses
- PRN: genital exam (to assess 2° sex characteristics)

Investigations:

- Basics: A1C/fBG, lipid panel (LDL, HDL, TG, TC), +/- am total testosterone
- Optional: LH/FSH (if testosterone low on 2 tests), prolactin (+macroprolactin if high), TSH, nocturnal penile tumescence & rigidity (psych vs. organic etiology)

Management of Erectile Dysfunction in DM:



¹ - concomitant nitrates, stroke/MI w/in 8 wk, UA/cardiac failure, ++high/ low BP, dialysis, severe liver disease. Lower doses in CKD, liver disease. CAUTION: warn pt not to use "herbal" ED supplements –often contain Viagra! Adapted from: *Diabetes Canada Sexual Dysfunction and Hypogonadism in Men with Diabetes*

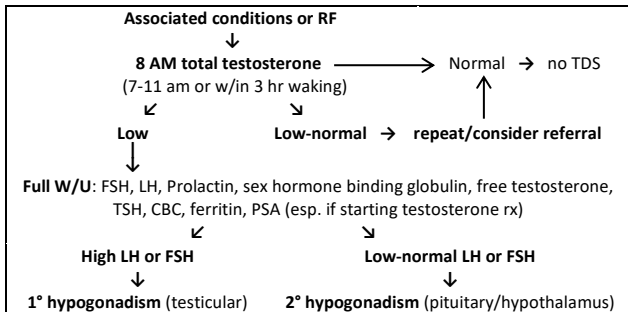
- PDE5-i: Sildenafil 20-100mg OD PRN [30 min onset], Tadalafil 10-20mg OD PRN [30 min onset] or 2.5-5 mg OD standing [0 min onset]

Testosterone Deficiency Syndrome (TDS)

Background:

- Associated Conditions: DM, ESRD, HTN, CVD, COPD, obesity, infertility, osteoporosis, frailty, hemochromatosis, liver disease, hyperprolactinemia, Sellar lesion, HIV wt loss
- RF: chronic EtOH/heroin abuse, rx (opioids, steroids, ketoconazole)

Diagnosis of TDS:



Adapted from: *Endocrine Society of Canada. Diagnosis and management of testosterone deficiency syndrome in men: Clinical Practice Guidelines*

Management:

- Endocrinology referral if: fertility desired, 2° hypogonadism
- Tx underlying conditions, wt loss + lifestyle (diet, exercise > 150min/wk)
- Testosterone Replacement: testosterone undecanoate 237 mg BID ac, 2% axillary gel, or transdermal patch
 - A/E: polycythemia embolism, spermatogenesis ↓, Ca, aggression. Change dose/route if not tolerated.
 - Measure levels if no improvement. If low, change route/dose

Hypertensive Disorders of Pregnancy

Background:

- Classification: pre-existing (dx < 20 wk gest.) vs. gestational (dx >20 wk gest.)
- Severity: Severe ($\geq 160/110$), mild-moderate (140-159/90-109)

History:

- Complications: CP/SOB, HA, vision Δ (scotoma, diplopia, blurry), RUQ pain
- Fetus: fetal mvmt, vaginal bleeding, contractions, growth parameters
- RF: PMHx (HTN, gestational HTN, pre-eclampsia), 1st pregnancy w/ new partner, FHx pre-eclampsia

Physical Exam:

- Vitals: BP
- Auscultation: murmurs, crackles
- Palpation: peripheral edema¹, liver tenderness
 - 1 - End-of-day pedal edema common in late pregnancy and not always sign of proteinuria
- Special: neuro exam (although DTR usually low yield), VF/visual acuity screening

Diagnosis of HTN:

- BP > 140/90: avg of ≥ 2 readings ≥ 15 min apart, in a single visit.
 - White coat effect in up to 30% cases
- Check BP at: every prenatal visit *and* day 3 + 6 postpartum (re postpartum HTN)

Investigations:

- Screening: urine dipstick¹
 - 1 - obtain at every visit if pre-existing HTN. In all others, only obtain if BP >140.
 - Other ix (e.g. ACR, LFTs, CBC, etc.) done at L&D
- Pre-existing HTN: early pregnancy labs (Cr, fBG, lytes, urinalysis, EKG), every visit (urine dipstick)

Mgmt:

- Referrals: OB (or obstetrical IM) for pre-existing or gestational HTN
- Pre-existing HTN:
 - Δ BP meds if planning pregnancy or as soon as dx. \emptyset ACE, ARB, atenolol.
 - Go to L&D¹ if: BP > 140 beyond 20 wk despite tx, ≥ 3 BP meds, proteinuria at any point or end organ sx
 - 1 - in-patient mgmt if severe HTN or severe preeclampsia

- Gestational HTN:
 - BP > 140-159 – L&D if proteinuria/end organ sx/hx pre-eclampsia, else start rx and refer promptly.
 - BP ≥ 160: L&D
- Therapy:
 - Preventative: ASA 81mg¹, Ca 1g/d supplement, Folic Acid 0.4-4mg till 2TM
 - 1 - from 12-28 wk (ideally by 16wk) if ≥ 1 high RF; consider if ≥ 2 mod RF
 - High RF: hx preeclampsia, multiples, chronic HTN, T1DM, T2DM, renal disease, SLE/APS
 - Mod RF: nulli, BMI > 30, age > 35 yo, FHx pre-eclampsia, preg hx (IGUR, > 10yr pregnancy interval)
 - Rx (safe in pregnancy + lactation): methyldopa 250mg BID, labetalol 100-200mg BID, nifedipine XR 30-60mg OD
 - BP targets:
 - During pregnancy: w/o comorbidities (130-155/80-105), w/ comorbidities (e.g. DM, renal disease, cardiac disease; <140/90)
 - Postpartum, up to 6 weeks: < 160/110 if severe, < 130/80 if pre-existing DM, < 140/90 all others

Libido & Sexual Dysfunction

In Males

Etiology of Decreased Libido:

- Common: aging, interpersonal conflict, performance anxiety (e.g. ED, premature ejaculation), psych (MDD, anxiety)
- Other: endocrine (hypogonadism, hyperprolactinemia, Cushing, hypothyroid, Addison's), rx (HCTZ, SSRI, Concerta), cocaine, EtOH, HIV

History:

- Basics: onset, decreased interest in certain aspects of intercourse¹, severity², relationship³, sexual activity⁴, previous issues + tx, impact (performance anxiety), sexual abuse
 - 1 - sexual thoughts, partner, visual stimuli
 - 2 - ↓ frequency sex, ↓ duration of sex, subjective desire 1-10, sexual satisfaction
 - 3 - #partners, duration, conflict, prior sexuality issue
 - 4 - "sometimes ↓ libido is from failure to discuss/agree on what sort of sexual activities are desired – might this be your case?"
- Associated sx: ED¹, premature ejaculation², hypogonadism sx³, mood Δ (MDD/anxiety)
 - 1 – arousal, getting satisfactory erection, sustaining erection
 - 2 - if yes: ask about ejaculatory latency time, dysuria + increased frequency (bacterial prostatitis), weight loss (hyperthyroid)
 - 3 - breast discomfort/ gynecomastia, ↓ musc. bulk/strength, hot flushes, loss of AM erection, issues conceiving
- PMHx (psych, neurological, DM, CKD), Rx (thiazides, SSRI), substances/EtOH,
- Other: weight Δ (hypothyroidism), sexual hx + STI testing (HIV), galactorrhea (hyperprolactinemia), thin skin (Cushing), salt craving + anorexia (Addison's)

Investigations:

- Consider: 8AM serum testosterone (i.e. 7-11 am or w/in 3 hr waking)

- Premature ejaculation: Ø routine; consider TSH, urinalysis + culture
- PRN: lytes, TSH, 24hr U_{cortisol}, serum prolactin (+macroprolactin if high), HIV Ag+Ab

Physical Exam:

- Vitals: HTN + high BMI (Cushing)
- Special tests: hyporeflexia
- If Premature ejaculation:
 - Genital Exam: short frenulum¹, hypospadias, ± DRE (?bacterial prostatitis)
 - 1 - glans ventral curvature ≥20° w/ prepuce retracted

Diagnosis:

- Premature ejaculation: self-reported ejaculatory latency ≤ 2 min

Management:

- Treat underlying cause: hypogonadism¹, Δ HCTZ, Δ SSRI² to Wellbutrin or Mirtazapine), manage comorbidities (e.g. weight loss in DM)
 - 1 - see "Erectile Dysfunction & Testosterone Deficiency Syndrome" | 2 - or can add Wellbutrin as adjunct
- Premature ejaculation: treat ED 1st (if present)
 - Non-Rx: behavioral¹ Δ, exercise > 30min x5d/wk, CBT
 - 1 - refer to <https://www.sexandu.ca/sexual-activity/concerns-sexual-problems/> - e.g. "stop-start"
 - Rx (for lifelong premature ejaculation): fluoxetine¹ 20mg OD or 3-6hr before sex, or lidocaine/prilocaine 2.5% (EMLA²) 3 actuations 20-30min before sex
 - 1 - caution: <18 yo, bipolar disorder | 2 - max 3x/d, at least 4hr in between
- Other: CBT, relationship mgmt¹
 - 1 - pt to discuss sexual desires/wants w/ partner – work out compromise, interpersonal conflict mgmt

In Females

Types of Disorders and Etiology:

- Female sexual interest/arousal disorder: aging (menopause), interpersonal conflict, pain, chronic disease (CKD, COPD, CHF, anemia), MDD/anxiety, SSRIs, endocrine¹
 - 1 - Cushing, Addison's, hypothyroid, hyperprolactinemia
- Orgasmic Disorder: 1° (lifelong; abuse, unfamiliarity w/ sex), 2° (spinal cord injury, DM neuropathy, UMN lesion, pelvic surgery, SSRIs)
- Genito-pelvic pain/penetration disorder:
 - Dyspareunia: structural¹, PID, candidiasis, vulvodynia, interstitial cystitis
 - 1 - endometriosis, fibroid, adhesions, atrophy 2° to PAD, menopause
 - Vaginismus: anticipated pain; usually associated w/ hypoactive desire
- Alternative Etiological Approach:
 - Biological: meds, medical issues, hormonal status (e.g. POI, aging)
 - Psych: MDD, anxiety, self-image, substance use, hx sexual abuse, trauma
 - Sociocultural: upbringing, cultural norms, religious influences
 - Interpersonal: relationship status/quality, partner's sexual fn, life stressors

History:

- Basics: describe the ↓ desire¹, onset + fluctuations (lifelong vs. new, rapid progression), past issues + tx, relationship², sexual activity³, impact (distress, relationship), hx sexual abuse, ±religious/cultural context
 - 1 - spontaneous thoughts, visual stimulation, interest in partner
 - 2 - # partners, duration, stressors, partner's sexual function
 - 3 - "sometimes ↓ libido is from failure to discuss/agree on what sort of sexual activities are desired – might this be your case?"
- Associated sx: any arousal¹, vaginal dryness (endocrine, vascular), pain², irregular menses (endocrine), hypoesthesia (vaginismus, psych), anorgasmia, urinary incontinence w/ sex (hypotonic pelvic floor)
 - 1 - vaginal lubrication, clitoral engorgement
 - 2 - vaginismus (hypertonic pelvic floor; spasms w/ vaginal insertion) vs. dyspareunia (persistent genital pain not exclusively b/c of vaginismus or low lubrication)
- PMHx (STIs, MDD/anxiety, chronic illness), Rx (esp. OTC), drugs/EtOH
- Background (provides context): GTPAL, contraception use
- Other: fatigue (anemia), weight Δ (hypothyroidism), STI testing (HIV), other sensory deficit (neuropathy), galactorrhea + HA + vision Δ (prolactin tumor), thin skin (Cushing), salt craving + anorexia (Addison's)

Physical Exam:

- Vitals: HTN (Cushing), tachycardia (anemia)
- General:
 - Inspection: conjunctival pallor (anemia), supraclavicular fat pad (Cushing)
 - Palpation: pulses (vascular disease)
- Genital Exam:
 - Inspection: sparse pubic hair (↓ androgen), atrophy (↓ estrogen), discharge (infection), lichen sclerosis (psych), erythema (candidiasis), anatomic abnormalities, hymenal remnants
 - Palpation: hypertonic pelvic floor (vaginismus), tender vestibule (vestibulitis), fixed/retroverted uterus ± tender uterosacral lig. (endometriosis)

Diagnosis:

- Female sexual interest/arousal disorder: ↓ interest in sex, willingness to engage in sex (beyond normal aging), excitement/pleasure during sex, arousal, or genital/non-genital sensations during sex for ≥ 6 mo
 - Indications of normal sexual variation (not disorder): no spontaneous desire but responsive desire present, spontaneous/responsive desire present but not w/ partner, ↓ genital arousal due to menopause
- Orgasmic Disorder: persistent ↓ or absence of orgasm, ↓ intensity of orgasm¹ ≥ 6mo in ≥ 75% sexual interactions
 - 1 – Non-dysfunctional: delayed/less intense orgasm + hypoesthesia w/ normal aging
- Genito-pelvic pain/penetration disorder: fear/anxiety, tightening/tensing of abdo./pelvic muscles, or actual pain w/ vaginal penetration for ≥ 6 mo.

Investigations: usually not needed

- PRN: serum EE, TSH, lytes, 24-hr U_{cortisol}, serum prolactin

Treatment:

- Approach (PLISSIT Model): permission¹, limited information², specific suggestions³, intensive therapy⁴
 - 1 - e.g. "thank you for sharing, many women in menopause have ↓ sexual desire"
 - 2 - basic sex education: e.g. "sexual desire Δ w/ age. Notably, desire becomes more responsive than spontaneous"
 - 3 - simple suggestions to ↑ sexual fn (e.g. lubricant, vibrator): "you may benefit from more planned sexual activity. Talk to your partner"
 - 4 - Validate concerns and refer as needed
- Hypoactive Sexual Desire or Arousal Disorder: Wellbutrin XR 150mg OD-BID, transdermal testosterone¹ 300mcg/d x 6 mo max, Estrace vaginal cream²
 - 1 - S/E: VTE, MI, infertility, hirsutism, acne
 - 2 - 2-4g OD x 2wk then taper to 1g 1-3x/wk [esp. menopause atrophic vaginitis; r/a need at 3-6mo intervals]
- Orgasmic Disorder: sildenafil 25-50mg OD x 12wk, CBT/sexual therapy
- Genito-pelvic pain/penetration disorder: CBT (esp. vaginismus), pelvic floor physiotherapy, treat vulvo-vaginal atrophy of menopause¹
 - 1 - if mild: Estrace [dosing as above]. If moderate-severe: ospemifene 60mg OD w/ food for shortest duration necessary

Prenatal Care

Background:

- Frequency: monthly until 30 wk, q2wk from 32-36 wk, q1wk from 37 wk-birth
- "Contraindications"¹ to pregnancy: cardiac², severe autoimmune (SLE, MS, APS), thrombophilia, ESRD, epilepsy, post-partum cardiomyopathy w/o return of function
 - 1 - Not so much "you shall not get pregnant", but more so "there're some serious maternal & fetal complications if pregnancy occurs"
 - 2 - pulmonary HTN, LVEF <30%, NYHA III-IV, severe AS or MS, severe coarctation, dilated aorta

History:

- 1st Visit: Ontario risk assessment using Antenatal record
- General Visit Qs: fetal movement¹, vaginal bleeding, leakage of fluids, contractions², unilateral leg swelling/pain, PO intake, GERD sx, sleep issues, home environment (safety, support), other social history
 - 1 - 'quickenings' usually felt >24 wk. Normal is ≥ 6 movements/2 hr. Best technique is lying on side in quiet location to concentrate and having a little snack/ice water to wake baby up
 - 2 - onset, frequency, duration, strength (i.e. can they talk through them, do they need to catch their breath?)

Physical Exam:

- Mom: weight, BP, leg edema
- Fetal: occiput (from 36 wk), symphysis fundal ht (from 20 wk), fetal heart rate (from 10 wk)

Pre-conception:

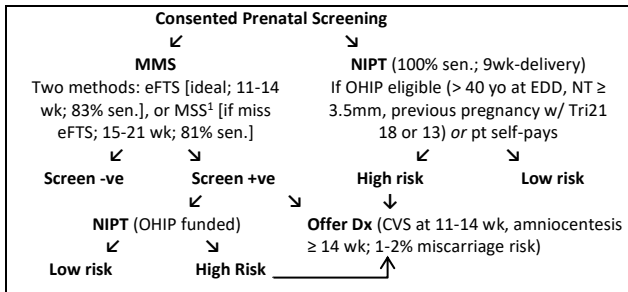
- Folic Acid 0.4-4mg OD x 1 mo before¹, depending on if high, moderate or low risk for neural tube defect
 - 1 - if prior neural tube defect, Phenytoin, Solfoton: 4000mcg x 3 mo then till 12 wk

- Hx: rx review¹, ± genetic counsel (if FHx multiple Ca, CF, etc.)
 - 1 - see "Diabetes in Pregnancy", "Hypertension Disorders of Pregnancy"

0-20 weeks: see *Ontario Perinatal Records*

- Calculate estimated due date: 1st day of LMP + 9months + 7 d
- Labs:
 - Initial BW: ABO + RhD¹ Ab, HbsAg, Rubella Ab², Syphilis, HIV, chlamydia/gonorrhea (self swab), consider PAP if due
 - 1 - if Rh-ve and non-sensitized, RhoGAM 1500 IU IM at 26-28 wk. Alternate dosing for abortion/miscarriage. If babe Rh+ve, additional dose to mom w/in 72h of delivery
 - Pathophysiology: Rh-ve mom develops Rh Ab to Rh+ve fetus, which ↑ miscarriage rate in subsequent pregnancies, hemolytic jaundice of newborn
 - 2 - MMR, Varicella vaccines ∅ in pregnancy. Wait 1 mo after administration before conception
 - ASB Screen¹ (urine culture): 11-16 wk
 - 1 - If +ve: Cefuroxime 250 BID x 7d or amoxicillin 500mg TID x 7d. Avoid Nitro/sulfonamides/trimethoprim
 - PRN: TSH, Hb electrophoresis, varicella serology, chlamydia/gonorrhea¹
 - 1 - e.g. if < 25 yo, multiple partners, inconsistent condom use outside monogamous relationship, etc.
 - Adolescents: chlamydia/gonorrhea (NAAT + C&S), BV (pH, C&S, microscopy)
- TM1 U/S: 8-14 wk; dating U/S most accurate if CRL > 1cm but as close to 1cm as possible (~8w) & part of eFTS (done ~12w), # fetuses, location of pregnancy, FHR
- Adolescents: regular risk screening¹
 - 1 - MDD/anxiety, ETOH use, substance use, violence, financial security
- Other: folic acid 0.4-4mg OD from 0-12 wk, Vit D supplementation 600 IU, diet, exercise, smoking cessation, alteration to substance use pattern if relevant

Trisomy 21 Screening Algorithm:



1 - MSS: β-hCG + AFP + inhibin A + E3; Tri18 (low AFP + E2 + β-hCG), Tri21 (all 4 low), neural tube defect (high AFP; but SOGC says ∅ AFP as screen, rather use anatomy U/S), partial molar (low AFP + E3, high inhibin A)

Adapted from: *Prenatal Screening Ontario*

20-30 weeks: see *Ontario Perinatal Records*

- GDM Screen: 24-28 wk 75g OGTT¹
 - 1 - Positive if: fasting ≥ 5.3, 1hr ≥ 10.6 or 2hr ≥ 9

- 2TM U/S¹: 18-22 wk²
 - 1 - anatomy scan, AFV, fetal #, lie, placenta, biometry, ± sex
 - 2 - For adolescents, JOGC recommends at 16-20 wk
- BW: ABO + RhD, CBC
 - If Rh-ve and non-sensitized: RhoGAM 1500 IU IM at 26-28 wk
- Labor/birth plans: counsel on signs of labor/preterm, pain mgmt

30-40 weeks: see *Ontario Perinatal Records*

- Fetal Distress:
 - Hx: if kick counts < 6 mvmt in 2hr → go to ER
 - NST Indications: complications, multiple fetuses, maternal illness, IUGR, miscarriage hx, poly or oligohydramnios, ↓ fetal mvmt
- Imaging:
 - 3TM U/S: if previa/low-lying placenta on 2TM, various other indications
 - Adolescents: U/S at 32-34 for IUGR screen
- GBS: rectal + vaginal colonization swab at 36-38 wk → Pen G intrapartum
- Tdap vaccine: at 27-36 wk to protect newborn from pertussis
- Post-term Care: biweekly NST, consider induction, begin cervical checks¹, consider stretch and sweeps
 - 1 - Ø cervical checks prior to this. Can induced preterm labour!

Investigations: UA¹ (if SBP > 140; do at every visit if pre-existing HTN)

- 1 - See "*Hypertension Disorders of Pregnancy*"

Management:

- Nausea of pregnancy: frequent small meals, ginger, sea bands, Gravol ± metoclopramide 10mg PO QID (w/ meals + qhs)
 - Dicyclanil: may not be sufficient ("Doxylamine pyridoxine for NV of pregnancy RCT: Prespecified analyses and reanalysis" – Persaud et al.)
- OB Referral: adolescent pregnancy, multiple fetuses, breech, placental abnormality, HTN, DM, renal disease, APS, pre-eclampsia hx, previous c-section, various other indications

Subfertility

Background:

- Definition: failure to conceive after ≥ 12 mo of regular unprotected intercourse (or ≥ 6 mo for F > 35 yo)
- Stats: 15% prevalence. F Fertility ↓ after 27 yo & at greater rate after 35 yo
- Etiology:
 - Cause: 33% M factors, 33% F factors, 33% combined factors
 - F Factors: aging, endometriosis, adhesions, PID, POI, PCOS, hyperprolactinemia, fibroids, eating disorder, Celiac, thyroid disease
 - M Factors: 1° hypogonadism¹, 2° hypogonadism², CF, vas deferens/epididymis obstruction, retrograde ejaculation, Kartenger's, Young's, sarcoid

- 1 - e.g. Y-deletions, XXY, Prader-Willi, Noonan | 2 - e.g. hemochromatosis, HbS, Kallmann, tumor (sellar, testicular)

History:

- Q's for M & F: age, frequency of intercourse, lubricant use¹, previous contraception, previous pregnancies (same vs. other partner), smoking², EtOH, marijuana/cocaine
 - 1 - can be spermicidal | 2 - ↓ fertility by 33%
- Females:
 - Common: oligomenorrhea¹, dyspareunia + dysmenorrhea (endometriosis, fibroid), STI testing + pelvic pain (PID), ovulatory sx (aka molimina; mid-cycle breast tenderness, cervical mucous Δ)
 - 1 - DDx: hyperthyroid, PCOS, POI, hyperprolactinemia, eating disorder
 - PMHx: abdo/pelvic surgery or D&C (adhesions/Asherman's); FHx: fibroids
 - PRN: hirsutism + wt gain (PCOS), post-coital bleeding (polyp, neoplasm), mood Δ/fatigue + BM Δ (thyroid disease), excess exercise/poor intake, galactorrhea + HA and vision Δ (prolactin secreting tumor), hx passing "large clots" (?APS)
- Males:
 - Background: ED, libido, ejaculation (small volume¹, blood + painful²)
 - 1 - w/ hx of SNRI use: retrograde ejaculation | 2 - prostatitis
 - PMHx: pelvic or scrotal trauma/infection/surgery (e.g. hernia repair), vasectomy, cryptorchidism or torsion or chemo (oligospermia), mumps
 - Rx: spironolactone, SNRI, anabolic steroids, allopurinol, colchicine
 - PRN: HA + vision Δ (pituitary neoplasm), anosmia (Kallmann), frequent resp. infections (CF, Young's, Kartagener's, sarcoid), pancreatitis (CF)

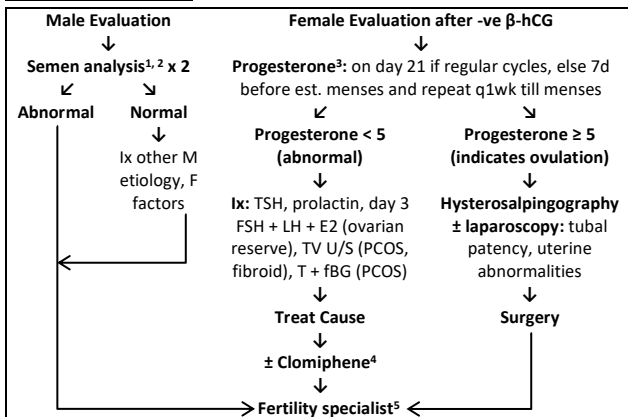
Physical Exam:

- Females:
 - Vitals: BP
 - Inspection: ↑ BMI + striae (Cushing), acne + hirsutism (PCOS)
 - Palpation: abdo tenderness ± CMT (PID), tender uterosacral ligaments (endometriosis), immobile uterus (adhesions)
 - Special Tests: thyroid palpation + DTRs (thyroid), visual fields (prolactinoma)
- Males:
 - Inspection: lack of virilizing hair distribution + small testes (hypogonadism), urethral meatus position (hypospadias), BMI, gynecomastia (hypogonadism, hemochromatosis, hyperprolactinemia)
 - Palpation: cryptorchidism, non-palpable vas deferens (CF), scrotal mass
 - Special tests: DRE (prostate nodule, tender to palpate - prostatitis), testicular transillumination (varicocele)

Investigations and Management:

- All couples: counsel on ideal coital frequency¹, abstain from smoking, ↓ EtOH + keep BMI < 30, emotional support
 - 1 - most fertile period is 6 days preceding ovulation. Consider OTC LH kits, monitoring cervical mucous changes, fertility app, etc. However, none are proven. Simplest advice is coitus q2-3days

Evaluation of Subfertility



1 – if volume < 1 cc: get post ejaculatory urinalysis. If low-absent sperm count & urinalysis +ve for retrograde ejaculation: : give pseudoephedrine 60mg TID x 1d and repeat semen analysis. If -ve: get transrectal U/S (?duct obstruction)

2 - get 2 samples, 4 wk apart. Abstinence x 2-3d prior to samples

3 - not necessary if regular cycles on hx

4 - 50mg x 5d from day 5 of cycle

5 - Typical Mgmt: IUI (cervical or M factors), IVF (tubal factors), IVF + intracytoplasmic sperm injection (severe M infertility), oocyte donation (POI), gestation carrier w/ IVF (maternal health issue), adoption

Adapted from: American Family Physician Association Evaluation and Treatment of Infertility

RESPIROLOGY

Asthma

Background:

- Pediatric DDx:
 - Chronic Cough: CF, allergic rhinitis, vocal chord dysfunction, GERD
 - Wheeze: laryngotracheomalacia, viral bronchiolitis, obstructive lymph node
- Pathophysiology:
 - Trigger → reversible airway inflammation (mucous secretion, mucosal swelling, bronchoconstriction) → symptoms (wheeze, SOB, chest tightness)
 - Poorly controlled chronic asthma → irreversible muscle + epithelial hypertrophy

Features of Asthma, COPD, and Overlap Syndrome:

	Asthma	COPD	Asthma-COPD Overlap Syndrome
Onset	Childhood	≥ 40 yo	≥ 40 yo ± childhood sx
Sx	Worse: at night, early am, w/ exercise, triggers	Continuous; “good” and “bad” days	Persistent sx but large variability
Hx	Hx/FHx atopy, childhood asthma	Exposure (smoking, particles)	Hx: asthma, allergies, exposure
Course	Improve w/ tx or spontaneously, ± permanent airflow ↓	Progressive decline despite tx	Sx better w/ tx, but also progressive decline

Adapted from: GOLD, Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease

History:

- Basics: cough, SOB, chest tightness, wheeze, nasal secretions; nocturnal sx, triggers¹, fn impairment
 - 1 – 1st hand or 2nd hand smoking, environment (dust, allergens, mold, pets), workplace (wood, paint, chemicals), stress, exercise, cold air, laughter, NSAIDs, viral infection
- PMHx: eczema (or FHx), allergic rhinitis (or FHx), atopy, sinusitis, GERD

Physical Exam:

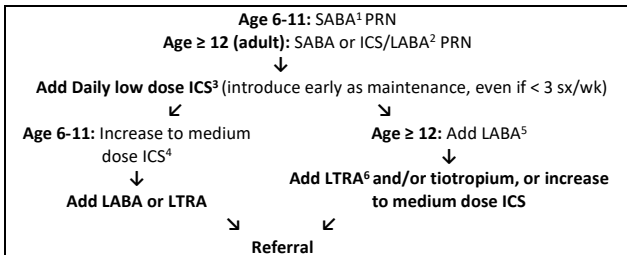
- Nil Acute: inspection (eczema, nasal polyps), auscultation (benign)
- Exacerbation:
 - Vitals: tachycardia
 - Inspection: cyanosis, can't talk, accessory muscle use, hunched shoulders,
 - Auscultation: diffuse bilateral wheezes

Diagnosis:

- Spirometry: *difficult in preschoolers (can use Hx + PE for them)*

- Children (6-11 yo): $FEV_1 < 0.8-0.9 + \geq 12\%$ ↑ w/ SABA
 - or PEF ↑ $\geq 20\%$ after SABA
 - or methacholine challenge (PCO₂ < 4mg/mL, 4-16 is borderline)
- “Adults” (≥ 12 yo): $FEV_1 < 0.75-0.8 + \geq 12\%$ ↑ (minimum ≥ 200 cc) w/ SABA
 - or PEF ↑ ≥ 60 L/min (minimum $\geq 20\%$) after SABA
 - or methacholine challenge (PCO₂ < 4mg/mL, 4-16 is borderline)
- Severity: diagnosed retrospectively; mild is level 1-2 of figure

Asthma Therapeutics: CAUTION – peds ICS doses differ from adults



1 - SABA: e.g. Ventolin 90mcg MDI 2 puff q4-6 hr (caution - excess β -agonist can ↑ HR)

2 - e.g. Budesonide 160mg/formoterol 4.5mg

3 - low dose ICS e.g. Flovent MDI 176mcg OD

4 - medium dose ICS: e.g. Flovent MDI low dose 308mcg OD

5 - e.g. ICS + LABA: e.g. fluticasone/Vilanterol 100/25 mcg OD (Breo Ellipta)

6 - e.g. Montelukast 10 mcg PO OD qPM (or 2hr pre-exercise if sx exercise induced)

Adapted from: Canadian Thoracic Society 2012 guideline update: Diagnosis and management of asthma in preschoolers, children and adults: Executive summary

- Monitoring Visits:
 - Frequency: q2-6 wk while gaining ctrl, q6mo to monitor, q3mo if step down
 - Assess inhaler technique every visit
 - Adequacy of ctrl: GINA score¹, spirometry^{2, 3}
 - 1 - GINA guidelines (Global Initiative for Asthma), stricter than CTS (Canadian Thoracic Society)
 - 2 - FEV₁ or PEF $\geq 90\%$ personal best, sputum eosinophil <2-3% (for moderate-severe uncontrolled asthma for ≥ 18 yo)
 - 3 - Get FEV₁ at dx, 3-6 mo of tx and periodically thereafter
 - Consider stepping down tx if adequate sx ctrl ≥ 3 mo

Adequacy of Control:

GINA Score	Points
Daytime sx > 2x/wk	1
Nocturnal waking	1
Using SABA PRN > 2x/wk	1
Activity Limitation	1

GINA Score:

0: good ctrl

1-2: partial ctrl

3-4: poor ctrl

GINA Mnemonic:

General sx (i.e. during

day), Inhaler use,

Nocturnal sx, Activity

- Develop Asthma Action Plan: *to respond to worsening sx (provide pt a handout e.g. https://asthma.ca/wp-content/uploads/2020/06/Asthma-Action-Plan_optimized.pdf)*
 - ER if severe, otherwise as below
 - Age 6-11: prednisolone 1-2 mg/kg x 3-5 d
 - Age ≥ 12: step up maintenance therapy¹, ± prednisolone 40-50mg x4-7d
 - 1 - If on standalone ICS: 4x dose x 7-14 d; if on Budesonide/Formoterol: Δ to 4 puff BID x 7-14; if on ICS/LABA: 4x ICS by higher ICS/LABA dose or add standalone ICS
- Non-Rx: allergen ctrl (HEPA vacuum, washing sheets regularly), exercise, flu vaccines, pneumonia vaccine¹, avoid NSAIDs, smoking cessation
 - 1 - ≤ 18yo: PNEU-C-13 then PNEU-P-23 after 8 wk

Chronic Obstructive Pulmonary Disease

Adult Chronic Cough DDx: asthma, asthma-COPD overlap syndrome, bronchiectasis, obliterative bronchiolitis, diffuse panbronchiolitis, TB, CHF, ACE-i induced chronic cough

History:

- Basics: Winnipeg Criteria for COPDe (dyspnea¹, ↑ sputum volume, ↑ sputum purulence [i.e. color Δ]), smoking history, other exposures/triggers²,
 - 1 - use mMRC Dyspnea scale to quantify (on MDCALC)
 - 2 - occupational (dust, fumes), inhaled chemicals, animal dander, mold
- PMHx (freq. resp infections or PNA hx), FHx COPD (especially emphysema re α1-antitrypsin deficiency), childhood asthma
- Other Causes: PND/orthopnea (CHF), travel hx (TB), ACEi use

Physical Exam:

- Early COPD: normal
- Mid-stage: ambulatory O2 sat drop, expiratory wheezes, barrel chest, ↑ forced expiratory time¹ (normal < 9s)
 - 1 - stethoscope over trachea and ask pt to take deep breath and exhale as fast as possible
- Advanced Disease:
 - Vitals: resting O2 sat 88-92%
 - Inspection: accessory muscle use (if COPDe), clubbing (if present suggests Ø COPD), JVP > 5CM, dentition (if poor ↑ PNA risk), pedal edema
 - Auscultation: S3 (cor pulmonae)

Investigations and Diagnosis:

- Spirometry:
 - Diagnosis: FEV₁/FVC < 0.7 and not fully reversible¹
 - 1 - consider asthma or ACOS if ≥ 400cc (or 200-400cc and ≥ 12%) ↑ in FEV₁ w/ bronchodilator
 - Severity:
 - Mild: FEV₁ ≥ 80% (SOB w/ moderate exertion)
 - Moderate: FEV₁ 50-79% (SOB walking 100m on level ground)
 - Severe: FEV₁ 30-49% (SOB w/ minimal exertion)

- Very Severe: $FEV_1 < 30\%$
- Clinical Phenotype: (not part of GOLD)
 - Chronic bronchitis: cough + sputum for ≥ 3 mo/yr x 2 yr
 - Emphysema: pathological term; XR and CT changes
- PRN: CXR¹, LFTs/ α -1 antitrypsin², sleep study, CBC (anemia, polycythemia), DLCO (ILD, CO)
 - 1 - low sensitivity for COPD; possible findings: hyperinflation, mediastinal narrowing, saber sheath trachea
 - 2 - age < 65 yo w/ < 20 py smoking hx

Management:

- Non-Rx:
 - Smoking Cessation, influenza + Pneu-P-23 vaccines + Tdap at least once > 19
 - Inhaler technique
 - Lifestyle: target BMI 20-25¹, encourage physical activity, AQI monitoring
 - 1 - low BMI risks progression
- Follow-up in the office q3-6 mo
- Lung Ca Screening: *weak recommendation*
 - Who: 55-74 yo + $\geq 30^1$ pack year hx + current smoker (or quit < 15 y ago)
 - 1 - according to Choosing Wisely. CCO guideline is for 20 py
 - Annual low dose CT x 3 consecutive yr

COPD Therapeutics: Note that – all pt should have SABA PRN (not just mild COPD)

Mild COPD: (CAT ¹ < 10, mMRC ² 1)	Moderate and Severe COPD: ↓ Respirology referral		Asthma-COPD Overlap ↓
↓	↙	↘	↓
SABA PRN	Low Risk AECOPD (≤ 1 moderate ³ AECOPD in last yr)	High Risk AECOPD (≥ 2 moderate or ≥ 1 severe ⁴ AECOPD in last yr)	LABA + ICS (low or moderate dose)
↓↑	↓	↓	↓↑
SABA + SAMA	LAMA or LABA	(LAMA + LABA) or (ICS ⁵ + LABA)	Add LAMA and/or increase ICS + LABA
↓↑	↓↑	↓↑	
LAMA or LABA	LAMA + LABA	(LAMA + LABA) or (ICS ⁵ + LABA)	
	↓↑	↓↑	
	LAMA + LABA + ICS	Oral agents	

1 - CAT (COPD assessment test) | 2 - mMRC (modified medical research council)

3 - Abx or CS but no hospitalization due to COPD | 4 - hospitalization due to COPD

5 - serum eosinophil ≥ 300 predicts favourable ICS response

Adapted from: Canadian Thoracic Society Clinical Practice Guideline on pharmacotherapy in patients with COPD

- Medications:
 - Monotherapy
 - SABA: Ventolin (salbutamol) 90mcg 2 puffs MDI q4-6 hr PRN
 - SAMA: Atrovent (ipratropium) 40mcg 2 puffs TID
 - LAMA: Spiriva (tiotropium) 1.25mcg 2 puff OD
 - LABA: Serevent (salmeterol) 50mcg 1puff BID
 - ICS: Flovent (fluticasone) 100mcg 1 puff OD
 - Dual therapy

- LAMA/LABA: duaklir (aclidinium/formeterol) 1 puff BID
- SABA/SAMA: Combivent (ipratropium/salbutamol) 1 puff QID
- ICS/LABA: Advair (fluticasone/salmeterol) 250/50 mcg 1 puff BID [higher dose is 500/50]
- Triple therapy
 - LAMA/LABA/ICS: Trelegy Ellipta (fluticasone/umeclidinium/vilanterol) 1 puff OD
 - Flovent (fluticasone) 100mcg 1 puff OD + duaklir (aclidinium/formeterol) 1 puff BID
- Oral agents
 - Chronic bronchitis + ≥ 1 AECOPD last yr: Roflumilast 250mcg OD x 4 wk then 500mcg OD, N-acetylcysteine 600 mg BID
 - Recurrent mod-severe AECOPD: Azithromycin (before use: check QT, r/o colonization with atypical mycobacterium)
- Decisions to step up rx:
 - Based on Hx: SOB, activity intolerance (calculate CAT, mMRC), # of exacerbations
 - R/O poor inhaler technique. Consider Aerochamber use
- Other:
 - Resp. Referral: < 40 yo but limited smoking hx, hypoxemic/hypercarbic respiratory failure, recurrent AECOPD
 - Home O2 Eligibility Criteria:
 - Rest PaO₂ < 55 or SaO₂ < 88% [for ≥ 2 min continuously] or
 - PaO₂ 56-60 and ≥ 1 of: cor pulmonae, pulmonary HTN, erythrocytosis, nocturnal hypoxemia, exercise limited hypoxemia
 - Add nocturnal O2 if also O2 sat < 88% for
 - costs \$350/mo but 75% coverage < 65, 100% ≥ 65 or Ontario works
 - See: https://www.health.gov.on.ca/en/pro/programs/adp/policies_procedures_manuals/docs/home_ox_gen_manual.pdf
 - Concurrent OSA: can add O2 to CPAP if O2 sat < 88% for > 30% of 4 hr nocturnal oximetry
 - Pulmonary rehab: moderate-severe COPD

Obstructive Sleep Apnea

Complications of OSA:

- Neuropsychiatric: drowsiness, MVC (2-3x more likely), decreased attention, memory, mood
- Cardiovascular & pulmonary: systemic HTN, A. fib, CAD, VTE, stroke, pulmonary HTN (leading to RHF)
- Metabolic: T2DM, NAFLD, gout

History:

- Screening
 - (STOP-BANG): **S**nore loudly¹, **T**ired during day, **O**bserved apneas, blood Pressure high, **B**MI > 35, **A**ge > 50, **N**eck circumference > 40 cm², **G**ender male)
 - 1 - louder than talking, heard through closed door | 2 - shirt collar 17" M/ 16" F
 - Scoring: 3-4 intermediate risk, ≥ 5 high risk
- Other Qs: morning headaches, enuresis (associated w/ OSA in kids)

Physical Exam:

- Vitals: BP
- Inspection: BMI, neck circumference, Mallampati 3-4

Diagnosis and Investigations:

- Polysomnography [preferred] or home sleep apnea testing (HSAT) Dx:
 - Order urgently if: comorbidities (pregnant, CAD/cerebrovascular disease, COPD/ asthma, ILD, etc.), critical safety (air traffic ctrl, commercial driver, machinery), reports falling asleep at wheel w/in 2 yr
 - Dx, either (1) or 2()
 - (1) ≥ 5 apnea/hypopnea events/hr + ≥ 1 sx/comorbidity (non-restorative sleep, awakens w/ breath holding/gasping, habitual snoring/breathing interruptions, “syndrome of disorders”¹
 - 1 - Syndrome: HTN + mood disorder + CI + CAD + stroke + CHF + A-Fib + T2DM
 - (2) ≥ 15 events/hr
 - Severity: mild (≥ 5 events/hr), moderate (≥ 15 /hr), severe (≥ 30 /hr)

Management:

- Safety:
 - MTO if: concerned (e.g. fell asleep at wheel) or ≥ 20 polysomnography events/hr + daytime somnolence + no tx/unsuccessful tx
 - For details see: https://www.schulich.uwo.ca/geriatrics/docs/CMA_Drivers_Guide_9th_edition.pdf
 - Stop hazardous work until sx controlled
- Lifestyle: positional therapy¹, weight loss + moderate exercise, ↓ EtOH, avoid benzodiazepines
 - 1 - sleep in lateral recumbent position vs. supine (e.g. use tennis ball, backpack, pillow). Should not be standalone therapy
- Therapeutics:
 - Moderate to severe OSA: CPAP (regardless of sx); ADP coverage available
 - Evidence: ↓ MVC + ↓ CVE (maybe; SAVE trial) + ↑ work performance
 - Mild to moderate OSA or CPAP non-compliant: can offer custom fit mandibular advancement or tongue-retaining device (but both \$\$)
- Surgery: OSA + large tonsils → tonsillectomy (otolaryngologist referral)

Smoking Cessation

Assessment (5A's):

- Ask: “do you smoke?”
- Assess: “how do you feel about your smoking? Thinking about quitting?”
 - If not quitting – Advise: “As your physician, I strongly advise you to stop smoking. I’m here to help you quit when you’re ready.”
 - If quitting – Assist: “I’m interested in helping you, would you like my help?”
- Arrange: see below

History:

- Background: starting age + reason, pack years, how long before first cigarette after waking up¹, drugs/EtOH, stressors, smokers in their life (FHx, household, friends, work colleagues)
 - 1 - High dependence: >10 cigarettes/d + 1st cigarette w/in 30 min of waking up

- Perspective: perceived pros + cons of smoking, barriers to quitting, past attempts to quit
- PMHx (i.e. comorbidities – DM, PAD, MI, stroke)

Interview Discussion Points Around Smoking Vs. Quitting

Smoking		Quitting	
Pros	Cons	Pros	Cons
Stress relief, social, pleasure, concentration	SOB, asthma sx, impotence, infertility, CVD, stroke, PAD, 2 nd hand smoke, pregnancy complications, cost, social stigma	Money saved, freedom from addiction, decreased risk of long-term health complications, enhanced sports performance	Withdrawal sx, increased agitation/anxiety, enjoyment/social loss, wt gain

Management:

- Approaches and F/U: quit¹, taper & quit², reduction³, advise to quit/reduce⁴
 - 1 - f/u 1 wk before quit date, then at 1wk, 1 mo, 3 mo, ± 1 yr
 - 2 - start rx while reducing smoking (↓ 25%/d wk 1, 50%/d wk 2, 75% wk 3-4); f/u 1 wk before quit date, then at 1wk, 1 mo, 3 mo, ± 1 yr
 - 3 - f/u after 1 mo + motivational interviewing q6-12mo
 - 4 - motivational interviewing q6-12mo
- Non-rx: physical activity, individual or group counselling, telephone quit line (e.g. smokershelpline.ca)
- Rx:
 - Efficacy
 - Nicotine combo therapy more efficacious vs. nicotine monotherapy (OR 1.34)
 - Bupropion + nicotine therapy more efficacious vs. Bupropion (OR 1.24)
 - Varenicline + nicotine therapy more efficacious vs. Varenicline (OR 1.62)
 - Varenicline maybe more efficacious vs. Bupropion (RR 1.46)
 - 1st Line: nicotine supplementation, bupropion, Varenicline
 - 2nd Line: nortriptyline, clonidine

Comparison of Therapies: (costs could be covered by LHIN or local health unit)

Aid	Side Effects	Contraindications	12 wk Cost
Nicotine Lozenge/gum	GERD, nausea, tongue tingling, hiccups	Relative: 2wk post-MI, serious or worsening angina or arrhythmia	\$340
Nicotine Patch	Skin rash, insomnia (esp. 24hr patch), nausea		\$360
Bupropion (Zyban)	Xerostomia, dizziness, insomnia, GI upset; small risk of seizure	Absolute: seizures, bulimia/anorexia, MAOI or in 14d of d/c	\$215
Varenicline (Champix)	Suicidal ideation , nausea, insomnia, fatigue		\$340
Smoking (1 pack/day)			\$1100

- Dosing:
 - Nicotine (just refer to manufacture website): Nicorette¹, Nicoderm²
 - 1 - Nicorette: "chew and park method"; *no more than 24 pieces/d*
 - Heavy smoker (smoke w/in 30 min of waking): 4mg gum q1-2 h wk 1-6 [≥ 9 pieces/d], 4mg q2-4h wk 7-9, 4mg q4-8h wk 10-12
 - Light smoker (smoke after 30 min of waking): as above, but w/ 2mg
 - 2 - Nicoderm
 - Heavy smoker (> 10 cigarettes/d): 21mg wk 1-6, 14mg wk7-8, 7mg wk 9-10
 - Light smoker (< 10 cigarettes/d): 14mg wk 1-6, 7mg wk 7-8
 - Can combo¹ Nicoderm + Nicorette
 - 1 - see: [Nicorette.ca/combination-therapy](https://www.nicorette.ca/combination-therapy)
 - Bupropion: start 1 wk before quitting; 150mg XR qAM x 3d, then BID for remainder
 - Varenicline¹: start 1 wk before quitting; 0.5mg OD x 3d, then 0.5mg BID x4d, then 1mg BID x11wk + another 12wk if successful
 - 1 - Nicotinic receptor agonist
- Withdrawal: *typically peaks in 1-3 day and improves after 1-3wk*
 - Sx: insomnia, irritability, ↓ mood, ↓ concentration, wt gain (↑appetite)
 - Mgmt: provide strategies handout¹
 - 1 - e.g. <https://www.quitnow.ca/quitting/manage-withdrawal>; consider Bupropion for wt gain
- Follow-up Discussions: smoking status, tempting situations, withdrawal sx, relapse (highest risk at 3 mo)

Other:

- In Pregnancy: behavioural therapy + pt education first line
 - No significantly ↑ risks w/ use of Bupropion or NRT in pregnancy. Insufficient data for Varenicline, so avoided. Regardless, behavioural therapy is 1st line.
- Lung Ca Screening: *weak recommendation*
 - Who: 55-74 yo + ≥ 30 pack year hx + current smoker (or quit < 15 y ago)
 - Annual low dose CT x 3 consecutive yr

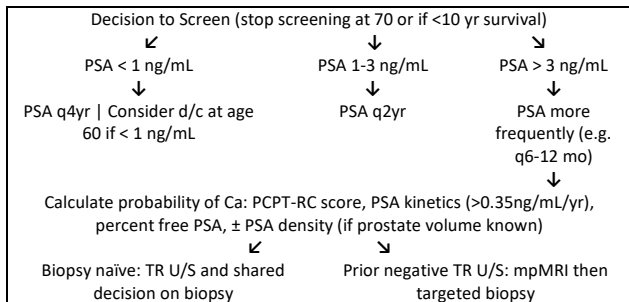
UROLOGY

Benign Prostatic Hyperplasia and Prostate Cancer

Prostate Cancer Screening and Diagnosis:

- **Canadian Task Force does NOT recommend routine screening w/ PSA**
- Who: offer to 50-70 yo (or 45-70 yo if 1° or 2° FHx) w/ life expectancy > 10 yr
- Decision to screen: based on risks¹/benefits² discussion
 - 1 - Risks: false +ves, biopsy (pain, infection), surgery (incontinence 25%, ED 67%)
 - 2 - Benefits: potential mortality and morbidity of metastatic Ca
- Elevated PSA: *only 25% M w/ PSA 4-10 have +ve biopsy*
 - DDx: recent ejaculation, prostatitis, BPH, prostate manipulation, trauma, Ca

Prostate Cancer Screening Algorithm:



Adapted from: Canadian Urological Association recommendations on prostate cancer screening and early diagnosis

Benign Prostatic Hyperplasia:

DDx: prostate/bladder Ca, UTI, chronic prostatitis, bladder calculi, caffeine, meds¹, urethritis, DM polyuria, foreign body (e.g. Foley), urethral stricture

- 1 - SSRI, dimenhydrinate, diuretics

History:

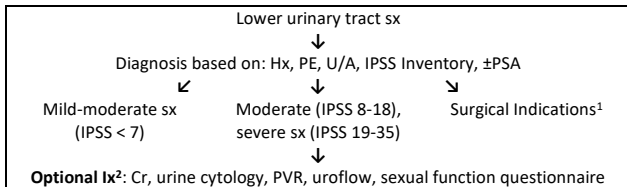
- Basics: storage sx (straining, frequency, urgency, nocturia), incontinence (urge, post-micturition dribbling), sx severity (IPSS score)
- Associated Hx: instrumentation/trauma, ED, surgical hx
- Other causes: fever (UTI, prostatitis), colicky back pain + hematuria (calculi), dysuria, smoking + FHx bladder/prostate ca, medications, discharge + sexual hx

Physical Exam:

- Palpation: bladder distention, benign abdomen
- Inspection: no meatal stenosis, no discharge

- DRE: normal sphincter tone, prostate non-nodular ± enlarged, normal bulbocavernosus reflex

Investigations and Diagnosis of BPH:

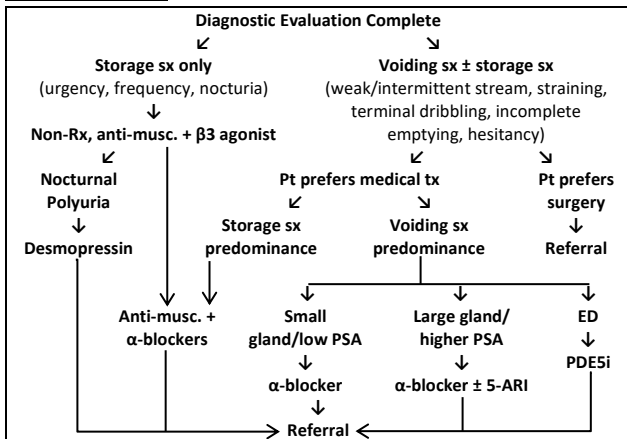


1 - Surgical indications: refractory urinary retention, recurrent UTI, bladder stones, recurrent hematuria, renal dysfunction 2° to BPH, worsening sx despite tx, pt preference

2 - Ix Indications: hematuria, dx uncertain, abnormal DRE, tx failure, surgical plans

Adapted from: Canadian Urological Association guideline on male lower urinary tract symptoms/benign prostatic hyperplasia 2018 Update

Management of BPH:



Adapted from: Canadian Urological Association guideline on male lower urinary tract symptoms/benign prostatic hyperplasia 2018 Update

- Non-Rx: *may be standalone tx for mild sx*
 - Peri-bedtime fluid restriction, ↓ caffeine/EtOH/spicy food, bladder retraining (timed voiding), urethral milking (for post micturition dribble), pelvic floor exercises¹, constipation mgmt, meds Δ/avoidance²
 - 1 – refer to pelvic physiotherapy and reinforce 3 mo trial

- 2 – e.g. antihistamine, anticholinergics [e.g. TCA, Gravel], diuretics
- Rx:
 - Anti-muscarinic: Trosipium 60mg XR qAM 1hr pre-prandial w/ water
 - β 3-agonist: Mirabegron 25-50mg OD
 - Desmopressin: 55.3mcg SL 1hr pre-bedtime OD
 - α -blocker + antimuscarinic: tamsulosin 0.4mg + tolterodine XR 4mg OD
 - 5-ARI \pm 5-ARI: finasteride 5mg \pm Doxazosin 1mg/1-2mg q2wk/8mg OD
 - PDE5-inhibitor: tadalafil 5mg OD
- Surgical referral if medical mgmt fails

Hematuria

Background:

- DDx: UTI, BPH, prostatitis, calculi², bladder/prostate/renal ca, glomerular disease¹, PKD, renal papillary necrosis (e.g. HbS), endometriosis, trauma, bleeding disorder, AVM, hemorrhagic cystitis
 - 1 - PIGN, SLE, HSP, Berger's, Goodpasture's, GPA, MPA, EGPA
 - 2 - Types: CaPO₄, Ca oxalate, phosphate (apatite), uric acid, struvite, cysteine
- Non-hematuria mimics: hemoglobin¹, myoglobin², porphyria³, foods (e.g. beets, food coloring), rx (e.g. methyldopa, rifampin)
 - 1 - e.g. PNH, paroxysmal cold hemoglobinuria, hemolytic anemias | 2- rhabdo | 3- normal urine color turns red on light exposure
- Definitions: microscopic hematuria (≥ 3 intact RBC/hpf w/o recent exercise, menses or sex) vs. gross hematuria (visible urine color Δ)

History:

- Hematuria: color (pink, red or brown), when during stream¹, blood clots², intermittency, quantity (# of voids, volume, concentration), ability to pass urine³
 - 1 - throughout (above bladder outlet) vs. at initiation (urethral) vs. terminal (bladder neck, prostate)
 - 2 - if present, can r/o glomerular disease | 3 - clots can cause acute urinary retention = emergency
- Associated sx: infection (dysuria, frequency¹, suprapubic pain, fever/chills), BPH (straining, frequency¹, urgency, nocturia), stone (colicky flank pain), glomerular (oliguria)
 - 1 - frequency (normal-low quantity w/ lots of voids) vs. polyuria (large quantities)
- R/O: recent menses, instrumentation, vigorous exercise, trauma
- ROS:
 - Constitutional sx: ca
 - Resp: recent pharyngitis (PIGN), hemoptysis (GPA, MPA, EGPA),
 - Gyne: dyspareunia + pelvic pain (endometriosis)
 - GI: abdo pain (HSP, porphyria, PNH)
 - Rheum: joint pain (SLE)
 - Derm: mucosal bleeding (bleeding disorder), oral ulcer (SLE)
- Sochx: occupational exposure + smoking (bladder ca), travel (schistosomiasis)
- PMHx: ++surgical bleeding (bleeding disorder), pelvic radiation, UTIs, rx (analgesic abuse, Abx, Lasix, allopurinol, ephedrine – cough syrup)
- FHx (ca, HbS, PKD, bleeding disorder, SAH [i.e. PKD])

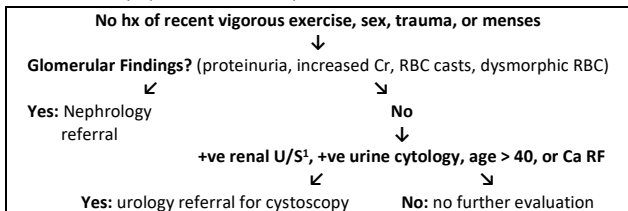
Physical Exam:

- Vitals: HTN (glomerulonephritis, pain), fever
- Inspection: rash (malar [SLE], purpuric [HSP]), scleral icterus (e.g. PNH), pallor
- Palpation: leg edema¹, palpable bladder (retention)
 - 1 – glomerular disease, IVC thrombus re hypercoagulability of ca
- Auscultation: murmur (PIGN)
- Special Test: CVA tenderness, DRE (prostate size, pouch of Douglas mass), pelvic exam (mass, atrophic vaginitis, CMT)

Investigations:

- Standard: urine (urinalysis, R&M, casts, ACR), serum (CBC, BUN, Cr, eGFR),
- Other: cystoscopy, CTU¹, cytology, PSA, INR, ANA, anti-GBM, anti-ASO, C3 + C4
 - 1 – CT urogram contraindications: anaphylaxis, pregnancy, eGFR < 30; consider renal U/S
- Acute renal calculi: U/S (non-contrast CT if -ve), CBC, Cr, serum uric acid, Ca + Alb, urinalysis + R&M; analyze stone if salvaged
- Hematuria mimics: urinary porphobilinogen, CK, LDH + bili + haptoglobin + blood smear, DAT

Evaluation of Asymptomatic Microscopic Hematuria:



1 - e.g. hydronephrosis, mass > 3cm, cysts

Adapted from CUA: Canadian guidelines for the management of asymptomatic microscopic hematuria in adults

INTERVIEWING

Capacity Assessment

Background:

- No minimum age of capacity in ON. Everyone is capable till proven otherwise.
- Disability, psychiatric or neurological disease do not automatically indicate incapacity

4 Elements of Capacity: after explaining the condition + tx in detail to pts, they must meet all 4 of below.

[1] Communicate choice: e.g. global aphasia or coma status would negate capacity

[2] Understand the Situation

- "What are your health problems?" or "why are we proposing treatment?"
- "What treatments are we proposing and their benefits? Risks?"
- "What're the alternatives?"

[3] Appreciate the Situation and Consequences: *is the decision consistent w/ the pt's values, religion, culture, and family experiences?*

- "Do you believe you need treatment?"
- "What do you think will happen to you with this treatment? Without it?"
- "Why have we recommended it for you?"

[4] Reasoning: *need not be "reasonable", but should be reasoned*

- "How did you decide to accept/reject this treatment?"
- "What makes option A better than option B?"

Capacity Threshold Matrix: *how competent do they have to be?*

Treatment Characteristics	Threshold to accept Tx	Threshold for reject Tx
High Benefit, Low Risk	Low ¹	High ²
Low Benefit, High Risk	High	Low

1 - e.g. SABA for COPD | 2 - e.g. Abx for PNA

If a patient is found incapable:

- (A) he/she is told of their right to appeal to the Capacity Consent Board
(B) an SDM must be found

Motivational Interviewing

Purpose: elicit behavior Δ by exploring + resolving ambivalent thoughts

Principles (READS):

- R – roll w/ resistance techniques:
 - Reframe: +ve interpretation of -ve info
 - "She's always nagging me about my drinking." → "It sounds like she really cares about you, but expresses it in a way that makes you angry."
 - Agree w/ twist: agree, but keep discussion open
 - "Why is she stuck on my drinking? What about her problems?" → "I agree we shouldn't place blame. These problems do involve the whole family."

- Amplify: reflect pt's statement w/ exaggeration, but w/o sarcasm
 - "I don't know why she's worried." → "So, she's worrying needlessly."
- Simple Reflection: restate w/ neutral form
 - "I don't plan to quit." → "You don't think abstinence would work for you right now."
- Redirect: shift focus from obstacles/barriers
 - "I can't stop drinking if my friends are doing it." → "You're way ahead of me. Let's explore your concerns about health first. We're not ready to decide how it fits into your goals, yet."
- E – express empathy: focus on pt statements to generate hypotheses to underlying meaning (i.e. to communicate understanding & acceptance)
 - Avoid: giving advice ("what I'd do is..."), non-genuine praise/approval (implies agreement – which may not be true), excess questions, persuading w/ logic, sharing past common experiences
- A – avoid argument/confrontation: e.g. convincing pt that a problem exists when they don't want to accept it, yet.
- D – discrepancy development: *help pt see discrepancy between current and behavior and important goals.*
- S – self-efficacy and optimism: *the pt is responsible for carrying out personal Δ – so inspire self-efficacy*
 - How: identify pt's strengths, give examples of how pts in similar situations changed, break down into small steps

Technique (OARS):

- O – open ended questions
- A – affirm: show that you understand. e.g. *"that must've been very difficult"*
- R – reflect: check your understanding of what pt intends to convey
- S – summarize: periodically and ask for pt feedback of your understanding

Talk Around Change (DELTA):

- [1] D – Desire: "Why do you want to make this Δ?", "On scale of 1-10 how important is this Δ?"
- [2] E – Execution: "How might you be able to do it?", "On scale of 1-10 how confident are you feeling about Δ?"
- [3] L – Logic: "How would things improve if you Δ?"
- [4] T – Troubles: "Why do you need to change – what's wrong with status quo?"
- [5] A – Action Items: "What have you already done?", "What're you ready to do today?", "What's your next step?"

Talk Around New Treatments (TREAT):

- [1] T - thoughts: "What do you think about this?"
- [2] R - realistic: "Do you think you can follow this treatment?"
- [3] E - encumbrance: "It's important that we discuss any reservations you have."
- [4] A - alternatives: "What is more suitable for you?"
- [5] T - targets: "Are our goals achievable? If not, why?"

Upset Patient

5 step Approach: *from TheHappyMD.com*

- [1] "You look really upset"
- [2] "Tell me about it"
- [3] "I'm so sorry this is happening to you"
- [4] "What would you like me to do to help you"
- [5] "Here's what I'd like us to do next"
- [6] "Thank you for sharing your feelings. It's important that we understand each other"

Virtual Visits

Documentation:

- [1] Confirmed pt ID visually from ongoing relationship or photo ID
- [2] Pt located in [City], Ontario
- [3] Pt in a private location. No one attending off-screen. Pt using own device and not recording {to improve confidentiality, do not use another's device}.
 - o Tell pt: "I am also in a private area"
- [4] Disclosed risks/limitations¹ of virtual visit. Pt knows to seek urgent care at ER, as necessary.
 - o 1 - Risks/limitations: privacy breach, may have to come in for physical exam/go to urgent care clinic
- [5] Pt consents to proceed

Other:

- Assess need for in-person visit
- Audio: adequate volume, consider audio lag to prevent speaking over pt

REFERENCES

Core Resources: AAFP, Canadian Pediatric Society, Canadian Cardiology Society, CMAJ, BC Government, CAMH, CADDRA, KDIGO, Ontario Renal Network, CCO, Canadian Gastroenterology Association, Diabetes Canada, Hypertension Canada, Osteoporosis Canada, Canadian Thoracic Society, IBM Micromedex

Basics: see sections below corresponding to topic of interest

Cardiology and Vascular Surgery

[1] Abdominal Aortic Aneurysms:

- Kapila, V., Jetty, P., Wooster, D., Vucemillo, V., Dubois, L. (2018, July). 2018 Screening for abdominal aorta aneurysms in Canada: Review and position statement from the Canadian Society of Vascular Surgery. *Canadian Society for Vascular Surgery*. <https://vascular.ca/resources/Documents/Clinical-Guidelines/FINAL-2018-CSVS-Screening-Recommendations.pdf>
- Chaikof, E.L., Dalman, R.L., Eskandari, M.K., Jackson, B.M., Lee, A., Mansour, A., ... Starnes, B.W. (2017). The Society for Vascular Surgery practice guidelines on the care of patients with an abdominal aortic aneurysm. *Journal of Vascular Surgery*, 67(1). <https://www.jvascsurg.org/action/showPdf?pii=S0741-5214%2817%2932369-8>

[2] Hypertension:

- Hypertension Canada. (2020). 2020 Hypertension Highlights: A Practical Guide informed by the Hypertension Canada Guidelines for the Diagnosis, Risk Assessment, Prevention and Treatment of Hypertension. <https://hypertension.ca/wp-content/uploads/2018/07/Hypertension-Guidelines-English-2018-Web.pdf>
- Rabi, D.M., McBrien, K.A., Sapir-Pichhadze, R., Nakhla, M., Ahmed, S.B., Dumanski, S.M., ... Daskalopoulou, S.S. (2020). Hypertension Canada's 2020 Comprehensive Guidelines for the Prevention, Diagnosis, Risk Assessment and Treatment of Hypertension in Adults and Children. *Canadian Journal of Cardiology*, 36(2020): 596-624.

[3] Ischemic Heart Disease, Stable:

- Mancini, G.B.J., Gosselin, G., Chow, B., Kostuk, W., Stone, J., Yvorchuk, K.J., ... Zimmerman, R. (2014, May 23). Canadian Cardiovascular Society Guidelines for the Diagnosis and Management of Stable Ischemic Heart Disease. *Canadian Journal of Cardiology*, 30(2014): 837-849. <http://www.centrepic.org/wp-content/uploads/2016/10/2014-Mancini-J-CCS-guidelines-Diagnosis-Management-Ischemic-Heart-Diz.pdf>

[4] Peripheral Artery Disease & Carotid Stenosis:

- Conte, M.S., Pomposelli, F.B., Clair, D.G., Geraghty, P.J., McKinsey, J.F., Mills, J.L., ... Sidawy, A.N. (2015, January 28). Society for Vascular Surgery practice guidelines for atherosclerotic occlusive disease of the lower extremities: Management of asymptomatic disease and claudication. *Journal of Vascular Surgery*, 61(3S). <https://doi.org/10.1016/j.jvs.2014.12.009>
- Louridas, G., & Junaid, A. (2005, July). Management of carotid artery stenosis. *Canadian Family Physician*, 51: 984-989. <https://www.cfp.ca/content/cfp/51/7/984.full.pdf>

Dermatology

[1] Acne Vulgaris:

- Asai, Y., Baibergenova, A., Dutil, M., Humphrey, S., Hull, P., Lynde, C., Poulin, Y., Shear, N. H., Tan, J., Toole, J., & Zip, C. (2016). Management of acne: Canadian clinical practice guideline. *CMAJ : Canadian Medical Association Journal*, 188(2), 118-126. <https://doi.org/10.1503/cmaj.140665>
- Titus S, Hodge J. (2012). Diagnosis and treatment of acne. *American Family Physician*, 86(8):734-740. <https://www.aafp.org/afp/2012/1015/p734.html>

[2] Approach to Skin Lesions

- DermNet NZ – All about the skin. (2017). DermNet NZ. <https://dermnetnz.org>,
- Ely, J. W., & Stone, M. S. (2010). The Generalized Rash: part I. Differential Diagnosis. *American Family Physician*, 81(6), 726-734. <https://www.aafp.org/afp/2010/0315/p726.html>
- Ely, J. W., & Stone, M. S. (2010). The generalized rash: part II. Diagnostic approach. *American Family Physician*, 81(6):735-739. <https://www.aafp.org/afp/2010/0315/p735.html>

[3] Dermatitis:

- Berke, R., Singh, A., Guralnick, M. (2012). Atopic dermatitis: an overview. *American Family Physician*, 86(1):35-42. <https://www.aafp.org/afp/2012/0701/p35.html>

- Clark, GW., Pope, SM., Jaboori, KA. (2015). Diagnosis and treatment of seborrheic dermatitis. *American Family Physician*. 91(3):185-190. <https://www.aafp.org/afp/2015/0201/p185.html>
- Eichenfield, L. F., Tom, W. L., Chamlin, S. L., Feldman, S. R., Hanifin, J. M., Simpson, E. L., Berger, T. G., Bergman, J. N., Cohen, D. E., Cooper, K. D., Cordoro, K. M., Davis, D. M., Krol, A., Margolis, D. J., Paller, A. S., Schwarzenberger, K., Silverman, R. A., Williams, H. C., Elmets, C. A., Block, J., ... Sidbury, R. (2014). Guidelines of care for the management of atopic dermatitis: section 1. Diagnosis and assessment of atopic dermatitis. *Journal of the American Academy of Dermatology*, 70(2), 338–351. <https://doi.org/10.1016/j.jaad.2013.10.010>
- Ference, JD., Last, AR. (2009) Choosing topical corticosteroids. *American Family Physician*, 79(2):135-140. <https://www.aafp.org/afp/2009/0115/p135.html>
- Kapur, S., Watson, W. & Carr, S. (2018) Atopic dermatitis. *Allergy Asthma Clinical Immunology* 14 (52). <https://doi.org/10.1186/s13223-018-0281-6>

[4] Psoriasis:

- Weigle, N., McBane, S. Psoriasis. (2013). *American Family Physician*, 87(9):626-633. <https://www.aafp.org/afp/2013/0501/p626.html>

[5] Rosacea (Acne Rosacea):

- Oge', LK., Muncie, HL., Phillips-Savoy, AR. (2015). Rosacea: Diagnosis and Treatment. *American Family Physician*, 92(3):187-196. <https://www.aafp.org/afp/2015/0801/p187.html>

Endocrinology

[1] Diabetes Mellitus Type II:

- Diabetes Canada Clinical Practice Guidelines Expert Committee (2018). Diabetes Canada 2018 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada. *Canadian Journal of Diabetes*. 2018;42(Suppl 1):S1-S325.

[2] Dyslipidemia:

- Anderson, T. J. et al. (2016). Canadian Cardiovascular Society Guidelines for the Management of Dyslipidemia for the Prevention of Cardiovascular Disease in the Adult. *Canadian Journal of Cardiology*. 32, 1263–1282 (2016).

[3] Thyroid Disease:

- Toward Optimized Practice (2014). Investigation and Management of Primary Thyroid Dysfunction: Clinical Practice Guideline). *Alberta Medical Association*.
- Holmes, D. et al. (2018). Thyroid Function Testing in the Diagnosis and Monitoring of Thyroid Function Disorder. *Government of British Columbia*.

Gastroenterology

[1] Constipation:

- Nurko, S., & Zimmerman, L. A. (2014). Evaluation and treatment of constipation in children and adolescents. *American Family Physician*. 2014;90(2):82–90.
- Canadian Association of Gastroenterology (2016). Enhanced Primary Care Pathway: CONSTIPATION. *Canadian Association of Gastroenterology*.
- Hsieh C. (2005). Treatment of constipation in older adults. *American Family Physician*. 2005;72(11):2277–2284.
- Schuster, B, G., Kosar, L., & Kamrul, R. (2015). Constipation in older adults. *Canadian Family Physician*. 2015;61(2):152-158.
- Jamsheed N, Lee ZE, Olden KW. Diagnostic approach to chronic constipation in adults. *American Family Physician*. 2011;84:299-306.

[2] Gastroesophageal Reflux Disease:

- Canadian Association of Gastroenterology (2016). Enhanced Primary Care Pathway: GERD. *Canadian Association of Gastroenterology*.
- Canadian Association of Gastroenterology (2016). Enhanced Primary Care Pathway: DYSPEPSIA. *Canadian Association of Gastroenterology*.

[3] Irritable Bowel Syndrome:

- Canadian Association of Gastroenterology (2016). Enhanced Primary Care Pathway: IBS. *Canadian Association of Gastroenterology*.
- Moayyedi, P. et al. (2019). Canadian Association of Gastroenterology Clinical Practice Guideline for the Management of Irritable Bowel Syndrome (IBS). *Journal of the Canadian Association of Gastroenterology*. 2019;2(1):6–29.

Geriatrics

[1] A Geriatric Patient Visit:

- American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. (2015). *Journal of the American Geriatrics Society*, 63(11), 2227–2246. <https://doi.org/10.1111/jgs.13702>
- [2] Dementia:
- Epperly, T., Dunay, M.A., Boice, J.L. (2017). Alzheimer Disease: Pharmacologic and Nonpharmacologic Therapies for Cognitive and Functional Symptoms. *American Family Physician*, 95(12):771-778. <https://www.aafp.org/afp/2017/0615/p771.html>
 - Falk, N., Cole, A., Meredith, T.J. (2018). Evaluation of Suspected Dementia. *American Family Physician*, 97(6):398-405. <https://www.aafp.org/afp/2018/0315/p398.html>
 - Tsai, R. M., & Boxer, A. L. (2014). Treatment of frontotemporal dementia. *Current treatment options in neurology*, 16(11), 319. <https://doi.org/10.1007/s11940-014-0319-0>
- [3] Incontinence and Overactive Bladder:
- Bettez, M., Tu, I., Carlson, K., Corcos, J., Gajewski, J., Jolivet, M., & Bailly, G. (2012). 2012 update: guidelines for adult urinary incontinence collaborative consensus document for the canadian urological association. *Canadian Urological Association*, 6(5), 354–363. <https://doi.org/10.5489/cuaj.12248>
 - Culligan, P.J., Heit, M. (2000). Urinary incontinence in women: evaluation and management. *American Family Physician*, 62(11):2433-2452. <https://www.aafp.org/afp/2013/0415/p543.html>

Gynecology

- [1] Abnormal Uterine Bleeding:
- Sweet, M.G., Schmidt-Dalton, T.A., Weiss, P.M., & Madsen, K.P. (2012). Evaluation and management of abnormal uterine bleeding in premenopausal women. *American Family Physician*, 85(1), 35-43.
- [2] Amenorrhea:
- Alabama, B. (2008). Current evaluation of amenorrhea. *The Practice Committee of the American Society for Reproductive Medicine*, 90(3), S219-25. doi:10.1016/j.fertnstert.2008.08.038
 - Klein, D.A., & Poth, M.A. (2013). Amenorrhea: An approach to diagnosis and management. *American Family Physician*, 87(11), 781-788.
- [3] Dysmenorrhea:
- Osayande, A. S., & Mehulic, S. (2014). Diagnosis and Initial Management of Dysmenorrhea. *American Family Physician*, 89(5), 341-346
- [4] Endometriosis:
- Jackson, B., & Telner, D.E. (2006). Managing the misplaced: Approach to endometriosis. *Canadian Family Physician*, 52, 1420-1424.
 - Schrager, S., Falleroni, J., Edgoose, J. (2013). Evaluation and treatment of endometriosis. *American Family Physician*, 87(2), 107-113.
- [5] Menopause and Perimenopause:
- Goldstein, S. (2017). An efficient tool for the primary care management of menopause. *Canadian Family Physician*, 63, 295-298. <https://www.cfp.ca/content/cfp/63/4/295.full.pdf>
 - Cutson, T.M., & Meuleman, E. (2000). Managing menopause. *American Family Physician*, 61(5), 1391-1400. <https://www.aafp.org/afp/2000/0301/p1391.html>
 - BMS. (2019). Testosterone replacement in menopause. Retrieved from <https://thebms.org.uk/publications/tools-for-clinicians/testosterone-replacement-in-menopause/>
- [6] Pelvic Inflammatory Disease:
- Sweet, M.G., Schmidt-Dalton, T.A., Weiss, P.M., & Madsen, K.P. (2012). Evaluation and management of abnormal uterine bleeding in premenopausal women. *American Family Physician*, 85(1), 35-43.
- [7] Uterine Fibroids (Leiomyomas):
- De La Cruz, M.S.D., & Buchanan, E.M. (2017). Uterine fibroids: Diagnosis and treatment. *American Family Physician*, 95(2), 100-107. <https://www.aafp.org/afp/2017/0115/p100.pdf>
- [8] Vulvar & Vaginal Disease:
- Paladine, H.L., & Desai, U.A. (2018). Vaginitis: Diagnosis and treatment. *American Family Physician*, 97(5), 321-329. <https://www.aafp.org/afp/2018/0301/p321.pdf>
 - Reed, B.D. (2006). Vulvodynia: Diagnosis and management. *American Family Physician*, 73(7), 1231-1238. <https://www.aafp.org/afp/2006/0401/p1231.pdf>
 - Omole, F., Simmons, B.J., & Hacker, Y. (2003). Management of Bartholin's duct cyst and gland abscess. *American Family Physician*, 68(1), 134-140. <https://www.aafp.org/afp/2003/0701/p135.pdf>

Hematology, Allergy & Immunology

- [1] Allergic Rhinitis and Chronic Rhinosinusitis:
- Aring, AM., Chan, MM. (2011). Acute rhinosinusitis in adults. *American Family Physician*, 83(9):1057-1063. <https://www.aafp.org/afp/2011/0501/p1057.html>

- Quillen, DM., Feller, DB. (2006). Diagnosing rhinitis: allergic vs. nonallergic. *American Family Physician*, 73(9):1583-1590. <https://www.aafp.org/afp/2006/0501/p1583.html>
 - Sedaghat, AR. (2017). Chronic Rhinosinusitis. *American Family Physician*, 96(8):500-506.
 - Small, P., Keith, P.K. & Kim, H. (2018). Allergic rhinitis. *Allergy Asthma Clinical Immunology*, 14 (51). <https://doi.org/10.1186/s13223-018-0280-7>
 - Sur DK, Plesa ML. (2015). Treatment of Allergic Rhinitis. *American Family Physician*, 92(11):985-992. <https://www.aafp.org/afp/2017/1015/p500.html>
- [2] Approach to Red Eye & Conjunctivitis:
- Cronau, H., Kankanala, RR., Mauger, T. (2010). Diagnosis and management of red eye in primary care. *American Family Physician*, 81(2):137-144. <https://www.aafp.org/afp/2010/0115/p137.html>
 - Morrow, GL., Abbott, RL. (1998). Conjunctivitis. *American Family Physician*, 57(4):735-746. <https://www.aafp.org/afp/1998/0215/p735.html>
- [3] Iron Deficiency Anemia:
- Short, MW., Domagalski, JE. (2013). Iron deficiency anemia: evaluation and management. *American Family Physician*, 87(2):98-104. <https://www.aafp.org/afp/2013/0115/p98.html>
 - Wang, M. (2016). Iron Deficiency and Other Types of Anemia in Infants and Children. *American Family Physician*, 93(4):270-278. <https://www.aafp.org/afp/2016/0215/p270.html>
- [4] Primary Immunodeficiency:
- O'Keefe, AW., Halbrich, M., Ben-Shoshan, M., McCusker, C. (2016). Primary immunodeficiency for the primary care provider. *Paediatrics & Child Health*, 21 (2);e10–e14, <https://doi.org/10.1093/pch/21.2.e10>
 - Mazer, B. (2009). Guidelines for the Diagnosis and Treatment of Primary Immune Deficiency. Canadian Haemophilia Society. <https://www.hemophilia.ca/files/Bruce%20Mazer%20-%20Guidelines%20for%20the%20Diagnosis%20and%20Treatment%20of%20Primary%20Immune%20Deficiency.pdf>
 - 10 Warning Signs. (2016). JMF. <http://www.info4pi.org/library/educational-materials/10-warning-signs>
- [5] Urticaria
- Kanani, A., Betschel, S.D. & Warrington, R. (2018). Urticaria and angioedema. *Allergy Asthma Clinical Immunology*, 14 (59). <https://doi.org/10.1186/s13223-018-0288-z>
 - Schaefer, P. (2017). Acute and Chronic Urticaria: Evaluation and Treatment. *American Family Physician*, 95(11):717-724. <https://www.aafp.org/afp/2017/0601/p717.html>

Infectious Diseases

- [1] Chlamydia, Gonorrhoea, & Syphilis:
- Government of Canada. (2019, May 7). *Canadian Guidelines on Sexually Transmitted Infections: Summary of Recommendations for Chlamydia trachomatis (CT), Neisseria gonorrhoeae (NG) and Syphilis*. Government of Canada. <https://www.canada.ca/en/services/health/publications/diseases-conditions/guidelines-sti-recommendations-chlamydia-trachomatis-neisseria-gonorrhoeae-syphilis-2019.html>
- [2] Fungal Infections:
- Bortulossi, R., & Martin, S. (2019). *Antifungal agents for common outpatient paediatric infections*. Canadian Paediatric Society. <https://www.cps.ca/en/documents/position/antifungal-agents-common-infections>
 - Ely, J. W., Rosenfeld, S., & Seabury Stone, M. (2014). Diagnosis and management of tinea infections. *American Family Physician*, 90(10), 702–710.
- [3] Herpes, Genital & Zoster:
- Groves, M. J. (2016). Genital Herpes: A Review. *American Family Physician*, 93(11), 928–934.
 - Saguil, A., Kane, S., Mercado, M., & Lauters, R. (2017). Herpes Zoster and Postherpetic Neuralgia: Prevention and Management. *American Family Physician*, 96(10), 656–663.
- [4] Lyme Disease:
- Government of Canada. (2020a, January 27). *For Health Professionals: Lyme Disease*. Government of Canada. <https://www.canada.ca/en/public-health/services/diseases/lyme-disease/health-professionals-lyme-disease.html>
 - Health Quality Ontario. (2018). *Clinical Guidance Document: Management of Tick Bites and Investigation of Early Localized Lyme Disease*. Queen's Printer for Ontario. <https://www.hqontario.ca/Portals/0/documents/evidence/qs-clinical-guidance-lyme-disease-en.pdf>
- [5] Otitis Media and Otitis:
- Harmes, K. M., Blackwood, R. A., Burrows, H. L., Cooke, J. M., Harrison, R. V., & Passamani, P. P. (2013). Otitis media: Diagnosis and treatment. *American Family Physician*, 88(7), 435–440.
- [6] Pharyngitis & Influenza:
- Gaitonde, D. Y., Moore, F. C., & Morgan, M. K. (2019). Influenza: Diagnosis and Treatment. *American Family Physician*, 100(12), 751–758.

- Uyeki, T. M., Bernstein, H. H., Bradley, J. S., Englund, J. A., File, T. M., Fry, A. M., Gravenstein, S., Hayden, F. G., Harper, S. A., Hirshon, J. M., Ison, M. G., Johnston, B. L., Knight, S. L., McGeer, A., Riley, L. E., Wolfe, C. R., Alexander, P. E., & Pavia, A. T. (2019). Clinical Practice Guidelines by the Infectious Diseases Society of America: 2018 Update on Diagnosis, Treatment, Chemoprophylaxis, and Institutional Outbreak Management of Seasonal Influenzae. *Clinical Infectious Diseases*, 68(6), e1–e47. <https://doi.org/10.1093/cid/ciy866>
 - Vincent, M. T., Celestin, N., & Hussain, A. N. (2004). Pharyngitis. *American Family Physician*, 69(6), 1465–1470.
- [7] Rhinosinusitis, Acute:
- Aring, A. M., & Chan, M. M. (2011). Acute rhinosinusitis in adults. *American Family Physician*, 83(9), 1057–1063.
- [8] Travel:
- Government of Canada. (2020b, July 31). *Travel Advise and Advisories*. Government of Canada. <https://travel.gc.ca/travelling/advisories>
 - Sanford, C., McConnell, A., & Osborn, J. (2016). The Pretravel Consultation. *American Family Physician*, 94(8), 620–627.

Musculoskeletal Disorders & Rheumatology

- [1] Back Pain:
- The College of Family Physicians of Canada. (2011). *Guideline for the Evidence-Informed Primary Care Management of Low Back Pain*. https://portal.cfpc.ca/resourcesdocs/uploadedFiles/Directories/Committees_List/Low_Back_Pain_Guidelines_Oct19.pdf
- [2] Carpal Tunnel Syndrome:
- Wiperman, J. & Goerl, K. (2016, December 15). *Carpal Tunnel Syndrome: Diagnosis and Management*. *American Family Physician*, 94(12):993-999. <https://www.aafp.org/afp/2016/1215/p993.html#afp20161215p993-t1>
- [3] Diabetic Foot Disease:
- Botros, M., Kuhnke, J., Embil, J., Goettl, K., Morin, C., Parsons, L., ... Evans, R. (2019, January 29). Foundations of Best Practice for Skin and Wound Management: Best Practice Recommendations for the Prevention and Management of Diabetic Foot Ulcers. Canadian Association of Wound Care. <https://www.woundscanada.ca/docman/public/health-care-professional/bpr-workshop/895-wc-bpr-prevention-and-management-of-diabetic-foot-ulcers-1573r1e-final/file>
 - Bader, M.S. (2008, July 1). Diabetic Foot Infection. *American Family Physician*, 78(1):71-79. <https://www.aafp.org/afp/2008/0701/p71.html>
 - Embil, J.M., Albalawi, Z., Bowering, K., Trepman, E. (2018). *Diabetes Canada 2018 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada: Foot Care*. Canadian Journal of Diabetes, 42(Suppl 1). <http://guidelines.diabetes.ca/cpg/chapter32#sec2>
- [4] Osteoarthritis:
- Health Quality Ontario. (2018). *Quality Standards: Care for Adults with Osteoarthritis of the Knee, Hip or Hand*. <https://www.hqontario.ca/Portals/0/documents/evidence/quality-standards/qs-osteoarthritis-clinician-guide-en.pdf>
 - Arthritis Alliance of Canada, the Centre for Effective Practice and the College of Family Physicians of Canada. (June 2017). *Osteoarthritis Tool*. http://arthritisalliance.ca/images/OATool_FINAL_Sept14_ENG.pdf
 - Calmbach, K.L. & Hutchens, M. (2003, Sept 1). *Evaluation of Patients Presenting with Knee Pain: Part II. Differential Diagnosis*. *American Family Physician*, 68(5):917-922. <https://www.aafp.org/afp/2003/0901/p917.html>
 - Richie, A.M. & Francis, M.L. (2003, Sept 15). Diagnostic Approach to Polyarticular Knee Pain. *American Family Physician*, 68(6):1151-1160. <https://www.aafp.org/afp/2003/0915/p1151.html>
- [5] Osteoporosis:
- Papaioannou, A., Morin, S., Cheung, A.M., Atkinson, S., Brown, J.P., Feldman, S., ... Leslie, W.D. (2010, November 23). 2010 clinical practice guidelines for the diagnosis and management of osteoporosis in Canada: summary. *CMAJ*, 182(17):1864-1873. DOI:10.1503/cmaj.100771
- [6] Rotator Cuff Impingement:
- Woodward, T.W. & Best, T.M. (2000, May 15). The Painful Shoulder: Part I. Clinical Evaluation. *American Family Physician*, 61(10):3079-3088. <https://www.aafp.org/afp/2000/0515/p3079.html>
 - Fongemie, A.E., Buss, D.D., Rolnick, S.J. (1998, Feb 15). Management of Shoulder Impingement Syndrome and Rotator Cuff Tears. *American Family Physician*, 57(4):667-674. <https://www.aafp.org/afp/1998/0215/p667.html>

Nephrology

[1] Chronic Kidney Disease:

- Ontario Health Cancer Care Ontario. (2020). *KidneyWise Clinical Toolkit*. https://www.ontariorenalnetwork.ca/sites/renalnetwork/files/assets/Clinical_Toolkit.pdf
- Kidney Disease Improving Global Outcomes. (2013, November). KDIGO Clinical Practice Guideline for Lipid Management in Chronic Kidney Disease. *Kidney International*, 3(3).

Neurology

[1] Fatigue & Asthenia:

- Rosenthal, T. C., Majeroni, B. A., Pretorius, R., & Malik, K. (2008). Fatigue: an overview. *American family physician*, 78(10), 1173-1179.
- Saguil, A. (2005). Evaluation of the patient with muscle weakness. *American family physician*, 71(7), 1327-1336.

[2] Headaches:

- Becker, W. J., Findlay, T., Moga, C., Scott, N. A., Harstall, C., & Taenzer, P. (2015). Guideline for primary care management of headache in adults. *Canadian family physician*, 61(8), 670-679.
- Beebe, J. D., Lee, M. S., & McClelland, C. (2019). Chiasmal and Retrochiasmal Disorders. *International ophthalmology clinics*, 59(3), 59-81.
- Ebell, M. H. (2006). Diagnosis of migraine headache. *American family physician*, 74(12), 2087.

[3] Vertigo:

- Labuguen, R. (2006). Initial evaluation of vertigo. *American family physician*, 73(2), 244-251.

[4] Weakness, A Diagnostic Approach

- Levin, M. C. (2019, January). Weakness - Neurologic Disorders. Retrieved from <https://www.merckmanuals.com/professional/neurologic-disorders/symptoms-of-neurologic-disorders/weakness?query=weakness>
- Saguil, A. (2005). Evaluation of the patient with muscle weakness. *American family physician*, 71(7), 1327-1336.

Oncology

[1] Breast Cancer Screening:

- Cancer Care Ontario. (2015, October). *Ontario Breast Screening Program (OBSP) Guidelines Summary*. <https://www.cancercareontario.ca/sites/ccocancercare/files/assets/OBSPGuidelinesSummary.pdf>
- Walker, M., Jacobson, M., & Sobel, M. (2019). Management of ovarian cancer risk in women with BRCA1/2 pathogenic variants. In *CMAJ* (Vol. 191, Issue 32, pp. E886-E893). Canadian Medical Association. <https://doi.org/10.1503/cmaj.190281>
- Sunnybrook Health Sciences Centre. (n.d.). *BRCA cancer screening*. <https://sunnybrook.ca/content/?page=brca-gene-cancer-screening>

[2] Cervical Cancer Screening:

- J. Murphy, E. Kennedy, S. Dunn, M. Fung Kee Fung, D. Gzik, C.M. McLachlin, M. Shier, L. Paszat. (2016, October). *Ontario Cervical Screening Guidelines Summary*. <https://www.cancercareontario.ca/en/guidelines-advice/types-of-cancer/2156>

[3] Colon Cancer Screening:

- Cancer Care Ontario. (2019, March). *ColonCancerCheck (CCC) Guide to Average Risk Screening with the Fecal Immunochemical Test (FIT) in Ontario*. https://www.cancercareontario.ca/sites/ccocancercare/files/assets/H-FIT_PCC_2742_ClinicalToolForProviders.pdf
- Cancer Care Ontario. (n.d.). *Colorectal Cancer Screening Recommendations Summary*. <https://www.cancercareontario.ca/en/guidelines-advice/cancer-continuum/screening/resources-healthcare-providers/colorectal-cancer-screening-summary>

Pediatrics

[1] Attention Deficit Hyperactivity Disorder:

- Canadian ADHD Resource Alliance (2020). *CADDRA Guide to ADHD Pharmacological Treatments in Canada*. CADDRA.
- Hamilton, R. et al. (2009). Cardiac risk assessment before the use of stimulant medications in children and youth: A joint position statement by the Canadian Paediatric Society, the Canadian Cardiovascular Society and the Canadian Academy of Child and Adolescent Psychiatry. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*. 2009;18(4):349-355.

[2] Autism Spectrum Disorder:

- Brian, J. A., Zwaigenbaum, L., & Ip, A. (2019). Standards of diagnostic assessment for autism spectrum disorder. *Canadian Paediatric Society*.
 - Brian, J. A., Zwaigenbaum, L., & Ip, A. (2019). Early detection for autism spectrum disorder in young children. *Canadian Paediatric Society*.
 - Brian, J. A., Zwaigenbaum, L., & Ip, A. (2019). Post-diagnostic management and follow-up care for autism spectrum disorder. *Canadian Paediatric Society*.
- [3] Emergent Neonatal Surgical Presentations:
- Bailey, K. (2020, April 21). *Surgery - 1 Pediatric General Surgery*. Lecture presented for McMaster Virtual Longitudinal Clerkship, Hamilton, ON.
- [4] Failure to Thrive:
- Homan, G. J. (2016). Failure to Thrive: A Practical Guide. *American Family Physician*. 2016;94(4):295–299.
 - Marchand, V. (2012). The toddler who is falling off the growth chart. *Canadian Paediatric Society*.
- [5] Well Child Visits:
- Amit, M., (2009). Vision screening in infants, children and youth. *Canadian Paediatric Society*.
 - Turner K. (2018). Well-Child Visits for Infants and Young Children. *American Family Physician*. 2018;98(6):347–353.
 - Ministry of Health (2016). Publicly Funded Immunization Schedules for Ontario. *Government of Ontario*.

Psychiatry

- [2] Adjustment Disorder:
- Davine, J. (2020, April 28). *Psychiatry-2 Depressive Disorders*. Lecture presented for McMaster Virtual Longitudinal Clerkship, Hamilton, ON.
- [3] Alcohol Use Disorder:
- Kahan, M. (2017). Safe opioid prescribing and managing opioid use disorder: A pocket reference for primary care providers. *Safe prescribing practices for addictive medications and management of substance use disorders in primary care: a pocket reference for primary care providers*. Toronto, ON: Women's College Hospital.
 - Searight, H. R. (2009). Realistic approaches to counseling in the office setting. *American Family Physician*, 79(4), 277-284.
 - Watts, M. (2019, February 21). Primary Care Addiction Toolkit. Retrieved from <https://www.porticonetwork.ca/tools/toolkits/pcat>
- [4] Anxiety and Related Disorders:
- Davine, J. (2020, April 21). *Psychiatry-1 Anxiety Disorders*. Lecture presented for McMaster Virtual Longitudinal Clerkship, Hamilton, ON.
- [5] Bipolar Disorder:
- Davine, J. (2020, May 12). *Psychiatry-3 Bipolar Spectrum Disorders*. Lecture presented for McMaster Virtual Longitudinal Clerkship, Hamilton, ON.
 - Yatham, L. N., Kennedy, S. H., Parikh, S. V., Schaffer, A., Bond, D. J., Frey, B. N., ... & Alda, M. (2018). Canadian Network for Mood and Anxiety Treatments (CANMAT) and International Society for Bipolar Disorders (ISBD) 2018 guidelines for the management of patients with bipolar disorder. *Bipolar disorders*, 20(2), 97-170.
- [6] Eating Disorders:
- Grady, R. (2020, May 07). *Pediatrics-3 Adolescent Medicine – Working with Teens*. Lecture presented for McMaster Virtual Longitudinal Clerkship, Hamilton, ON.
- [7] Major Depressive Disorder:
- Davine, J. (2020, April 28). *Psychiatry-2 Depressive Disorders*. Lecture presented for McMaster Virtual Longitudinal Clerkship, Hamilton, ON.
 - Joffres, Michel, Alejandra Jaramillo, James Dickinson, Gabriela Lewin, Kevin Pottie, Elizabeth Shaw, Sarah Connor Gorber, Marcello Tonelli, and Canadian Task Force on Preventive Health Care. "Recommendations on screening for depression in adults." *Cmaj* 185, no. 9 (2013): 775-782.
 - Kennedy, S. H., Lam, R. W., McIntyre, R. S., Tourjman, S. V., Bhat, V., Blier, P., ... & McIntnerney, S. J. (2016). Canadian Network for Mood and Anxiety Treatments (CANMAT) 2016 clinical guidelines for the management of adults with major depressive disorder: section 3. Pharmacological treatments. *The Canadian Journal of Psychiatry*, 61(9), 540-560.
- [8] Personality Disorders:
- Angstman, K., & Rasmussen, N. H. (2011). Personality disorders: review and clinical application in daily practice. *American family physician*, 84(11), 1253-1260.
 - Bateman, A. W., Gunderson, J., & Mulder, R. (2015). Treatment of personality disorder. *The Lancet*, 385(9969), 735-743.
 - Treatment of personality disorders in adults with or without comorbid mental health conditions: clinical effectiveness and guidelines. (2018). Ottawa: CADTH.
- [9] Schizophrenia Spectrum Disorders:

- Davine, J. (2020, May 19). *Psychiatry-4 Psychotic Disorders*. Lecture presented for McMaster Virtual Longitudinal Clerkship, Hamilton, ON.
- [10] Sleep Disorders:
- Ramar, K., & Olson, E. J. (2013). Management of common sleep disorders. *American family physician*, 88(4), 231-238.
 - Papneja, P. (2014, March). *Managing Insomnia in Primary Care Office*. Lecture, Toronto.
- [11] Supportive Counselling:
- Searight, H. R. (2009). Realistic approaches to counseling in the office setting. *American Family Physician*, 79(4), 277-284.
- [12] Quick Reference Guide: Antidepressants:
- Chisholm, T., & Gardner, D. (2012). *The Yellow Card: Psychotropic Drug Reference Card: 7th Edition*. Halifax, NS: Department of Psychiatry, Dalhousie University.

Reproductive Medicine

[1] Contraception:

- Dalhousie CPD Academic Detailing Service. (2015). Contraception pearls for practice. Retrieved from <http://www.medicine.dal.ca/departments/core-units/cpd/programs/academic-detailing-service.html>
- Randel, A. (2011). CDC updates recommendations for contraceptive use in the postpartum period. *Practice Guidelines*, 84(12), 1423-1425.
- Faculty of Sexual & Reproductive Healthcare. (2017). Clinical guidance: Drug interactions with hormonal contraception. Retrieved from <https://www.fsrh.org/standards-and-guidance/documents/ceu-clinical-guidance-drug-interactions-with-hormonal/>
- CDC. (2016). U.S. medical eligibility criteria for contraceptive use. *Morbidity and Mortality Weekly Report*, 65(3), 1-103. <https://www.jstor.org/stable/10.2307/24840638>

[2] Diabetes in Pregnancy:

- Berger, B., Gagnon, R., & Sermer, M. (2019). Guideline No. 393-Diabetes in pregnancy. *Journal of Obstetrical Gynaecology Canada*, 41(12), 1814-1825.e1
- Lindsay, T.J., & Vitrikas, K.R. (2015). Evaluation and treatment of infertility. *American Family Physician*, 91(5), 308-314.

[3] Erectile Dysfunction and Testosterone Deficiency Syndrome:

- Rew, K.T., & Heidebaugh, J.J. (2016). Erectile dysfunction. *American Family Physician*, 94(10), 820-827.
- Shamloul, R., & Ghanem, H. (2013). Erectile dysfunction. *The Lancet*, 381, 153-165. <https://dx.doi.org/10.1016/>
- Morales, A., Bebb, R.A., Manjoo, P., Assimakopoulos, P., Axler, J., ... Lee, J.C. (2015). Diagnosis and management of testosterone deficiency syndrome in men: Clinical practice guideline. *Canadian Medical Association Journal*, 187(18), 1369-1377. <https://www.cmaj.ca/content/187/18/1369>

[4] Hypertensive Disorders of Pregnancy:

- Butalia, S., Audibert, F., Cote, AM., Firoz, T., Logan, A.G., ... Nerenberg, K.A. (2018). Hypertension Canada's 2018 guidelines for the management of hypertension in pregnancy. *Canadian Journal of Cardiology*, 34, 526-531. [https://www.onlinecjc.ca/article/S0828-282X\(18\)30182-X/pdf](https://www.onlinecjc.ca/article/S0828-282X(18)30182-X/pdf)
- Magee, L.A., Pels, A., Helewa, M., Rey, E., von Dadelszen, P., Hypertension Guideline Committee. (2014). Diagnosis, evaluation, and management of the hypertensive disorders of pregnancy: Executive summary. *Journal of Obstetrical Gynecology Canada*, 36(5), 416-438. [https://doi.org/10.1016/S1701-2163\(15\)30588-0](https://doi.org/10.1016/S1701-2163(15)30588-0)

[5] Libido and Sexual Dysfunction:

- UCSF Department of Urology. (2020). Decreased libido. Retrieved from <https://urology.ucsf.edu/patient-care/adult-non-cancer/male-sexual-and-reproductive-health/decreased-libido>
- SOGC. No. 279-Female sexual health consensus clinical guidelines. *Journal of Obstetrical Gynaecology Canada*, 40(6), e:451-e503. <https://linkinghub.elsevier.com/retrieve/pii/S1701216318302950>
- Faubion, S.S. & Rullo, J.E. (2015). Sexual dysfunction in women: A practical approach. *American Family Physician*, 92(4), 282-288.

[6] Prenatal Care

- Fleming, N., O'Driscoll, T., Becker, G., & Spitzer, R.F. (2015). Adolescent pregnancy guidelines. *Journal of Obstetrics and Gynecology Canada*, 37(8), P740-756. [https://doi.org/10.1016/S1701-2163\(15\)30180-8](https://doi.org/10.1016/S1701-2163(15)30180-8)
- Early prenatal care summary and checklist for primary care providers. (2018). Retrieved from http://www.perinatalservicesbc.ca/Documents/Resources/Checklists/PSBC_Prenatal_Checklist.pdf

[7] Subfertility:

- Kolettis, P.N. (2003). Evaluation of the subfertile man. *American Family Physician*, 67(10), 2165-2172. <https://www.aafp.org/afp/2003/0515/p2165.html>
- Lindsay, T.J., & Vitrikas, K.R. (2015). Evaluation and treatment of infertility. *American Family Physician*, 91(5), 308-314. <https://www.aafp.org/afp/2015/0301/p308.html>

- Committee on Gynecologic Practice. (2019). Infertility workup for women's health specialist. *American Society for Reproductive Medicine*, 133(6), e377-384.

Respirology

[1] Asthma:

- Lougheed, M. D., Lemiere, C., Ducharme, F. M., Licskai, C., Dell, S. D., Rowe, B. H., FitzGerald, M., Leigh, R., Watson, W., Boulet, L.-P., & Canadian Thoracic Society Asthma Clinical Assembly. (2012). Canadian Thoracic Society 2012 Guideline Update: Diagnosis and Management of Asthma in Preschoolers, Children and Adults: Executive Summary. *Canadian Respiratory Journal*, 19(6), e81-e88. <https://doi.org/10.1155/2012/214129>
- National Asthma Education and Prevention Program (National Heart Lung and Blood Institute) Third Expert Panel on the Management of Asthma. (2007). *Expert Panel report 3: Guidelines for the diagnosis and management of asthma*. Bethesda (MD): National Heart, Lung, and Blood Institute. <https://www.ncbi.nlm.nih.gov/books/NBK7232/>
- Rank, M. A., Hagan, J. B., Park, M. A., Podjasek, J. C., Samant, S. A., Volcheck, G. W., Erwin, P. J., & West, C. P. (2013). The risk of asthma exacerbation after stopping low-dose inhaled corticosteroids: A systematic review and meta-analysis of randomized controlled trials. *Journal of Allergy and Clinical Immunology*, 131(3), 724-729.e2. <https://doi.org/10.1016/j.jaci.2012.11.038>
- Reddel, H. K., FitzGerald, J. M., Bateman, E. D., Bacharier, L. B., Becker, A., Brusselle, G., Buhl, R., Cruz, A. A., Fleming, L., Inoue, H., Ko, F. W., Krishnan, J. A., Levy, M. L., Lin, J., Pedersen, S. E., Sheikh, A., Yorgancioglu, A., & Boulet, L.-P. (2019). GINA 2019: A fundamental change in asthma management: Treatment of asthma with short-acting bronchodilators alone is no longer recommended for adults and adolescents. *European Respiratory Journal*, 53(6), 1901046. <https://doi.org/10.1183/13993003.01046-2019>

[2] Chronic Obstructive Pulmonary Disease:

- Bourbeau, J., Bhutani, M., Hernandez, P., Aaron, S. D., Balter, M., Beauchesne, M.-F., D'Urzo, A., Goldstein, R., Kaplan, A., Maltais, F., Sin, D. D., & Marciniuk, D. D. (2019). Canadian Thoracic Society Clinical Practice Guideline on pharmacotherapy in patients with COPD – 2019 update of evidence. *Canadian Journal of Respiratory, Critical Care, and Sleep Medicine*, 3(4), 210–232. <https://doi.org/10.1080/24745332.2019.1668652>
- Bourbeau, J., Bhutani, M., Hernandez, P., Marciniuk, D. D., Aaron, S. D., Balter, M., Beauchesne, M.-F., D'Urzo, A., Goldstein, R., Kaplan, A., Maltais, F., O'Donnell, D. E., & Sin, D. D. (2017). CTS position statement: Pharmacotherapy in patients with COPD—An update. *Canadian Journal of Respiratory, Critical Care, and Sleep Medicine*, 1(4), 222–241. <https://doi.org/10.1080/24745332.2017.1395588>
- Guidelines and Protocol Advisory Committee. (2017). *Chronic Obstructive Pulmonary Disease (COPD): Diagnosis and Management*. Guidelines and Protocols and Advisory Committee. <https://www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/copd>
- Singh, D., Agusti, A., Anzueto, A., Barnes, P. J., Bourbeau, J., Celli, B. R., Criner, G. J., Frith, P., Halpin, D. M. G., Han, M., López Varela, M. V., Martínez, F., Montes de Oca, M., Papi, A., Pavord, I. D., Roche, N., Sin, D. D., Stockley, R., Vestbo, J., ... Vogelmeier, C. (2019). Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Lung Disease: The GOLD science committee report 2019. *The European Respiratory Journal*, 53(5). <https://doi.org/10.1183/13993003.00164-2019>

[3] Obstructive Sleep Apnea:

- Fleetham, J., Ayas, N., Bradley, D., Fitzpatrick, M., Oliver, T. K., Morrison, D., Ryan, F., Series, F., Skomro, R., Tsai, W., & Canadian Thoracic Society Sleep Disordered Breathing Committee. (2011). Canadian Thoracic Society 2011 guideline update: Diagnosis and treatment of sleep disordered breathing. *Canadian Respiratory Journal*, 18(1), 25–47. <https://doi.org/10.1155/2011/506189>
- Laratta, C. R., Ayas, N. T., Povitz, M., & Pendharker, S. R. (2017). Diagnosis and treatment of obstructive sleep apnea in adults. *Canadian Medical Association Journal*, 189(48), E1481–E1488. <https://doi.org/10.1503/cmaj.170296>

[4] Smoking Cessation:

- Cressman, A. M., Pupco, A., Kim, E., Koren, G., & Bozzo, P. (2012). Smoking cessation therapy during pregnancy. *Canadian Family Physician*, 58(5), 525.
- Reid, R. D., Pritchard, G., Walker, K., Aitken, D., Mullen, K.-A., & Pipe, A. L. (2016). Managing smoking cessation. *Canadian Medical Association Journal*, 188(17–18), E484–E492. <https://doi.org/10.1503/cmaj.151510>
- The Smoking Cessation Guidelines Expert Panel. (2000). *Smoking Cessation Guidelines: How to Treat Your Patient's Tobacco Addiction*. Pegasus Healthcare International Publication. https://www.monaic.ca/~media/nurseone/page-content/pdf-fr/smoking_cessation_guidelines.pdf

Urology

[1] Benign Prostatic Hyperplasia and Prostate Cancer:

- Rendon, R.A., Mason, R.J., Marzouk, K., Finelli, A., Saad, F., So, A., ... Breau, R.H. (2017). Canadian Urological Association recommendations on prostate cancer screening and early diagnosis. *Canadian Urological Association Journal*, 11(10), 298-309. <https://doi.org/10.5489/cuaj.4888>
- Nickel, C.J., Aaron, L., Barkin, J., Elterman, D., Nachabé, M., Zorn, K.C. (2018). Canadian Urological Association guideline on male lower urinary tract symptoms/benign prostatic hyperplasia (MLUTS/BPH): 2018 update. *Canadian Urological Association Journal*, 12(10). <https://doi.org/10.5489/cuaj.5616>

[2] Hematuria:

- Wollin, T., Laroche, B., Psooy, K. (2008). Canadian guidelines for the management of asymptomatic microscopic hematuria in adults. *Canadian Urological Association*. https://www.cua.org/themes/web/assets/files/guidelines/en/amh_2008_e.pdf
- Sharp, V.J., Barnes, K.T., Erickson, B.A. (2013, December 1). Assessment of Asymptomatic Microscopic Hematuria in Adults. *American Family Physician*, 88(11): 747-754. <https://www.aafp.org/afp/2013/1201/p747.html>