Going by the list provided by Dr. Nessler. This is probably not everything you will need for the test, but will get you a long way. Leaning pretty heavily on UpToDate for recommendations etc, I've gone through all the lectures and added stuff at the bottom that doesn't fit any of the other categories, otherwise it's added in with the relevant topics.

Smoking

PLEASE TICK (✓) ONE BOX FOR EACH QUESTION		
How soon after waking do you smoke your first cigarette?	Within 5 minutes 5-30 minutes 31-60 minutes	☐ 3 ☐ 2 ☐ 1
Do you find it difficult to refrain from smoking in places where it is forbidden? e.g. Church, Library, etc.	Yes No	☐ 1 ☐ 0
Which cigarette would you hate to give up?	The first in the morning Any other	☐ 1 ☐ 0
How many cigarettes a day do you smoke?	10 or less 11 – 20 21 – 30 31 or more	☐ 0 ☐ 1 ☐ 2 ☐ 3
Do you smoke more frequently in the morning?	Yes No	☐ 1 ☐ 0
Do you smoke even if you are sick in bed most of the day?	Yes No	☐ 1 ☐ 0
	Total Score	
SCORE	1- 2 = low dependence 3-4 = low to mod dependence	5 - 7= moderate dependence 8 + = high dependence

- Fagerstrom test
    - Tests **nicotine dependence.**
    - Score helps determine whether nicotine replacement therapy (NRT) is needed
        - I.e. patches, gums etc.
        - Score of 3-4 may require NRT, higher may require combinations of different NRTs (also more effective in general – e.g. patch+gum)
- Schneider test
    - Tests **motivation for quitting.** Supposedly. Nessler mentioned this, but I can't find any info at all about it, except a reference to the "Nina Schneider motivation test" in a Polish paper on atherosclerosis, but it's clearly not in common use.
- About 22% of those who try to quit smoking use a cessation medication. **Bupropion, NRT** and **varenicline** are 1st line. 2nd line includes **clonidine** and **nortriptylene.**
- Intervention model: The 5 A's
    - **A**sk (about smoking)
    - **A**dvise (smokers to quit)
    - **A**ssess (readiness to quit)
    - **A**ssist (with patient's smoking cessation efforts)
    - **A**rrange (for follow-up visits or contact)
- When trying to help someone quit smoking, you should ask about:
    - Frequency of use
    - Products used
    - History of previous quitting attempts (methods, how well they worked)
    - Readiness to quit
    - Degree of nicotine dependence (Fagerstrom)

SCORE system for CVD risk

- The **S**ystematic **CO**ronary **R**isk **E**valuation charts are used to assess... Coronary risk!
    - End point is **death from CVD,** measured in **ten-year risk percentages, i.e. percentage likelihood of dying from CVD in the next ten years.**
    - SCORE chart use is recommended for **all adults over 40 years of age.**
    - Risk calculation is based on the following variables:
        - Gender
        - Age
        - Total cholesterol
        - Systolic blood pressure
        - Smoking status
    - Two sets of charts exist: High risk and low risk. Make sure to select the appropriate chart for your country. SCORE is made by the European Cardiological Society, so it is primarily useful in Europe.
- The SCORE system is often contrasted with the **Framingham criteria** used in the US. Both measure risk, but Framingham uses **cardiovascular risk** (i.e. stroke, MI, CHF etc., not necessarily fatal) while SCORE uses **10-year risk of CVD mortality** as the end point.
- The SCORE system is a useful tool to direct interventions aimed at preventing death from CVD. Prevention focuses on the **preventable risk factors**: Cholesterol, BP and smoking.
    - **Cholesterol:** Statins and lifestyle modification.
        - **Lifestyle modification is 1st line. All patients, whether given statins or not, should be advised to make any relevant changes.** This involves aerobic exercise, weight loss for overweight patients, and reducing saturated fat consumption. Evidence suggests long-term compliance is low, and that dietician advice is slightly more effective than physician advice in the short term.
        - **Statins are the standard medications for reducing LDL cholesterol levels.** Lots of people are on these, and GPs often determine the specific drug and dosage, so this is very useful knowledge for the test (and actual practice). Aside from UTD algorithm recs, OnlineMedEd also has a useful "rules of thumb" approach. The most important ones to remember are **atorvastatin** and **rosuvastatin** – these are the ones used for high doses, the rest are moderate dose.
            - **High-dose statins: >10% 10 year risk.** Atorvastatin 40 to 80 mg once daily or rosuvastatin 20 to 40 mg once daily.
            - **Moderate-dose statins: 7.5-10% 10 year risk.** Atorvastatin 20 mg once daily; lovastatin 40 mg once daily; pravastatin 40 mg once daily;

rosuvastatin 5 mg once daily; rosuvastatin 10 mg daily; simvastatin 40 mg once daily.
- **Anyone with an LDL>4.9 mmol/L gets a statin.**

■ **Aside from SCORE,** screening for hyperlipidemia should start at
- **35** years for men
- **45** years for women
- **20-35** years for men and women at increased risk

○ **Blood pressure:** Lifestyle modification and a menu of standard BP lowering agents.
■ **Again, lifestyle modification is 1st line. All patients should be recommended to make relevant lifestyle adjustments.**
- Weight loss, dietary sodium restriction, DASH diet, exercise, limit alcohol intake.

■ **Antihypertensive drugs:** Thiazide diuretics, calcium channel blockers, β-blockers, ACEi/ARBs are basically equivalent, but should be tailored to the specific patient – e.g., a stage 4 CKD patient should not be put on thiazide diuretics, if they're pre-diabetic they should not get β-blockers, a patient with CKD will benefit especially from ACEi/ARBs, and so on.

○ **Smoking**: New research has come out indicating smoking is actually very healthy and everyone should do it. Definitely don't encourage all your patients to quit. (This paragraph sponsored by Philip-Morris, Inc.)
■ Some medications are helpful for quitting smoking. Bupropion is an atypical antidepressant that helps. Limited evidence suggests e-cigarettes are less harmful than regular tobacco, but many who switch end up either going back or using both. See above section on smoking cessation and the ECS recommendations, they have a giant PDF with everything you might want to know.

(Modified) Centor criteria for strep throat

- Centor criteria are a set of criteria used to distinguish strep throat from other pharyngitis.
- **Each criterion gives +1 point.**
    1. Absence of cough
    2. Tonsillar exudates
    3. History of fever
    4. Tender anterior cervical lymph nodes
- Additionally, ***modified*** Centor criteria include **+1 point for age <15,** and **-1 point for age >44.**
- Scoring determines best clinical action (though this also depends on local guidelines):
    - -1 to 1 points: Risk is <10%, no swab or ABx necessary.

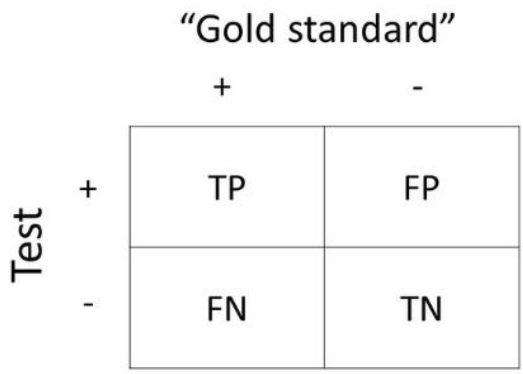
    - 2 to 3 points: Risk is 15% (2) or 32% (3), use throat culture and ABx if positive.
    - 4 to 5 points: Risk is 56%, rapid strep test and ABx if positive.
- For Centor criteria, it's worth noting that the NPV with a score of -1 is higher than the PPV with a score of 5. In other words, the test is better for ruling out strep infections than confirming them.
- Typical antibiotics for strep throat include **penicillin, amoxicillin (children) and IM penicillin benzathine (patients likely to be noncompliant).**

Beck inventory for depression screening

- The Beck Inventory is a screening tool for depression, developed initially in the '60s, now in its third edition.
- A 21-question questionnaire about the patients' patterns of thinking, each question is answered with one of four responses, from a 0-point, basically nondepressive response to a 3-point, very depressive response. Total score describes severity of depressive symptoms, from minimal depression (0-9 points) to severe depression (30-63 points).
- Can sometimes take a bit of time, so typically, a patient is asked to fill this out in the hallway or take home as "homework", to be returned in a later appointment. It is widely used in GP offices.
- A shorter, seven-point questionnaire called the **Beck Depression Inventory for Primary Care (BDI-PC)** also exists and is more convenient, as well as less dependent on physical symptoms than the full inventory.
- PHQ-9 is another tool mentioned in the slides. It looks similar to Beck's, but is shorter.
- We should also know the basic criteria for major depressive disorder (MDD), the mnemonic is **SIGECAPS**
    - **S**leep
    - **I**nterest
    - **G**uilt
    - **E**nergy
    - **C**oncentration:
    - **A**ppetite (wt. loss); usually declined, occasionally increased
    - **P**sychomotor: agitation (anxiety) or retardations (lethargic)
    - **S**uicide/death preoccupation
- Depression is often comorbid with other disorders, **very** common in **Parkinson's, chronic pain disorders and cancer.**
- **Treatments:** Psychotherapy and pharmacotherapy in combination**. SSRIs/SNRIs are 1st line.**

PPV, NPV, specificity and sensitivity

- **Sensitivity** describes the ability of a test to correctly identify those who have the disease, i.e. the true positive rate.
- **Specificity** describes the ability of a test to correctly identify those who do not have the disease, i.e. the true negative rate.
- **Positive predictive value**: Describes the likelihood that a person whose test shows a positive result actually has the disease.
- **Negative predictive value:** Describes the likelihood that a person whose test shows a negative test result does not have the disease.



Sensitivity = TP / (TP+FN)
The sum of true positives and false negatives equals all that actually have the disease, so this equation gives us **the proportion of those that actually have the disease which are detected by the test.**

Specificity = TN / (TN+FP)
The sum of true negatives and false positives equals all that do not have the disease, so this equation gives us **the proportion of those that do not have the disease and are correctly identified as being disease-free.**

PPV= TP / (TP+FP)
The sum of true positive and false positive equals all positive responses in a sample, so PPV tells you **the proportion of positive-answer tests that correctly reflect the presence of disease.**

NPV= TN / (TN+FN)
The sum of true negatives and false negatives equals all negative responses in a sample, so NPV provides you with **the proportion of negative-answer tests that correctly reflect absence of disease.**

It's important to remember that these all depend on factors underpinning the test: E.g., the PPV for a STEMI on EKG drops if the patient is a healthy 25yo male. We probably don't need to consider that for the test, but in real life it's useful to know. Lots of physicians get this wrong!

BP measurement criteria for a diagnosis of hypertension (per the ESC)

- Categories
    - **Normotensive:** 120-129/70-79 mmHg
    - **Elevated BP:** 130-139/80-89 mmHg
    - **Grade 1 hypertension:** 140-159/90-99 mmHg
    - **Grade 2 hypertension:** ≥160/100 mmHg
- **The diagnosis of BP is made with:**
    - Repeat visits with BP measurement to the doctor's office, measurements above
    - 24-hour ambulatory BP monitoring, averaging ≥130/80 mmHg
    - Home BP monitoring, averaging ≥135/85 mmHg
- Systolic and diastolic pressures count irrespective of another. I.e., a patient with 118/80 has elevated BP, a patient with 155/102 is Grade 2.

Causes of secondary hypertension

- Any hypertension with a specific known cause. Clues that it might be secondary include:
    - **Resistant hypertension,** i.e. if BP is not lowered by 3 typical BP lowering agents
    - **Acute rise.** If the patient was recently normotensive and suddenly has a high one
    - **Age less than 30 years, without relevant risk factors (e.g. obesity, fam. Hx)**
    - **Malignant hypertension**
    - **Electrolyte disturbances**
    - **Onset before puberty**
- Causes
    - Renovascular (most common), e.g. renal artery stenosis
    - Kidney disease
    - Primary hyperaldosteronism
    - Sleep apnea syndrome (obesity!)
    - OCPs (women of childbearing age)
    - Cushing's (typically diastolic increase)
    - Pheochromocytoma

Estimation of heart failure severity by ejection fraction (per ESC)

Table 3.1 Definition of heart failure with preserved (HFpEF), mid-range (HFmrEF) and reduced ejection fraction (HFrEF)

Type of HF		HFrEF	HFmrEF	HFpEF
CRITERIA	1	Symptoms ± Signs[a]	Symptoms ± Signs[a]	Symptoms ± Signs[a]
	2	LVEF <40%	LVEF 40–49%	LVEF ≥50%
	3	–	1. Elevated levels of natriuretic peptides[b]; 2. At least one additional criterion: a. relevant structural heart disease (LVH and/or LAE), b. diastolic dysfunction (for details see Section 4.3.2).	1. Elevated levels of natriuretic peptides[b]; 2. At least one additional criterion: a. relevant structural heart disease (LVH and/or LAE), b. diastolic dysfunction (for details see Section 4.3.2).

BNP = B-type natriuretic peptide; HF = heart failure; HFmrEF = heart failure with mid-range ejection fraction; HFpEF = heart failure with preserved ejection fraction; HFrEF = heart failure with reduced ejection fraction; LAE = left atrial enlargement; LVEF = left ventricular ejection fraction; LVH = left ventricular hypertrophy; NT-proBNP = N-terminal pro-B type natriuretic peptide.
[a]Signs may not be present in the early stages of HF (especially in HFpEF) and in patients treated with diuretics.
[b]BNP>35 pg/ml and/or NT-proBNP>125 pg/mL.

- In short: **Preserved EF, mid-range EF or reduced EF.**
- **Mainly based on Left Ventricular EF:** Stroke volume divided by end-diastolic volume. This is done with echocardiography. We typically use the **modified Simpson's rule** for this, which in practice involves measuring the area of the LV at end-systole and end-diastole, and letting the echo machine work its magic estimating volumes.
- We still use **the NYHA system** to classify the symptoms and exercise intolerance heart failure produces, but per the ESC:
    - Symptom severity correlates poorly with many measures of LV function; although there is a clear relationship between the severity of symptoms and survival, patients with mild symptoms may still have an increased risk of hospitalization and death.

Causes of CHF: Ischemic heart failure, hypertension, metabolic syndrome

- CHF has a range of etiologies. **Low socioeconomic status** is a predictor of CHF overall. Also varies somewhat by geography. We're talking about the chronic variant here, with time for compensatory mechanisms.
    - **The most common etiology is ischemic heart disease**, responsible for about **40% of cases.** These are your patients with severe CAD (most common), or who are post-MI, with hibernating myocardium or post-MI scarring.
    - **Hypertension** is another common cause. The worse the hypertension, the more likely a patient will develop CHF, and the worse it will be. Moderate elevations are also likely

to cause problems in the long run. **Patients with hypertension who have also had an MI are at very high risk, because the hypertension alters the remodeling process of the LV.**
        - Systolic BP is more important than diastolic here.
    - **LV hypertrophy**, for any cause. Often connected to hypertension, but can also be due to DM, valvular disease (aortis stenosis) etc.
    - **Previous valvular surgery**
    - **Dilated cardiomyopathy** (alcohol and cocaine abuse, doxo/daunorubicin, Chagas disease etc.)
    - **Metabolic syndrome** was mentioned by Nessler as a cause, but is really more of a risk factor than an etiology, because of the problems metabolic syndrome produces – obesity and hypertension.
        - **Patients with metabolic syndrome have a higher incidence of CHF, but it is not a direct etiology.**

Drugs for treating CHF

- Treatment is directed at reducing symptoms, improving quality of life, and reducing mortality. **This is achieved with treatments directed at both CHF itself and the underlying cause.** Consider also that patients with CHF often present with a range of comorbidities, including AFib and other arrythmias (->antiarrythmics), thromboembolisms (->anticoagulation), anemia. Take this into account when prescribing.
    - **CHF+hypertension**
        - 1st line medications:
            - **Beta-blockers** (Consider β-blockers especially with comorbidities: Angina relief in CAD, rate control in AFib)
            - **ACEi/ARBs**
            - **Mineralocorticoid receptor antagonists (spironolactone, eplerenone)**
        - As in hypertension in general, you can combine up to three drug classes before moving on to second-line options. In hypertension+CHF, second line agents are:
            - **Loop diuretics**
            - **Nitrates**
            - **Vasoselective calcium channel blockers (e.g. amlodipine)**
            - **Hydralazine**
        - In renovascular hypertension, you should also consider revascularisation.

    - **Ischemic heart disease**: **Consider the specific etiology.** CHF patients with CAD but no previous MI are likely to have hibernating myocardium, these might improve with revascularisation (CABG, angioplasty). Otherwise, typical regimen: Statins, nitrates.
    - **Valvular disease:** Surgery may be indicated. Send'em to cardio.
    - **Patients should also be recommended lifestyle changes**: Smoking cessation, reduced (or eliminated) alcohol consumption, dietary salt restriction if hypertensive.

Infections: Coxsackie, rubella, measles, mumps etc.

- Nessler only mentioned a few diseases, but I'll throw in the ones covered by OME just in case.
- The OME video for these is pretty good: https://onlinemeded.org/spa/pediatrics/peds-infectious-rashes/
- The basic idea is **using location, the timing of the rash, fever and prodrome to tell the diseases apart**
- The rashes tend to be **maculopapular,** and although they have characteristic locations they *can* appear in other places. I'm listing the classic presentations here.

Erythema infectiosum (slapped cheek syndrome)

- Caused by Parvovirus B19, affects mostly kids. Rash is characteristically located on both cheeks, looks like baby got back...handed.
- Fever and rash occur **simultaneously**
- Treatment is supportive. Passes on its own
- May cause **aplastic crisis**, especially in sickle cell patients, but also other hemoglobinopathies
- **If the mother of a sick child is pregnant, she needs to stay away from the child** – PB19 may cause **hydrops fetalis** in unborn children, which is very bad

Measles

- Caused by **paramyxovirus**. Starts with **a rash that appears on the face and spreads down the trunk and arms.** Fever typically begins when the rash starts spreading. Incubation period is **7-14 days**, spreads via **droplets**.
- Characterised by The Four C's, which helps distinguish it from rubella
    - **C**ough
    - **C**oryza (runny nose)

    - **C**onjunctivitis (runny eyes)
    - **C**oplik (Koplik) spots, white dots on oral mucosa
- Treatment is supportive. Hopefully you won't see too many kids with measles, because there's an outstanding vaccine that prevents it. MMR(V) vaccines, folks, get'em
- Kids who don't get measles vaccines will spread them to other unvaccinated children, those with ineffective vaccines and those with immunodeficiencies, so you if you get a patient with measles you need to get on the phone with several people ASAP, from the kid's kindergarten/school to your local disease control center. Also take a long shower, probably
- Later in life (after a dormant period of 1-27 years) it may cause **subacute sclerosing panencephalitis,** which is as bad as it sounds and eventually kills you. But that's neurology.

Rubella

- Also called **German measles**, because it looks a lot like measles, but is not nearly as dangerous for the kid. Rash tends to be more mild and spread faster than in measles, kids don't get as sick generally. Incubation period is **11-21 days,** spreads via **droplets.**
- Prodrome includes **generalised tender swollen lymph nodes**. You may also see **Forchheimer spots** (red, erythematous) on the palate (not to be confused with Koplik spots!)
- Also covered by the MMR(V) vaccine
- Treatment is supportive
- One of the TORCH diseases, so **isolate the kid from pregnant women to avoid congenital birth defects**
- Note the importance of telling rubella and measles apart. You do this with the other features, not by the rash or fever. **Measles: 4 C's. Rubella: Rash is milder, generalised lymphadenopathy**

Coxsackie

- Coxsackie A cause the characteristic hand-foot-mouth disease. **Everyone can get infected**, but children get it more easily.
- Prodrome is nonspecific. Patient tends to get fever, malaise etc., typical Sx of a mild viral infection.
- There is no prevention strategy for Coxsackie.
- Patients may benefit from steroids if their mouth is severely affected, to help them eat and drink. Fatty foods (milk, ice cream) tend to go down more easily.

Roseola

- Caused by HHV-6. Rash spreads **from the trunk and outwards to face, limbs**

- Prodrome is typical here: Very high (>40C), spiking fever. Fever subsides, rash occurs **after**.
- No treatment, passes on its own. One thing to look out for is **febrile seizures**, **which are aborted with benzodiazepines if they last >5min.**
- Fever can be controlled with antipyretics. NOT aspirin. You know why, right?

Varicella zoster

- Two diseases by the same virus: **Chickenpox in kids, shingles in adults.** Incubation period is 11-21 days, spreads by droplets or direct contact.
- No fever.
- In chickenpox, you typically find a **herpetiform rash with lesions in different stages of healing**: Some don't have vesicles, some do, some have popped and are scabbed over. Itches and hurts.
- **Treatment**: Antiviral drugs like valacyclovir may shorten the symptoms if given within 24h of onset.
- The virus remains dormant in sensory nerves until the patient gets immunosuppressed (typically in old age, but can also happen in e.g. HIV/AIDS), then it breaks out in **the same herpetiform rash, but is confined to dermatomes, and thus do not cross the midline.**
    - I.e., if you get a 20 year old with shingles, it's a good idea to look for underlying issues that may cause immunosuppression.
- Shingles hurt like hell, but there's nothing to do. Just let it pass with supportive treatment. You can use gabapentin or pregabalin for the (neuropathic) pain.
- Covered by the MMR(**V**) vaccine.

Mumps

- Occurs classically in **pubertal males**, presenting with **orchitis** and **parotitis.** Swollen cheeks and testes.
- May cause infertility. No treatment beyond supportive, but again, MMR(V) vaccine

Erysipelas

- Caused by **S. pyogenes.** The classic appearance is a red, swollen, warm and painful rash with a sharply marked edge. Constitutional symptoms are classically bacterial-infectious: fever, shaking, chills and fatigue
- Typically occurs **when something has broken the skin.** Insect or animal bite, other infections (athlete's foot), surgery, minor trauma.
- Especially affects people with poorly functioning immune systems: Immunodeficient, elderly, diabetes, alcoholism, impaired lymphatic drainage, and so on.

- **Treatment** is antibiotics, type and route depends on severity.
    - Penicillins, clindamycin, erythromycin.

Impetigo contagiosa

- Usually caused by **S.aureus**, sometimes **streptococci.** Begins as a red sore near nose or mouth, when it breaks open it leaks out pus/fluid that produces a **honey-coloured crust.** A red patch follows, which later resolves without scarring.
- **Treatment** is topical antiseptics and antibiotics, **muciprocin** is commonly used. **Oral antibiotics** in severe cases.

Boils (furuncle)

- Caused by **S.aureus**. Bumpy, red, pus-filled lumps around a hair follicle, they are usually **tender, warm** and **painful.** They can be drained with minor surgery.
- Usually presents in **immunosuppressed** or **malnourished** patients.
- Give **antibiotics effective against MRSA** if a patient is:
    - Immunocompromised
    - At risk of endocarditis
    - Lesion is >5mm or expanding

Oral thrush (candidiasis)

- Caused by **Candida spp.,** which is part of the normal skin flora. **White coating on tongue**, white matches in mouth.
- overgrowth becomes possible with a **weakened immune system**, or in **babies <1mo.**
- **Treat** with **topical miconazole gel** or **nystatin suspension.**
- Note that oral candidiasis in adults is a sign of immunocompromise – you should always look for an underlying cause here: HIV, cancer treatments, diabetes, use of corticosteroids or ABx.

Scabies

- Just scabies. They burrow into the skin and dig little tunnels, you can see these as tracks in the skin, alongside small insect bites.
- **Typically occurs in settings where scabies spread easily via skin-to-skin contact, sharing of towels or bedding**: Homeless shelters, nursing homes, child care facilities and prison.
- **Itches a LOT**. Gets worse when it's warm, typically at night when the patient is under their duvet.

- **Locations** are characteristic: **Wrists**, genitals, abdomen, buttocks, flanks, elbows.
- There are ways to definitively diagnose, but **if you have a strong suspicion you can treat with oral ivermectin empirically** – if the itching stops, you got it.
- **Treatment** should involve anyone in close contact with the affected person – family members, caretakers, and so on. **Topical permethrin** is applied from the neck down, let sit for 8-14 hours (overnight), then wash off. You can also use **oral ivermectin,** and a few other drugs.
    - To control the itchiness, you can use **antihistamines** and antiinflammatory agents.
    - Bedding, clothing and towels should be washed at minimum 60C, and dried in a hot dryer.

Warts

- Lots of different morphologies. You know'em. They're warts
- **Caused by viruses in the HPV family.**
- Many treatment options: **Salicylic acid**, **imiquimod, bleomycin etc.** – you can also do procedures: **Electrodesiccation, cryosurgery, laser treatment, surgery.**

Acne vulgaris

- A few types with corresponding strength of treatment:
    - Noninflammatory (topical retinoids)
    - Mild to moderate inflammatory (topical antibiotic/retinoid+benzoyl peroxide cream)
    - Severe inflammatory – oral antibiotics, topical retinoids
    - Severe nodular – oral isotretinoin. (bad for the liver, so get baseline LFTs+monthly followup, and tell the patient not to drink alcohol during the treatment.)

Vaccines

- Quick review of vaccine types
    - **Live attenuated vaccines (LAV)**: Viral or bacterial. Often gives the best immune response. Marking these as LAV in the specific vaccines section. **These should always be avoided in**
        - Pregnancy
        - Severely immunocompromised patients

        - Patients with first-degree relatives with congenital or hereditary immunodeficiencies, unless it has been definitively proven their immune system works well
    - **Killed vaccines**: Less effective than live vaccines, as there's no replication in the host body->smaller antigen exposure
    - **Purified macromolecule vaccines:**
        - Inactivated toxins
        - Conjugate vaccines (combining weak antigen with a strong antigen->stronger immune response to the weak antigen)
        - Subunit vaccines (only the specific antigen)
- **Contraindications fall into three categories:**
    - **Anaphylaxis** after previous dose, or **severe allergy** to vaccine component. This is true for **all** vaccines.
        - **A <u>strong</u> adverse reaction to a previous vaccine is an absolute contraindication for the same vaccine.** Also, e.g. egg allergies (flu shots are incubated into fertilised eggs).
        - Adverse reactions (pain, redness, swelling) occur in about 50% of vaccine administrations in general. This is **not** a contraindication.
    - **Pregnancy**, for certain vaccines (**LAV**)
    - **Immunocompromised patients**, for certain vaccines (**LAV**)
        - Involves several diseases – SCID, HIV/AIDS, cancers and chemo, chronic steroid use, and so on.
    - **Current acute illness** is a ***relative*** contraindication for all vaccines.

Specific vaccines

- Not sure how specific Nessler wants to get here, I'm guessing the most high-yield point is that **MMR, Varicella and Influenza are all LAV vaccines** and should be avoided accordingly**.** Beyond that, as detailed as you feel.)
- **MMR <u>(LAV)</u>**
    - Absolute (**A**): **LAV**
    - Relative (**R**): Recent (<11mo) admin of antibody-containing blood product, history of thrombocytopenia, current need for TB testing (measles vaccination might suppress tuberculin skin test)
- **Varicella <u>(LAV)</u>**
    - **A**: **LAV**
    - **R**: Recent (<11mo) admin of antibody-containing blood product, use of specific antiviral drugs (**valacyclovir, famciclovir**)
- **Influenza <u>(LAV)</u>**

    - **A**: **LAV,** salicylate-containing drugs (**aspirin**) in children+adolescents, kids 2-4yo with history of wheezing past 12mo or asthma diagnosis, close contact with immunocompromised patients, influenza antivirals in the past 48h.
    - **R**: **Guillain-Barre syndrome (GBS)** within 6 weeks of previous influenza vaccination, asthma in persons >5yo, other major chronic medical conditions
- **Inactivated poliovirus**
    - **R: Pregnancy category B2** – no increase in fetal malformations has been observed, but both human and animal studies are limited/lacking.
- **HPV**
    - **R**: **Pregnancy category B2**
- **DTaP, Tdap, DT, Td** (diptheria, pertussis and tetanus in various combinations)
    - **A**: Encephalopathy within 7d of previous pertussis vaccination
    - **R**: GBS within 6 weeks after previous tetanus toxoid vaccine.
    - **R** DTaP and Tdap only: Progressive neurological disorder
- **Hepatitis B**
    - Absolute (**A**): Hypersensitivity to yeast
    - Relative (**R**): Infant <2000g (in many countries, hep B is given right after birth)
- **Hepatitis A**
    - Nothing special
- It is worth noting that **live vaccines should only be given in deltoids, not glutes** – gluteal vaccine administration sometimes results in inefficient coverage.

Vaccination schedules

- Varies with national guidelines, and as far as I gathered from Nessler this was mainly in the case of an oral exam, so no great detail here. If you want to compare schedules for European countries, https://vaccine-schedule.ecdc.europa.eu is a useful tool.
- **Varicella**: 12-18mo, booster at 4-6y.
- **MMR**: 13-14mo, and at 10y.
- A few vaccines are recommended <16mo in most places: Hep B, MMR, BCG, DTaP, pneumococcal, H.Influenza type B.

Tetanus vaccines

- Generally, a tetanus vaccine lasts for 10 years.
- There are a few forms: one is the combination vaccine for tetanus, diptheria and polio (**DTaP**), another is the simple **Td booster** (Tetanus and diphtheria), and **immunoglobulin**

can be used in the acute wound setting. There are other variants, but these are the most common ones.

- The **DTaP** vaccine is part of the standard immunisation schedule for children in most countries. A **Td booster** is recommended at 10 year intervals for adults. If someone comes in with a wound, follow the chart below. Finally, **a Td booster is recommended for pregnant women during each pregnancy.**

Previous doses of tetanus toxoid*	Clean and minor wound		All other wounds¶	
	Tetanus toxoid-containing vaccine△	Human tetanus immune globulin	Tetanus toxoid-containing vaccine△	Human tetanus immune globulin◇
<3 doses or unknown	Yes§	No	Yes§	Yes
≥3 doses	Only if last dose given ≥10 years ago	No	Only if last dose given ≥5 years ago¥	No

- If in doubt, give the shot. Better safe than sorry.
- **Most cases become symptomatic within 8 days**, but may occur as quickly as 3 or as slowly as 21.
- If you get an adult patient that has never been vaccinated against tetanus (refugee, dumb parents etc), UpToDate recommends three Td doses: **The first two spaced by four weeks, the last one 6-12 months later.**

Rabies vaccine/prevention

- The rabies vaccine is usually not part of immunisation programmes in non-endemic areas, but is recommended for **travelers going to an area with high rates of rabies in animals**.
- The vaccine is used for both pre-exposure vaccination and post-exposure prophylaxis.
    - **Pre-exposure: Three doses. Second dose 1 week after the first, third dose after 3 or 4 weeks.** I.e., it takes a while to immunise properly, so someone planning to travel needs to plan it out at least a month ahead of time.
    - **Post-exposure prophylaxis should be given regardless of vaccination status.** Standard wound care is also important for prevention – wash the wound carefully with water and soap.
    - **Rabies immunoglobulin** is also part of the post-exposure prophylaxis. It is **not** necessary if the patient was vaccinated prior to exposure. As much as possible of the immunoglobulin dose should be given **in the area of the wound.** The rest should be given intramuscularly.

Asthma

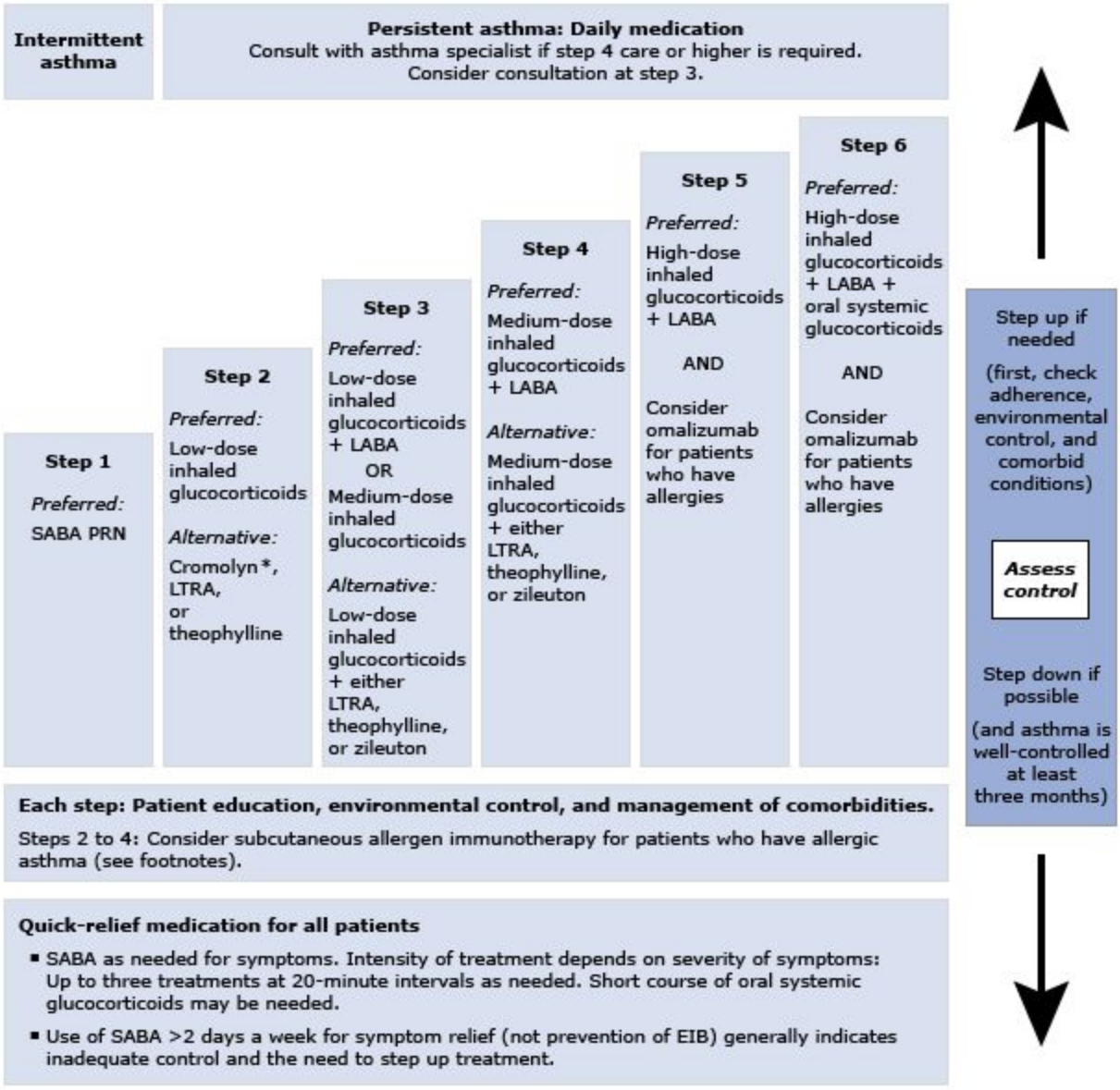
- A disease of chronic, **reversible** airway inflammation, characterised by **periodic** attacks of wheezing, shortness of breath, chest tightness, and coughing.
- May present at any age, but **usually in kids <10yo.**
- Episode onset is often marked by **triggers**, something that precipitates an attack. Smoking, medications (β-blockers, aspirin), workplace exposure to chemicals, allergens, dust, exercise, viral infection are typical ones.
- Diagnosed with pulmonary function testing. **The most important measure is FEV1/FVC, and subsequent response to inhaled bronchodilators (salbutamol).**
    - Response to Salbutamol of **at least 12% increase and >200mL** in FEV1/FVC ratio indicates asthma.
    - If FEV1/FVC is normal and there is still a strong suspicion of asthma, you can use a **metacholine challenge** to induce an asthmatic episode.
- **Asthma is classified by symptom severity and frequency into four categories**, which guides initial treatment. Step up or down as needed. **Less meds=better, when possible.**
    - **Intermittent**, **persistent mild/moderate/severe.**

— Assessing severity and initiating treatment for patients who are not currently taking long-term control medications

Components of Severity		Classification of Asthma Severity ≥12 years of age			
			Persistent		
		Intermittent	Mild	Moderate	Severe
Impairment	Symptoms	≤2 days/week	>2 days/week but not daily	Daily	Throughout the day
	Nighttime awakenings	≤2x/month	3–4x/month	>1x/week but not nightly	Often 7x/week
	Short-acting beta$_2$-agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week but not daily, and not more than 1x on any day	Daily	Several times per day
Normal FEV$_1$/FVC: 8–19 yr 85%; 20–39 yr 80%; 40–59 yr 75%; 60–80 yr 70%	Interference with normal activity	None	Minor limitation	Some limitation	Extremely limited
	Lung function	• Normal FEV$_1$ between exacerbations • FEV$_1$ >80% predicted • FEV$_1$/FVC normal	• FEV$_1$ >80% predicted • FEV$_1$/FVC normal	• FEV$_1$ >60% but <80% predicted • FEV$_1$/FVC reduced 5%	• FEV$_1$ <60% predicted • FEV$_1$/FVC reduced >5%
Risk	Exacerbations requiring oral systemic corticosteroids	0–1/year (see note)	≥2/year (see note) →		
		← Consider severity and interval since last exacerbation. Frequency and severity may fluctuate over time for patients in any severity category. Relative annual risk of exacerbations may be related to FEV$_1$.			
Recommended Step for Initiating Treatment (See figure 4–5 for treatment steps.)		Step 1	Step 2	Step 3	Step 4 or 5
				and consider short course of oral systemic corticosteroids	
		In 2–6 weeks, evaluate level of asthma control that is achieved and adjust therapy accordingly.			

—

Key: FEV$_1$, forced expiratory volume in 1 second; FVC, forced vital capacity; ICU, intensive care unit



BPH and PSA

BPH

- Benign prostatic hypertrophy is very common. About **50% of men at age 50** and **80% of men age 80** have lower urinary tract symptoms (**LUTS**) stemming from BPH.
- Typical symptoms fall into categories of **storage symptoms** and **voiding symptoms.**
    - **Storage symptoms** – Increased daytime frequency, nocturia, urgency, and urinary incontinence

    - **Voiding symptoms** – Slow urinary stream, splitting or spraying of the urinary stream, intermittent urinary stream, hesitancy, straining to void, and terminal dribbling
    - Microscopic or gross hematuria may also occur, a **workup to find the cause for this is necessary.**
- **Diagnosis is clinical:** Typical signs and symptoms, and DRE revealing a diffusely enlarged, firm, nontender prostate.
- BPH is **not** a risk factor for prostate cancer.
- About one-third of patients improve spontaneously after 2.5-5 years of no treatment.
- Since BPH is a benign process, **the only reasons to treat it is if it reduces quality of life, or causes bladder outlet obstruction (BOO)**. Therefore, we need to assess how much of a problem it poses for the patient. This is highly individual. **The International Prostate Symptom Score (IPSS)** can be used to assess symptoms of prostate enlargement symptoms, and how it affects quality of life. Take a look at it here: http://www.urospec.com/uro/Forms/ipss.pdf
- Treatment is conservative (observation), medical or surgical, and should be determined after weighing the options with the patient. But generally:
    - Observation: Asymptomatic/mild symptoms.
    - Medical treatment: No BOO, and an **IPSS score of mild (<8) to moderate (8-19).**
        - Four types of agents: α-1 antagonists, PDE5 inhibitors, 5-α-reductase inhibitors and anticholinergics.
            - **α-1 antagonists are first line**. They work quickly, but have typical adrenergic side effects (hypotension). **Terazosin, doxazosin, tamsulosin** are some of the relevant long-acting α-1 antagonists.
            - If a patient is symptomatic on α-1 antagonists, PDE5-inhibitors are second line – fewer side effects, but takes longer to work.
            - Per UpToDate, with an IPSS score of >20, you can try combining an α-1 antagonist and an 5-α-reductase inhibitor, but at this point you should probably be thinking about surgery.
    - Surgical treatment: Severe symptoms, BOO present, or who fail to control symptoms well with medical treatment. Send to urology for TURP.

Prostate cancer (from seminar)

- Third leading cause of cancer death
- Lifetime risk of diagnosis – 15%, lifetime risk of death – 2-3%
- 70% of men age 70 have occult prostate cancer
- Older age increases the likelihood of prostate cancer, but decreases the likelihood of death from it due to increased mortality from other causes

PSA

- PSA is a tricky biomarker. It increases in both BPH and prostate cancer, and has fairly low sensitivity for prostate cancer on its own. **From the slides:**
    - Sensitivity – 70-80%, positive predictive value – 40%
    - Prostate cancer is found in men with very low PSA levels (<0.5 ng/ml – 6.6%)
    - **Digital rectal examination:** Sensitivity – 59%, positive predictive value – 5-30%
    - Randomized controlled trials – **increased frequency of diagnosis, no difference in prostate cancer mortality**
- **PSA can be used to predict the course of BPH**: A high PSA indicates a higher chance of need for more aggressive therapy or surgery, so it may help in determining treatment course.
- It is part of the American Urological Association investigation algorithm for lower urinary tract symptoms. You can see it here, page 7: https://www.auanet.org/Documents/education/Arc-BPH-Chapter1.pdf
    - (this document has lots of useful info on PSA in general, if you want to get a little more in-depth with it.)
    - From the AUA: "Measurement of the serum prostate-specific antigen (PSA) should be offered to the following patients:
        - 1) those with at least a 10-year life expectancy and for whom knowledge of the presence of prostate cancer would change management; or
        - 2) those for whom the PSA measurement may change the management of their voiding symptoms"
- **The bottom line: PSA is not used for screening in asymptomatic patients.** It **is** used to gauge likely disease course for BPH, and in combination with a digital rectal exam to exclude prostate cancer as a diagnosis in LUTS. (If the cancer is large enough to cause obstruction, it will likely be large enough to palpate.) Finally, **if discovering prostate cancer won't change your approach to the patient's treatment, don't get one.**

Skin lesions: Melanomas, BCC, borreliosis

Malignant Melanomas (MM)

- Cancer of melanocytes. Several subtypes, distinguished by morphology. The most common is **superficial spreading melanoma** (60-70%), then **nodular melanoma** (30%).
    - Less common ones are lentigo maligna melanoma and acral lentiginous melanoma.
    - I'm not going to cover morphology/typical locations here. Toronto Notes has a good rundown. ABCDE approach (see below) works for all.
- Because it is a cancer of melanin-producing cells, lesions are discoloured. (Contrast with BCC.)
- **Risk factors** include: numerous moles, fair skin (Fitzpatrick I and II), red hair, positive personal/family history, 1 large congenital nevus (>20 cm), familial dysplastic nevus syndrome, any dysplastic nevi, immunosuppression, > 50 common nevi, and sun exposure with sunburns, tanning beds.
    - **In short, anyone that looks stereotypically Northern European, has familiar or congenital dysplastic nevi, a lot of typical moles, or has had lots of UV light exposure, is at higher risk of MM.**
- Visual screening for moles is encouraged. If a patient comes in with a nevus they're worried about, but it doesn't appear malignant, tell them to keep a close eye on it for any changes. Have them take a picture every so often and compare with the older ones to make it easier to spot.
- When assessing a possible melanoma in the GP setting, follow the **ABCDE checklist**:
    - **A**symmetry
    - **B**order (irregular and/or indistinct)
    - **C**olour (variation)
    - **D**iameter (increasing, or >6mm)
    - **E**nlargement, elevation, evolution (change in colour, size or shape)
- **Treatment** is often started in the GP's office with a simple **excisional biopsy.** Remember to **send the biopsy for analysis.**

Basal Cell Carcinoma (BCC)

- Cancer of **basal keratinocytes of the epidermis.**
- Several subtypes with varying morphology – the cells (over)produce keratin, this is reflected in the appearance of the various subtypes, they tend to be described as "shiny", "pearly", "scaly", and names that reflect additional features – **noduloulcerative (typical), pigmented, superficial, sclerosing.** Again, more details in Toronto Notes.

- Typically, it grows aggressively *sideways* – along the surface of the skin, so metastases are not very common.
- Caused by UVB exposure, so most commonly on the face.
- Several treatment options, depending on depth of invasion:
    - **Surface level** – imiquimod cream, cryotherapy, shave excision+curettage on the trunk, Mohs surgery on the face
    - **Deeper invasion** – radiotherapy where surgery is not an option.
    - **Metastasis** – vismodegib, but I'm guessing this is low yield.
- 95% cure rate if it's treated early or the lesion is small (<2cm Ø).
- **Requires lifelong followup**, every 6mo to 1y.

Squamous Cell Carcinoma (SCC)

- Often looks like BCC, but **grows faster**, and mostly grows **vertically** – both downwards (so **metastasis is more common than in BCC**) and upwards (sometimes presents as a horn).
- **Presents commonly on surfaces exposed to sunlight** – face, ears, scalp, forearms, back of the hands. Risk factors include **chronic sun exposure, radiation therapy/exposure, certain carcinogens (arsenic, tar, nitrogen mustard compound exposure), HPV 16 and 18**. Men are more often affected than women.
- Because of the increased risk of metastasis, if you suspect an SCC, make sure to do a thorough **lymph node examination**. You should also do a full skin exam for other lesions.
- **The deeper and wider the lesion is, the higher the risk of metastasis.** Met rate is also increased in certain locations and when there is involvement of other tissues (bone, nerves, muscle).
- **Requires lifelong followup,** and often more aggressive treatment than BCC.
- Squamous cell carcinoma *in situ* is called **Bowen's disease**, if you catch it at this stage you can treat it like BCC.

Borreliosis

- From our old friend, the Ixodes tick!
- **Culprit organism is *Borrelia spp.*,** which lies dormant in the GI system of the tick, and wakes from its terrible slumber when the tick starts sucking blood, then migrates into human tissue via the tick saliva. This process takes a while, which is why **the risk of borreliosis is practically zero if the tick is removed within 48 hours.** The longer the tick sticks around, the higher the infection risk.
    - If the teeth of the tick remain after removal, don't bother trying to get them out – they're not infectious and will be expelled on their own.

- The classical symptom of borreliosis is, as we all know, **erythema migrans**, a red lesion with a "bullseye" appearance with an outer border that moves away from the bite. **This can occur up to 30 days after exposure,** and appears in **80%** of infected patients.
    - EM is pathognomic for borreliosis.
    - EM is easy to spot if it occurs on a larger patch of skin, but if the tick is located somewhere trickier (e.g. ears, scalp, between toes) it might be difficult to tell it apart from other skin conditions.
    - May also present with local lymph node enlargement and tenderness.
- Untreated, borreliosis may progress to more severe symptoms, **weeks to months** after the tick bite.
    - **Early** disseminated disease manifestations are mainly **neurological and cardiological.**
        - The classic neurological triad is **meningitis, cranial neuropathy (**esp. Bell's Palsy) and **motor or sensory radiculoneuropathy** (i.e., nerve roots from the spine)
        - Cardiological problems: **AV block**, sometimes **mild myopericarditis**.
    - **Late** manifestations include
        - **Arthritis of both small and large joints** – small joints typically recover, large joints become chronic.
        - **Acrodermatitis chronica atrophicans** – weird skin disease, appears on extensor surfaces of hands and feet, with bluish-red discoloration, progresses over time.
        - **Post-Lyme disease syndrome** – occurs in 5-15% of patients after treatment for Lyme disease.
            - Criteria: Prior Tx for Lyme disease, fatigue, widespread musculoskeletal pain.
            - **Most patients improve spontaneously after 6mo-1y.**
- **Treatment** is relatively straightforward, with some exceptions:
    - The mainstay for all stages of treatment (from appearance of EM to late disseminated disease) is **a 21-day course of PO doxycycline. Others: Amoxicillin, cephalosporins, macrolides. (according to slides)**
    - **Encephalitis and more severe cardiac manifestations (P-R interval >300ms, anything else)** warrant hospitalisation++.

Major topics of obesity

- We often use **BMI** (**kg/m^2**), but it is not actually a very good measure for obesity – it is best used together with other measures, like **waist circumference (WC).**

	BMI (kg/m^2)	Obesity Class
Underweight	<18.5	
Normal	18.5-24.9	
Overweight	25.0-29.9	
Obesity Class I	30.0-34.9	I
Obesity Class II	35.0-39.9	II
Obesity Class III (Extreme Obesity)	40.0 +	III

    - Associated disease risks are higher for overweight patients **if they also have a WC >102cm (M), >88cm (F),** but still elevated if WC is below that.
- **Increases all-cause mortality**, the higher the BMI the stronger the effect
- Central obesity is more dangerous than distributed obesity (hence, WC measurement)
- Carries increased risk of a lot of diseases, everything from cardiovascular to cancers to psychosocial. Not listing them here, but I guess most of us already know most of them.
- **Management**
    - Primarily through lifestyle changes. Losing weight is very difficult for most people, and a majority of patients eventually regain their weight. Reduce dietary calories, regular exercise.
    - It's important to note that moderate losses of 5-10% of body weight is beneficial. If the patient is having a hard time and is not very motivated, you can focus on **not regaining that weight**, rather than continuing weight loss.
    - Interventions can also be aimed at comorbidities: Statins for dyslipidemia, etc.
    - **Take measurements to chart progress**: BMI, CW, lipid profile, BP, heart rate, fasting glucose.
    - Remember to assess and screen for depression, a common comorbidity.
    - **Pharmacotherapy can be used in patients with a BMI>27.**
        - Pharmacotherapy: **Orlistat** is a gastrointestinal lipase inhibitor, it reduces fat absorption by 30%. **Don't use it in patients with chronic bowel disease or IBD.**

Common infections

UTIs

- We distinguish between **simple** and **complicated**. Simple involves bladder only, complicated means it's climbing up the urinary tract (->pyelonephritis).
- More common in women than men, due to shorter urethra->easier access for microbes from fecal flora.
- Anything that obstructs the urinary tract is an additional risk factor, e.g. kidney stones, BPH.
- **Simple cystitis**
    - Symptoms: **Dysuria** (pain), **pollakiuria** (frequency), **urinary urgency** and **suprapubic pain.**
    - Diagnose with a urine dipstick test, will tend to be positive for **leukocytes (leukocyte esterase), nitrite,** and sometimes **blood and protein.** Leukocytes and nitrite absent on a dipstick test suggests it's not cystitis.
        - Generally, a patient with cystitis is not very sick. **If they're in bad shape, be careful with diagnosing simple cystitis.**

        - Remember that a dipstick test should be done on **midstream** urine. You want to see what's in the bladder, not the urethra.
    - **Treat with PO empiric antibiotics initially.** Guidelines depend on country, but some common ones are **nitrofurantoin** (OTC in Poland!), **TMP-SMX** and **pivmecillinam.**
        - If empiric treatment doesn't work, a more precise diagnosis (i.e. culture) is in order.
- **Complicated UTI**
    - Occurs when the causative organism climbs higher up the urinary tract, reaching the ureters or the kidneys, causing **pyelonephritis**.
        - Common organisms are **E.coli** (most common), Klebsiella, Proteus, **Pseudomonas** (most common in hospital setting), Candida, etc.
    - Symptoms: typical cystitis symptoms+signs of a more severe infection. These include **fever, chills, costovertebral angle tenderness, and flank pain.** In men, you may also see **pelvic or perineal pain**, which may indicate **prostatitis**. Again, these patients often appear more sick in general.
    - Unlike simple cystitis, **a complicated UTI warrants urine culture and ABx susceptibility testing.**
    - **Treatment** is, again, empiric ABx, but different drugs, and typically via IV. **Depends on risk factors for multidrug-resistant organisms.** (Proven with culture, inpatient stay at hospital/nursing home/etc., recent use of other antibiotics, travel to parts of the world with high rates of multidrug resistant organisms)
        - No risk factors: **Ceftriaxone** or **piperacillin-tazobactam**.
        - >0 risk factors: **-penems**. Imepenem, meropenem, doripenem.

Pneumonia

- Infection of lung parenchyma. Divided into two types: **Community-acquired (CAP)** and nosocomial, which includes **hospital-acquired (HAP)** and **ventilator-associated (VAP).**
- I'm guessing the FM exam won't care much about hospital treatment, so this will be mostly be about CAP.
    - **HAP:** acquired >48h after hospital admission
    - **VAP:** acquired >48h after intubation
    - **CAP:** Any other setting
- Pathogens are bacterial, viral or fungal.
- Risk increases with **old age,** various **comorbidities** (especially **COPD**), **viral respiratory tract infections, impaired airway protection**, and **smoking/alcohol**.
- CAP organisms tend to be **typical or atypical bacteria,** or **respiratory viruses.**

    - **Typical: S.pneumoniae (most common)**, H. influenzae, M.catarrhalis, S.aureus, GAS
    - **Atypical:** Legionella, mycoplasma, chlamydia pneumoniae or psitacci
    - **Viral:** Influenza A/B, rhinoviruses, parainfluenza, adenoviruses, RSV etc.
- **Symptoms** are grouped into **pulmonary** and **systemic.**
    - **Pulmonary:** Cough, dyspnea, pleuritic chest pain, tachypnea, unusual breath sounds (rales, rhonchi)
    - **Systemic: Fever**, chills, fatigue, malaise etc. – general symptoms of infection.
- **Diagnosis** requires demonstration of infiltration on CXR, alongside above symptoms. Get both **lateral and AP** X-rays.
- After diagnosis, assess **severity**. This is done with scoring systems – **CURB-65** is commonly used, **assessing risk of death at 30 days**. (the **pneumonia severity index**, PSI, is also used, but requires ABG measurement and is thus less useful in a family med setting.)
    - **C**onfusion
    - **U**rea nitrogen in blood >7mmol/L
    - **R**R > 30
    - **B**P <90 systolic or <60 diastolic
    - >**65** years or older.
    - One point for each positive measurement, risk of death increases with each, **from 0.6% with one point to 27.8% with 4 or 5 points.**
        - 0-1 point: Outpatient
        - 2 points: Short hospitalisation or outpatient with close followup
        - 3-5: Hospitalise, consider ICU
        - Additionally, patients with a PaO_2 >92% should generally be hospitalised.
    - **Outpatient treatment** generally revolves around empiric antibiotics.
        - Specific drug is typically determined by local resistance rates to S. pneumonia for various drugs. **Macrolides (azithromycin, clarithromycin)** and **doxycycline** are commonly used.
        - 5 to 7 days is usually enough, but **all patients should be improving and afebrile for >48h before stopping treatment.**

Bronchitis

- Chronic and acute. Chronic bronchitis is more of a COPD issue, so I'm not covering that here.
- **Acute bronchitis:** Lower RT infection involving the large airways, **without** evidence of pneumonia and **not** in the setting of COPD. **Smoking** is a major risk factor.

- **Most often caused by viruses**: **Influenza A/B** (most common), parainfluenza, coronaviruses, rhinoviruses, RSV. Note overlap with causative viruses of viral pneumonia.
- **Diagnosis**: Should be suspected in patients with cough for >4 days, often longer, with no clinical signs of pneumonia. The diagnosis is usually clinical, but if you suspect pneumonia, it may be useful to rule that out with a CXR series. **Because there is no consolidation in bronchitis, it usually doesn't show up on X-rays.**
    - The differential for coughing is, unsurprisingly, long – but you should be aware of some specific ones: **Postnasal drip syndrome** (harmless, usually happens after a common cold), **GERD, asthma, ACEi use, pulmonary embolism, lung cancer.**
- **Treatment**: UpToDate actually recommends **hot tea**. Disease is usually self-limited and passes in 1-3 weeks, so the key points here are **reassurance** and **excluding other conditions.**
    - Antibiotics are not useful, with the exception of **pertussis** bronchitis. Smoking cessation may help. Anti-cough medicine can be used if the coughing is very bothersome.

Neonatal checkups and developmental milestones

- Fucking impossible to learn without actually seeing kids. Youtube vids are helpful here. I like this one: https://www.youtube.com/watch?v=KJwoplMm3ic&t=184s
- Piaget's model of child development:
    - **0-2y:** Sensorimotor stage
    - **3-6y**: Pre-operational stage
    - **7-11y:** Concrete operational stage
    - **>12y:** Formal operational stage

Sinusitis

- Symptomatic inflammation of the nasal cavity and paranasal sinuses. Usually caused by a virus, usually resolves or improves on its own in 7-10 days (but often *doesn't* if it's bacterial), usually uncomplicated -- but it *can* have serious sequelae. You also want to be on the lookout for **recurring** sinusitis, which may indicate other problems.
- Generally presents as a common cold with some additional features: Fever (though **commonly absent or brief** if viral), headache, feeling of heaviness, purulent nasal discharge, and so on.
- Treatment is largely symptomatic. Paracetamol/ibuprofen/etc for pain relief and antipyretic effect, decongestants may also be useful.

- **Bacterial:** If duration is >10 days or has gotten better, then worse again, think bacterial causes. This is somewhat more serious, because it may progress with complications – although it usually doesn't.
    - Look for symptoms affecting nearby structures: Persistent high fever, periorbital inflammation/erythema, cranial nerve palsies, abnormal eye movement, proptosis, vision changes, meningeal signs, and so on.
    - Patients can usually continue symptomatic treatment and observation for another week, if good followup is available to them.
    - If the patient does *not* have good followup options or the illness lasts more than 1 week (so ~17 days in total), start a **5-day course** of antibiotics. **Amoxicillin** or **amoxicillin-clavulanate**. **Doxycycline** can be used in penicillin allergy.

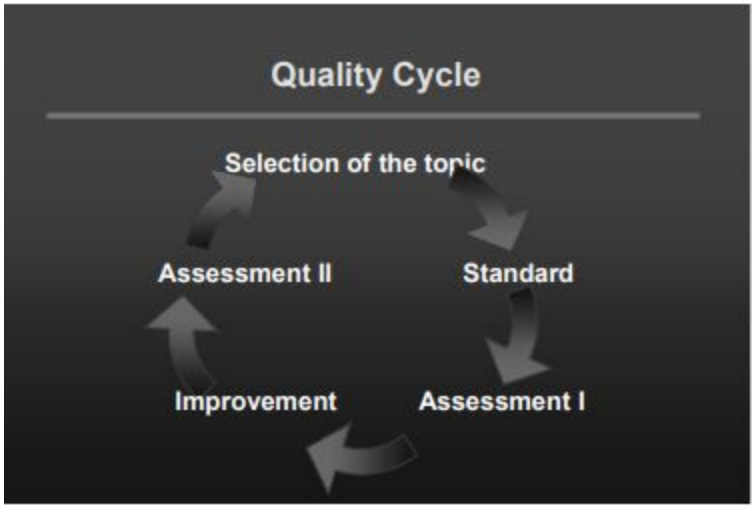
Otitis media

- **Acute OM** is marked by the presence of fluid in the ear and inflammation of middle ear mucosal membranes. **It occurs more often in children,** because they have short Eustachian tubes->easier access to middle ear for bacteria.
- Symptoms: **ear pain and decreased hearing are most common.**
- **Accurate diagnosis is important,** because it occurs very often, and misdiagnosis constitutes a major source of antibiotic overprescribing.
    - On otoscopy, you will typically see a **tympanic membrane that bulges outwards**. This is the most important clinical finding for diagnosis. It may also be erythematous, or yellowish, cloudy etc. – this indicates fluid in the middle ear. If the membrane has ruptured, you may also see discharge in the ear canal.
        - You can test for conductive hearing loss with a Weber test (tuning fork placed at vertex of the skull. Since liquid transmits sound better than air, the sound will be heard better **in the affected ear**. The hearing loss may persist for a long time after the initial infection has passed.
    - **Differential for ear pain**: Otitis externa, ear trauma, throat infections or foreign body.
- **Treatment** varies somewhat by national guidelines, but Nessler had a patient like this and she recommended **antibiotics as standard treatment. Amoxicillin, or amoxicillin-clavulanate**. Kids <2y should be treated with antibiotics, though this varies somewhat by country.
- Be on the lookout for **complications** — the middle ear is close to a lot of important things, such as the brain. **Mastoiditis** is very serious – tenderness of the mastoid process, lethargy, malaise, lack of response to ABx therapy, carries a risk of spreading to the CNS. **Chronic**

suppurative OM should be referred to infectious disease specialist or otolaryngologist. **Facial nerve paralysis** may occur.

The quality improvement assessment cycle

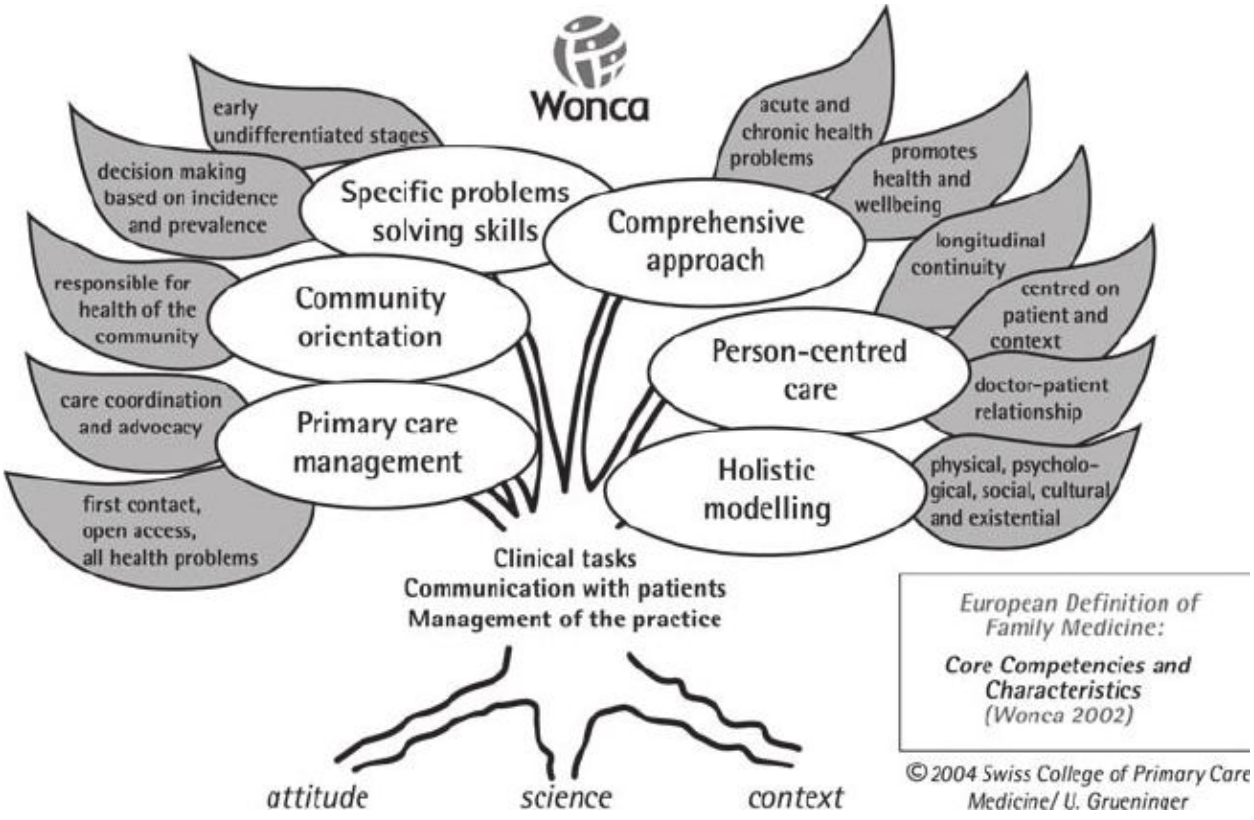
- A conceptual tool for improving standard of care.
- E.g., say you want to improve flu shot vaccine coverage.
    a. Start with determining the standard – the level of coverage you want to achieve with your patients (say, 85%).
    b. Assess the current level of coverage.
    c. Think of ways to improve, e.g. offer flu shots to every patient with a short consultation.
    d. Do that for a while, then reassess: What's the vaccine coverage now? If it improved, cool, pick a new topic. If not, what else can you do to improve coverage? Reassess your standard, actions, keep assessing, and so on. Once you're satisfied, select a new topic.



- The basic idea here is that this should be a **constant, continuous cycle** to improve aspects of how you care for your patients.

WONCA

- The World Organization of Family Doctors. Don't ask me how this acronym makes sense. There's a fucked-up tree here, for some reason? I dunno man. Take a look at it, I guess.



Seminars

Relevant info is also found in the seminars, link:
http://www.medycynarodzinna.wl.cm.uj.edu.pl/4th-year?fbclid=IwAR0kj30bhlBjX9T61dSB1_U7IpoSyzs40vFa1pVVOsiyaGJdtt3WOwFtWyY
Password is SME17.

I'm just going through the seminars and pulling the most relevant stuff, pasting it here so it's easier/less annoying to read (protected PDFs, goddamn. No copy-pasting, really?).

Domestic abuse (DA)

- Alcohol abuse is a risk factor for DA, but does not *cause* it
- DA occurs across all social strata
- Most women turn to their GP when subjected to violence
- The role of GPs includes all of the following to address family
    - violence across the lifecycle:
    - identifying predisposing risk factors
    - noting early signs and symptoms
    - assessing for violence and safety within families
    - managing consequences of abuse to minimise morbidity and
    - Mortality
    - knowing and using referral and community resources
    - advocating for changes that promote a violence-free society.
- Physical injuries: Look for bruising, broken bones, things that don't typically happen by accident.
- victims of family violence present with a broad range of symptoms such as:
    - anxiety, panic attacks, stress and/or depression
    - stress related illness
    - drug abuse, including dependency on tranquillisers and alcohol
    - chronic headaches, asthma, vague aches and pains
    - abdominal pain, chronic diarrhoea
    - complaints of sexual dysfunction, vaginal discharge
    - joint pain, muscle pain
    - sleeping and eating disorders
    - suicide attempts, psychiatric illness
    - gynaecological problems, miscarriages, chronic pelvic pain.
- Speaking to someone that has been abused
    - **Listen**: Being listened to can be an empowering experience for a woman who has been abused.
    - **Communicate belief**: 'That must have been very frightening for you.'
    - **Validate the decision to disclose:** 'It must have been difficult for you to talk about this.' 'I am glad you were able to tell me about this today.'
    - **Emphasise the unacceptability of violence**: 'You do not deserve to be treated this way.'

The seminar doesn't mention this, but... not only women are abused by their partner. It can happen to everyone. A lot of men who experience serious domestic abuse are very reluctant to speak about it and are embarrassed/ashamed about being abused.

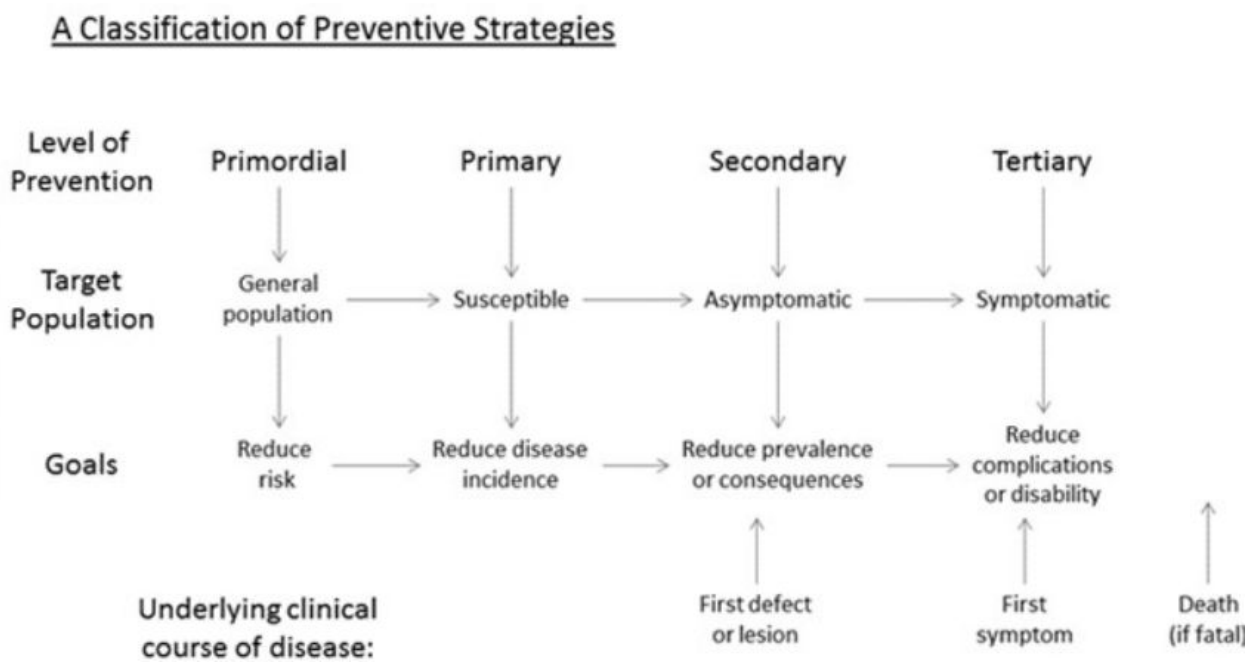
Cancer

- Early cancer detection is aided by **screening** and **oncological alertness** (being aware of and investigating nonspecific early symptoms, e.g. hematochezia in middle-aged patients should not be dismissed as hemorrhoids without investigation)
- **General symptoms suggesting cancer**
    - Recurrent infections
    - Fever of unknown origin
    - Unexplained loss of weight/appetite
    - Tiredness, weakness
    - Nausea, vomiting
    - Chronic pain
    - Bleeding, anaemia, unexplained bruises
- **The seven warning signs (CAUTION mnemonic)**
    - **C**hange in bowel or bladder habits
    - **A** sore that does not heal
    - **U**nusual bleeding or discharge
    - **T**hickening or lump in the breast, testicles, or elsewhere
    - **I**ndigestion or difficulty swallowing
    - **O**bvious change in the size, colour, shape, or thickness of a wart, mole, or mouthsore
    - **N**agging cough or hoarseness
- **Screening for lung cancer**
    - Leading cause of cancer death
    - Cigarette smoking responsible for 85% of cancers
    - Relative risk – 20 (compared to non-smokers)
    - Screening: chest x-ray (sensitivity = 60%), CT scan (sensitivity = 94%), 96% of positive – false positive
    - Number needed to screen to prevent 1 cancer death = 320
    - Annual screening with low dose CT in adults 55-80 years who have 30 pack-year smoking history
- **Colorectal cancer**
    - Second leading cause of death from cancer
    - 5% lifetime risk of developing colorectal cancer

    - 90% of cases occur after age of 50
    - FOBT, sigmoidoscopy, colonoscopy, CT colonography
    - Screening in men and women 50-75 years
        - **Methods:** Colonoscopy every 10 years, fecal occult blood test every 2 years are the most common ones.
- **Breast cancer**
    - Most frequently diagnosed cancer in women
    - Overall lifetime risk – 12%
    - 10 year risk at age 40 – 1.5%, at age 50 – 2.4%, at age 60 – 3.5%
    - BRCA1/2 – relative risk 10-32
    - Family history (first, second degree, ovarian cancer, breast cancer in male relative)
    - Breast cancer assessment tool (available online)
    - **Screening:**
        - **Self-examination – no effect on breast cancer mortality**
        - **Mammography**: sensitivity – 70%, specificity – 90%
        - 23% of women have false positive results (requiring biopsy)
        - Rate of overdiagnosis: 1-32%. Small risk of radiation-induced breast cancer
        - Recommendations – mammography: 40 (50) – 74 years

Disease prevention

- Examples of disease prevention activities:
    - Well-baby visits
    - Immunizations
    - Calcium and Vitamin D supplements to reduce the risk of osteoporosis
    - Blood pressure and cholesterol assessments during annual health exams
    - Screening for illnesses such as breast, cervical, colorectal and prostate cancer



- **Wilson and Junger criteria for screening**
    - **Knowledge of disease:** Should be important health problem, must have a recognisable latent period/disease marker detectable risk factor, or early symptomatic stage
    - **Knowledge of test:** Must be simple, safe, precise and validated. Distribution of test values in target population should be known and a suitable cutoff level defined. The test should be acceptable to the population.
    - **Treatment:** Effective treatment for patients identified through early detection, with evidence that early treatment is better than late
    - **Cost considerations**: Should be balanced against expenditures on medical care as a whole.
- **Problems with screening**
    - **Lead time bias** – patients whose diseases are detected earlier due to screening, **appear** to live longer, but this may just be because the disease was diagnosed earlier.
    - **Length time bias** – Screening is more likely to detect slower-growing tumours that may be less deadly, causing a better perceived survival.
    - **Overdiagnosis** – screening may detect abnormalities that may never have caused a problem. (This is why you shouldn't do ultrasounds randomly – you'll find a lot of stuff, but a lot of it would never have been a problem, and treating it will cause more harm than not knowing about it.)
    - **Selection bias** –
        - E.g., People with risk factors for a disease (e.g. family Hx) are typically more proactive with screening tests, so negative outcomes among the screened

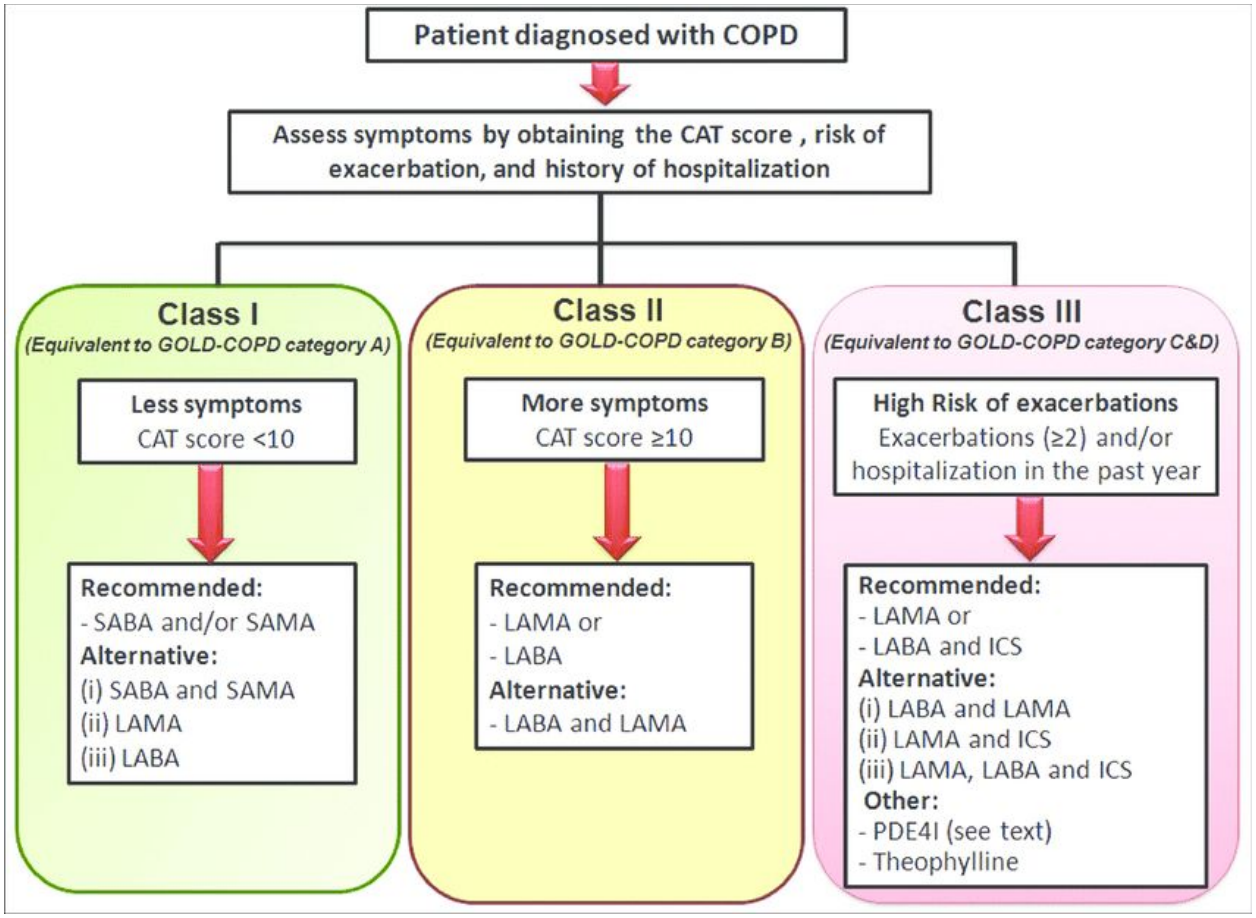
population will be higher than in a random sample, and the test will look worse than in really is.
        - If a test is more available to young and healthy people, fewer people in the sample will have negative outcomes than in a random sample, and the test will seem to make a positive difference
        - **Note:** This may seem a little counterintuitive, since a screening programme that takes more high-risk patients will detect more cancer, and thus seem better on the surface – but **the crucial point here is the PPV**: More sick people getting screened makes more of the positive results be **true positives**, and thus make the test seem better. Conversely, more healthy people getting positive tests results in more **false positives**, and thus makes the test seem worse. A great example of this is the Apple Watch detecting AFib – most people who gets one will be young people,who don't generally get AFib – so, lots of false positives.
- Methods of screening
    - **Opportunistic** – test patients when they go to the doctor for something else
        - Simple, easy, not reliant on patient compliance
    - **Systematic** – deliberately seek out all patients in a population
        - More comprehensive
        - Requires a lot more organisation, time and commitment, non-attendance
- **<u>Recommended screening for cancers</u>**
    - **Breast cancer**: Women 50-74 years, with mammography
    - **Cervical cancer**: Women 21-65 (Pap smear) or 30-65 (combined with HPV testing)
    - **Colorectal cancer**: everyone 50-75
    - **Lung cancer**: Adults 55-80 with a 30 pack-year smoking history, who currently smoke or have quit within the past 15 years

Geriatric population comorbidity

- **80% of patients over 65 are diagnosed with at least one (chronic) disease.** Comorbidity is defined as having **at least two**, in the GP's office this involves between 46-67% of geriatric patients. The **average** number of comorbidities is 4-5 diagnoses.
- **Common comorbidities:** Diabetes, hypertension, CAD, AFib, HF, lipid disorders, vision disorders, hearing loss and depression.
- There's a fair bit on each individual one in the seminar, especially diabetes.

COPD

- Classic patient: Age >40, presenting with shortness of breath, chronic cough (often 1st symptom) and/or sputum production. History of exposure to risk factors (smoking, occupational, indoor/outdoor pollution).
- A post-bronchodilator FEV_1/FVC ratio of <70% confirms persistent airflow limitation
- **Risk factors:**
    - **α-1 antitrypsin deficiency** causes panacinar emphysema.
    - **Exposure to** tobacco smoke, dust, chemical agents, pollution, cooking over an open fire indoors
    - **Others:** Low socioeconomic status, low birth weight, asthma, aging and female gender
- COPD is progressive over time, symptoms worsen with exercise, and is persistent.
- **Symptoms** and **exacerbation risk** should be assessed separately
- Two main goals of treatment is to **relieve symptoms** and **reduce risk of exacerbations**
- Mainstays of nonpharmacological treatment for ALL COPD patients: **Smoking cessation**, physical activity, vaccinations (**flu, pneumococcal**)



Dependency behaviours and addictions

- A activity initially enjoyed by a person e.g?.. (eating, drinking, drug-taking, etc.), but with repeated use and higher amounts needed to achieve a similar 'high' that can become life-threatening for the person's level of work and life responsibilities.
- The child of a parent with a drug or alcohol addiction is 8x more likely to develop an addiction as well.
- **Dependence** is defined by symptoms of increased tolerance and withdrawal. **Addiction** is marked by a change in behaviour, where the substance becomes a focal point of their life.

Gastrointestinal disorders

- **Dyspepsia/indigestion** – hard or difficult digestion, is a medical condition characterized by chronic or recurrent pain in the upper abdomen, upper abdominal fullness and feeling full earlier than expected when eating.
    - **Etiologies** are varied, and range from idiopathic and transient to stomach cancer.
        - GERD is common, as are duodenal and gastric ulcers. Gastric carcinoma accounts for about 1% of cases.
    - **First approach**: Consider non-GI causes (heart, lung, liver, GB, pancreas) and drugs (aspirin/NSAIDS, calcium channel antagonists, nitrates etc. – if this doesn't reveal anything, try an **upper endoscopy.**
    - **Rome IV criteria:**
        - Bothersome post-meal fullness, early satiety, epigastric pain or epigastric burning – AND no evidence of structural disease.
        - Criteria should be fulfilled for >3mo, with onset at least 6 months before diagnosis.
    - **Management:** If no other disease is found, recommend lifestyle advice – healthy eating, weight reduction, stop smoking. Can also recommend **antacids.**
- **IBS**
    - Functional gastrointestinal disorder characterized by abdominal pain and altered bowel habits, in the absence of a specific and unique organic pathology.
    - Often psychogenic.
    - **Rome criteria:**
        - Abdominal pain at least once per week in the past 3 months, associated with two of the three symptoms:
            - Pain is related to defecation

        - Associated with a change in **frequency** of stools
        - Associated with a change in **form** of stools (constipation **OR** diarrhea)
    - **Make sure to exclude more serious pathologies**. Signs something else is going on: Onset in middle age, acute, progressive or nocturnal symptoms, anorexia or weight loss, fever, bleeding, painless diarrhea, steatorrhea. **Warning signs: Unintended weight loss, blood in stool, symptoms that awaken the patient, fever, family history of CRC, IBD or celiac.**
        - Studies: Ferritin, ESR, CRP to look for inflammation
        - Stool examinations for ova and parasites, C.diff toxin, Giardia antigen
        - Hydrogen breath test, to exclude bacterial overgrowth
        - Testing for celiac
        - T3, T4, serum Ca for hyperthyroidism
    - **Treatment**
        - Depends on symptoms (diarrheal or constipatory.) Either things that make stools come more easily or that slow them down, depending.

Disorders of motor activity

Osteoarthritis

- **Most common form of arthritis. Primary OA** is essentially just wear and tear of the joints, but it can secondarily be caused by **a range of other problems** too:
    - Inflammatory arthritis
    - Crystal arthropathy (e.g. gout)
    - Septic arthritis
    - Prior joint trauma or surgery
    - Endocrinopathies (acromegaly, hyperparathyroidism)
    - Metabolic disorders (haemochromatosis, ochronosis)
    - Neuropathic arthropathy (diabetes, tabes dorsalis, peripheral nerve injury)
    - Prior bone diseases (Paget's, osteonecrosis)
    - Haemophilia
    - Congenital or developmental problems
- **Symptoms**: Everything you'd expect from a joint that's being worn down. Worse with activity, stiffness after periods of non-use, reduced range of motion (ROM). The knee joints are most often affected.
- **Clinical findings:** Swelling, crepitus, joint line tenderness, reduced ROM, joint instability etc.

- **Risk factors:** Female sex, age, obesity, occupational activity. A joint that gets used a lot will wear down.

- **Diagnostic criteria for knee OA: Knee pain+osteophytes**, and any one of the following three: Age >50, morning stiffness <30min, crepitus.
- **Diagnostic criteria for hip OA: Hip pain** and at least 2 of the following three: ESR <20mm/h, osteophytes in hip joint on X-ray, joint space narrowing on X-ray.

Rheumatoid arthritis (RA)

- Defined as **presence of synovitis in at least one joint,** absence of other diseases that explain the symptoms, and a score of 6 or greater based on a range of tests – number of joints involved, serology (RF or ACPA positive), duration, and ESR/CRP elevation.
- Typically occurs between 20 and 30 years of age, incidence peaks 35-50. F>M.
- RA has **typical, nonspecific systemic features** – fatigue, malaise, weight loss, weakness, low-grade fever.

Ankylosing spondylitis (AS)

- A condition of unknown etiology (but probably autoimmune/autoinflammatory), **causing joint fusion, typically in the spine.** The slides show a bunch of criteria, I doubt these are worth memorising.
- Characterised by **the radiological criterion** and **at least one clinical criterion.**
    - **Clinical:**
        - **Lower back pain and stiffness that improves with exercise**, and is not relieved by rest
        - **Limitation of motion of the lumbar spine**
        - **Limitation of chest expansion**
    - **Radiological:** Various degrees of sacroileitis
- Characterised as a **spondyloarthropathy (SpA),** diseases that degenerate spine and other joints. These are divided into **axial** and **peripheral** diseases.
    - **Axial**: AS and nonradiographic axial spondyloarthropathy.
    - **Peripheral:** IBD-associated SpA, reactive and psioratic arthritis, undifferentiated SpA.
    - **Additional SpA features:** Inflammatory back pain, heel pain (enthesitis), uveitis, dactylitis, psoriasis, Crohn's,
- M>F, and about 80% of patients experience symptoms before 30.
- Criteria

Lower back pain

- Very common. **80% of people report LBP at some point in their life.** Serious etiologies (cancer, inflammatory diseases, fractures) account for <1% of these.
- **Prognosis is usually good.** 95% of patients recover after 3 months.
- **In patients <60y,** lumbar disc herniation is the most common cause. Over 60, think osteoarthritis, compression fractures and metastases. The lecture lists a whole set of criteria for each of these, but as far as I can tell, cauda equina syndrome is the most important/unusual one, the others are fairly predictable ("recent bacterial infection is a risk factor for infection of the spine" is a "red flag" for infection. Come on, Dr. Krzyszton!)
    - **Cauda equina syndrome** is the most dangerous complication in lumbar disc herniation, compression of the cauda equina leading to dangerous neurological sequelae. Generally speaking, you're looking for symptoms of neurological issues around the anus and genitals: Loss of sensation when voiding, sphincter tone, sexual dysfunction, numbness in the saddle area, things like that.
        - **Cauda equina is a surgical emergency.**

Organisation

- No

Palliative care

- Principles of cancer pain treatment
    - Use of drugs according to the WHO analgetic ladder.
        - Step 1: Non-opioid
        - Step 2: Weak opioids + step 1
        - Step 3: Strong opioids + step 1
        - **All steps**: Treat breakthrough pain, control pain med side effects (e.g. constipation), consider invasive procedures and rehab.
    - Use the "rule of watch". I can't find anything about this anywhere...
    - Give drugs orally when possible
    - Prevent pressure ulcers: Regular shifting of body position, mattresses and pillows, inspect the skin regularly, educate other caregivers (family members etc.) about this.

Disease prevention

- Four levels: **Primordial, primary, secondary and tertiary**
    - **Primordial:** Measures that inhibit the emegence of risk factors. Environmental, economic, social, cultural, and so on. Especially focused on **childhood**: preventing bad habits, in terms of diet and lifestyle.
    - **Primary:** Action taken before onset of the disease, prevents the disease from occurring.
        - Population strategy: E.g., a sugar tax that makes soda more expensive – people drink less soda and get less diabetes/less obese overall.
        - High-risk individual strategy: Targeted especially at individuals at high risk of disease.
    - **Secondary:** Actions that halt the progress of a disease **in its earliest stages**, and **prevents complications.** E.g., screening for cancer.
    - **Tertiary:** Interventions aimed at preventing progression of a disease, preventing complications, and so on.

General principles of family medicine

- This is a tricky one to do notes for, lots of charts about a holistic approach to medicine: The family doctor as part of a network of factors that influence patient health, how patients perceive and respond to health problems, and so on.
- **Consultations** should be **patient focused.** This increases patient satisfaction, compliance, outcomes, and is associated with lower costs and lower risk of medical errors.
- Family medicine should be centered on **not just the patient, but also their (family) environment.**
- Principles of FM patient care:
    - Continuity (the illness is just an episode in the doctor-patient relationship)
    - Comprehensiveness (FM physicians see all patients, and includes all aspects of disease – psychological, social and so on.)
    - Coordination (FM physicians identify when a patient needs to see a specialist, the "front line warriors" of medicine)
    - Preventive (recognising risk factors, delaying disease consequences, promoting healthy lifestyles)
    - Community oriented (paying attention to things like occupation, culture, environmental/social habits)

    - Family oriented (understands the patient as part of a small social unit, how *they* are affected by *it,* and vice versa)

Systems of support during illness

- **Disease** refers to an abnormal condition affecting an organism. **Illness** refers to bad feelings that might come with having a disease. **Sickness** is social identity. As doctors, we should treat both **disease and illness.**
- **Gender** influences how fast and how often someone reacts to symptoms – **women** go to the doctor **more often and earlier.**

Child health surveillance and screening

- Timing of **health checkups**, generally examinations with special considerations noted
    - 1st year:
        - 1-2 week
        - 6-9 week: **Vaccinations**
        - 3rd-4th month: **Vaccinations**
        - 6th month
        - 9th month
        - 12th month
    - 2nd-3rd year: **Vaccinations**
    - 4th year
    - 5th year
- Health checkups is basically **a kind of screening** for problems with development in many areas: Physical development, psychomotor, behaviour, vision/hearing/speech problems, presence of testes in scrotum.
- There's a fairly detailed overview in this lecture of what should be checked at each of these, including at **checkups with school nurse** – not gonna list all of this.

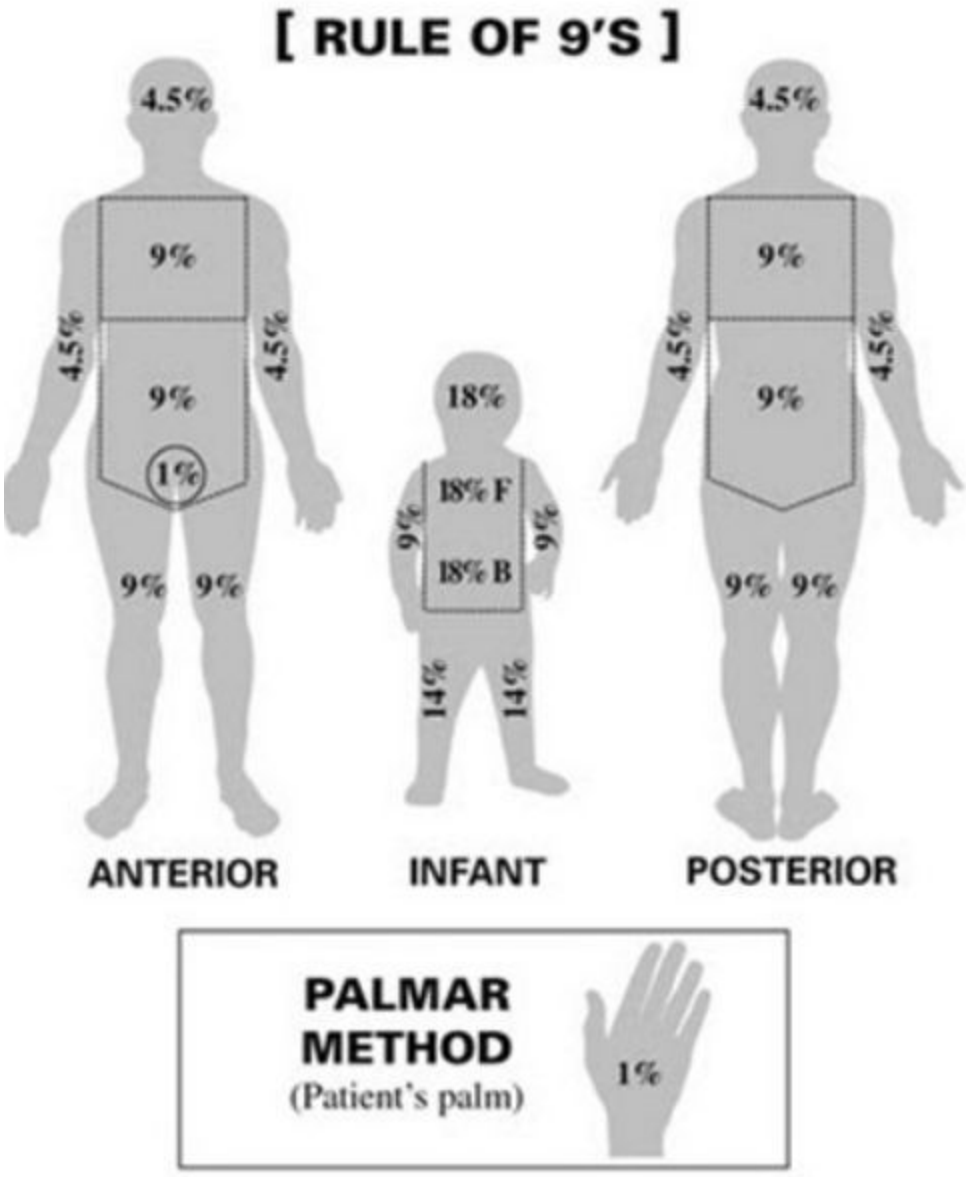
Wounds

- Acute or chronic:
    - Acute wounds usually go through a normal healing process
    - Chronic wounds fail to heal properly, defined as **>3 months**

- **Healing by intentions**
    - **Healing by first intention**: Wound edges are brought together and held in place with sutures, staples, strips etc. – the dead space is eliminated, this gives minimal scarring. Typically easy with **simple cuts.**
    - **Healing by second intention: Granulation tissue fills in the dead space**, and produces a larger scar than with 1st intention. Happens when there is a loss of tissue that makes closing the wound difficult.
    - **Healing by third intention:** Delayed primary closure. Wound is left open over a longer time for irrigation or removal of foreign materials, the wound can them be closed by first intention.
- General management of acute wounds
    - Remove foreign materials, irrigate and clean with hydrogen peroxide, sterile saline, betadine… take your pick.
    - Dry or wet dressing covers the wounds (depends on type of wound)
    - Suture if necessary
    - **Antibiotics are only necessary if there is evidence of local infection.**
- If an abscess forms, consider the size: Large ones should be drained, small ones can be treated with antibiotics.
- **Necrotic wounds** should be treated with debridement. Mechanical, autolytic, enzymatic, biological (maggots), surgical.
- If a wound is **sloughing** – fibrous tissues that adheres tightly to the wound base, is seen yellowish patches across the wound bed that doesn't come off with washing – it needs to come out.

Burns

- 1st degree: epidermis
- 2nd degree: superficial (a) or partial (b) dermis involvement. 2b may cause scarring.
- 3rd degree: Full depth, may have injured deeper structures. Not painful because the nerves are gone. Requires surgery.
- Rule of 9s: Body is divided into sections, each representing roughly 9% of total body surface area (TBSA)



- Hospitalisation criteria:
- 10% TBSA (5% if third-degree)
- 5% in children
- Burns to face, hands, feet, genitalia, perineum, major joints
- Electrical or chemical burns
- Inhalation injury
- Circumferential burns
- Associated trauma
- Suspicion of non-accidental injury
- Very young or very old patients