Childhood Diseases

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Infectious Mononucleosis

AKA Mono, "Kissing Disease", Epstein-Barr Viral Syndrome

- Cause: Epstein-Barr virus and Cytomegalovirus
 - Both from the herpes virus family

Incubation period: 7-14 days



- MC age group affected is 15-17 year olds
 - Infection may occur at any age
 - Younger children often don't have symptoms
 - Older patients may have fatigue for up to 6 weeks

Gradual onset of symptoms including:

- Sore throat
- Fever
- Headache
- Fatigue

Sore throat becomes progressively worse often accompanied by enlarged tonsils with a whitish yellow covering.

- Enlarged lymph lodes
 - MC cervical & axillary
 - Cervical lymph nodes often painful
- Rash
 - Pink, measles-like rash
 - more common if given amoxicillin for throat infection
- Enlarged spleen & liver

Common tests for EB virus include:

- A monospot test (positive for infectious mononucleosis)
- Epstein-Barr virus antigen by immunoflouresence (positive for EBV)
- Epstein-Barr virus antibody titers

Management

- Antiviral medications do not help
 - Most patients recover within 2-4 weeks without medication
 - Fatigue usually resolves within a few weeks
 - may linger for 2 to 3 months
- To relieve typical symptoms...
 - Gargle with warm salt water (sore throat)
 - Rest & fluids
 - Avoid contact sports while the spleen is enlarged

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Rubella

AKA Three day measles; German measles

- Viral infection
- Contagious 1 week before onset of rash until 1-2 weeks after rash disappears
- Spread through the air or by close contact
- May be transmitted to fetus by a mother with an active infection

- Rubella is usually a mild, self-limited infection
 - Children generally have few symptoms

Signs & Symptoms

- Low-grade fever (<102 F)
- Headache, malaise, runny nose, bloodshot eyes
- Rash with skin redness or inflammation

Complications:

- Congenital rubella syndrome
- Transient arthritis
 - common in adolescents and adults with rubella
- Otitis Media (rare)
- Encephalitis (rare)

Tests:

- A rubella serology
- A nasal or throat swab for viral culture

- Lifelong immunity to the disease follows infection
- A rubella vaccine is available

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Congenital Rubella Syndrome

"About 25% of infants born to mothers infected with rubella during early pregnancy will develop congenital rubella syndrome associated with a poor outcome."

- Defects related to congenital rubella are more common during early pregnancy
 - Complications are rare after the 20th week
 - Deafness (MC)
 - Cataracts
 - Cardiac defects
 - Mental retardation
 - Microcephaly
 - Miscarriage or stillbirth may occur

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Rubeola

AKA Measles, Red Measles

- Viral infection
- Incubation period: 8 to 12 days before symptoms generally appear
- Spread by contact with droplets from the nose, mouth, or throat of an infected person

Signs & Symptoms:

- Sore throat, runny nose, cough, muscle pain, fever, bloodshot eyes
- Koplik's spots
 - White spots inside the mouth
- Photophobia

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Complications:

- Secondary bacterial infections
 - otitis media, bronchitis, or pneumonia
- Encephalitis (~1/1000)

Tests:

- Viral culture (rarely done)
- Measles serology
- Immunity occurs after active infection
- A vaccine is available

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Fifth Disease

AKA Parvovirus B19, erythema infectiosum, "slapped cheek"

- A viral illness characterized by mild symptoms and a blotchy rash
- Once the rash appears, the patient is non-contagious and may return to school or day care

- First sign noticed by parents: bright red cheeks
- Later a rash appears on the extremities and trunk
 - Fades from the center outwards giving it a "lacy appearance"
 - Rash disappearsentirely in 1-2 weeks

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Complications

- Generally no complications in normally healthy children
 - Mild and generally benign viral infection
 - Complete recovery can be expected

Tests

 Blood tests for antibodies against Parvovirus B19 are available

Varicella

AKA Chicken Pox

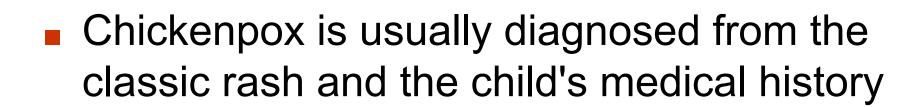
- Cause: varicella-zoster (herpesvirus family)
 - also causes herpes zoster (shingles) in adults
- Very contagious; can be spread by direct contact, droplet transmission, or airborne transmission
- A vaccine is available

- Usually occurs in children younger than ten
 - Adults and older children usually get sicker than younger children
- Characterized by vague symptoms (fever, headache, tummy ache, or loss of appetite) for 1-2 days before the classic pox rash appears
- These symptoms generally last 2 to 4 days after the rash appears

- Itchy fluid-filled blisters develop over red spots on the skin (dew drops on a rose petal)
- Often appear first on the face, trunk, or scalp and spread from there

Complications:

- Secondary infection of the blisters may occur
- Reyes syndrome, pneumonia, myocarditis, and transient arthritis
- Cerebellar ataxia may appear during the recovery phase or later
- Encephalitis (rare)
- Congenital infection
- Newborns are at risk for severe infection (if mother is not immune)



Tests:

 Blood tests and tests of the pox blisters themselves can confirm the diagnosis if there is any question

Treatment

- Antiviral medicines
 - skin conditions (eczema or recent sunburn)
 - lung conditions (asthma)
 - recently taken steroids
 - take aspirin on an ongoing basis

In most cases, it is enough to keep children comfortable while their own bodies fight the illness...

Treatment:

- Trim the fingernails
 - reduce secondary infections and scarring
- Oatmeal and/or baking soda baths
- Topical lotions
- Oral antihistamine

Roseola

- Caused by a human herpesvirus 6
- Incubation period: 5 to 15 days
- Spread either through fecal-oral contact or via airborne droplets
- Common in children 3 months to 4 years old
 - MC in those between 6 months and 1 year

Classic presentation

- Fever (up to 105 F) ~3 days (may last 7)
- Fever falls between the 2nd and 4th day
- As the fever falls, the rash appears
 - First on the trunk and then spreads to the limbs, neck, and face
- Rash lasts from a few hours to two days

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Symptoms:

- Abrupt onset of high fever
- Irritability
- Rash erupts on the 4th or 5th day of the illness (fever has usually resolved or is dropping by the time the rash appears)

Signs:

- A history of roseola in the community
- A physical exam of rash
- Swollen occipital lymph nodes

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 The vast majority of children with roseola fully recover

Complications:

- Febrile Seizure
- Encephalitis (rare)
- Aseptic meningitis (rare)

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Treatment:

- No specific treatment
 - usually resolves without complications

Medical Management:

- Acetaminophen and sponge baths (fever)
- If convulsions occur ~>medical evaluation

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Hand-Foot-and-Mouth Disease

AKA Coxsackievirus infection

- MC in young children
 - can be seen in adolescents and occasionally adults
- Outbreaks occur most often in the summer and fall

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Symptoms

- Fever
- Sore throat
- Loss of appetite
- Headache
- Ulcers in the throat, mouth & tongue
- Vesicular rash on hands, feet, & diaper area



- Hands, feet, and diaper area are affected by a vesicular rash (very small blisters)
 - Typically on the palm side of the hands & the sole side of the feet
 - Tender or painful if pressed

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Expectations:

- Usually a mild illness
- Generally complete recovery occurs in 5-7 days

Complications:

- Dehydration may occur
 - mouth lesions cause pain with swallowing
- Possible febrile seizures

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Scarlet Fever

AKA Scarlatina

Cause: group A streptococcal throat infection

Incubation period: generally 1-2 days

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Symptoms:

- Sore throat
- Fever, chills
- Abdominal pain, vomiting
- Headache
- Muscle aches
- Generalized discomfort (malaise)
- Swollen, red "strawberry tongue"
- Rash on neck and chest
- Pastia's lines
 - bright red color in the creases of the underarm and groin

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 - Typically begins with fever & sore throat
 - Strep. produces a toxin that causes a rash
 - Appears 1-2 days after the onset of illness
 - Usually appears on the neck & chest, then spreads over the body
 - Described as "sandpapery" in quality
 - Can last for over a week
 - As the rash fades, peeling (desquamation)
 may occur (finger tips, toes, and groin area)

Diagnosis:

- Physical examination
 - texture of the rash is more important than the appearance in confirming the diagnosis

Tests:

- Throat culture positive for Group A Strep
- Rapid antigen detection (throat swab)

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Scarlet fever was once a very serious childhood disease, but now is easily treatable...

Expectations:

- With proper antibiotic treatment, symptoms should resolve quickly
- Rash can last for up to 2-3 weeks before it is fully resolved

Treatment:

- Antibiotic therapy
- Crucial to preventing rheumatic fever

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Complications are rare with proper treatment

Complications include:

- Acute rheumatic fever
- Ear infection
- Adenitis or abscess
- Pneumonia
- Sinusitis
- Meningitis
- Bone or joint problems (osteomyelitis or arthritis)
- Liver damage (hepatitis)
- Kidney damage (glomerulonephritis)

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Mumps

AKA Epidemic parotitis

- Viral infection
- Incubation period: 12 to 24 days
- Spread from person-to-person by respiratory droplets or articles contaminated with infected saliva
- MC in children between the ages of 2 and 12
 - can occur in other age groups

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- Acute, contagious, viral disease
- Causes painful enlargement of the salivary or parotid glands
- Other organs may be involved including the testes, the CNS, and the pancreas

- After the illness, life-long immunity to mumps occurs
- A vaccine is available

Symptoms:

- Face pain
- Swelling of the parotid glands
- Fever
- Headache
- Sore throat
- Swelling of the temples or jaw
- Additional symptoms in males: testicle pain & scrotal swelling

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Diagnosis:

- Physical examination confirms the presence of the swollen glands
- No testing is usually required



Treatment

- No specific treatment
 - Probable outcome is good even if other organs are involved

Recommendations:

- Warm salt water gargles, soft foods, and extra fluids
- Intermittent ice or heat to the affected area
- Acetaminophen for pain relief

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Diphtheria

- Cause: toxin-producing Corynebacterium diphtheriae
- Incubation period: 2 to 5 days
- Transmission:
 - Contact with respiratory droplets from infected persons or asymptomatic carriers
 - May also be transmitted by contaminated objects or foods



 Diphtheria may be mild and unrecognized or it may become progressive

- The bacteria primarily infect the nose and throat
 - Produces a characteristic membrane that is gray to black, tough, and fibrous
 - Membrane can cause airway obstruction

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Symptoms:

- Sore throat
 - mild to severe; painful swallowing; hoarseness
- Drooling (airway obstruction)
- Fever and chills
- Bloody, watery drainage from nose
- Croup-like (barking) cough
- Stridor, difficulty breathing, or rapid breathing
- Apnea; Cyanosis
- Note: There may be no symptoms.

Complications

- Diphtheria toxin can damage the heart, nervous system, kidneys, or other organs resulting in disorders such as:
 - Myocarditis ~> heart failure
 - Neurologic palsies or peripheral neuritis ~> uncoordinated movements (develops in 3-7 weeks)
 - Severe nerve damage ~> paralysis
 - Kidney damage or nephritis



Diagnosis

- Characteristic gray pseudomembrane
- Enlarged lymph glands, swelling of the neck or larynx

Tests

Gram stain of membrane or throat culture to identify Corynebacterium diphtheriae

If diphtheria is suspected, treatment should be started immediately, even before the results of bacterial tests are available.

Treatment:

- Diphtheria antitoxin
 - intramuscular or IV injection as soon as the diagnosis is suspected
- Infection is then treated with antibiotics
 - penicillin or erythromycin

A vaccine is available



Pertussis

AKA: Whooping cough

Highly contagious bacterial disease

Spread through respiratory droplets

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Symptoms

- Runny nose
- Slight fever (102°F or lower)
- Diarrhea
- Severe, repeated coughs
 - May lead to vomitting
 - May make breathing difficult
 - May cause a short loss of consciousness
- Choking spells in infants

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 - In children, the coughing often ends with a "whoop"
 - Produced when the patient tries to take a breath
 - Rare in patients under 6 months and in adults

- The infection usually lasts 6 weeks
 - Cold symptoms (~2 weeks)
 - Progressively worse cough (~4 weeks)
 - Complete resolution (may take months)

Diagnosis

- Usually based on symptoms
 - When symptoms are not obvious, pertussis may be difficult to diagnose...

Differentials

 In very young infants, symptoms may be caused by pneumomnia instead

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Complications

- Nose bleeds
- Ear infections
- Pneumonia
- Slowed or stopped breathing (apnea)
- Convulsions
- Seizure disorder (permanent)
- Brain damage from lack of oxygen
- Bleeding in the brain (cerebral hemorrhage)
- Mental retardation
- Death



Expectations:

- In older children, outlook is generally very good
- Infants have the highest risk of death and need careful monitoring

Management

 Cough mixtures, expectorants, and suppressants are usually not helpful and should NOT be used

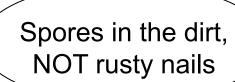
Treatment:

- Infants <18 months require constant supervision</p>
 - Breathing may stop during coughing spells
- Infants with severe cases should be hospitalized
 - An oxygen tent with high humidity may be used
- If started early enough antibiotics can spead up resolution
- IV fluids (severe coughing spells prevent the patient from drinking enough fluids)
- A vaccine is available



Tetanus

AKA: Lockjaw



- Cause: toxin of the bacteria C. tetani
 - Spores of the bacterium live in the soil and are found around the world (can remain infectious >40 years)
- Incubation period: 5 days to 15 weeks, 7 days average
- A vaccine is available

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Infection begins when the spores are introduced into an injury or wound.

Symptoms:

- Spasms and tightening of the jaw muscle
 - "lockjaw"
- Stiffness and spasms of various muscle groups
 - neck, chest, abdominal, and back muscles
 - "opisthotonos"
- Tetanic seizures
 - painful, powerful bursts of muscle contraction
- Irritability
- Fever

- Additional symptoms that may be seen:
 - Excessive sweating
 - Swallowing difficulty
 - Hand or foot spasms
 - Drooling
 - Uncontrolled urination and/or defecation

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Complications:

- Airway obstruction
- Respiratory arrest
- Heart failure
- Pneumonia
- Fractures
- Brain damage due to lack of oxygen during spasms

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Treatment:

- Antitoxin (control and reverse the tetany)
- Antibiotics (kill C. tetani)
- Wound debridement
- Treat symptoms
 - Bedrest with a nonstimulating environment may be recommended
 - Sedation may be necessary (keep the patient calm)
 - Respiratory support with oxygen, endotracheal tube, and mechanical ventilation may be necessary