COMMON CHILDHOOD ILLNESSES AMONG CHILDREN IN CHILDCARE FACILITIES

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pennsylvania DEPARTMENT OF PUBLIC WELFARE

pennsylvania DEPARTMENT OF HEALTH

Pennsylvania Early Learning Keys to Quality

GET SMART Know When Antibiotics Work www.cdc.gov/getsmart

University Hospitals

Rainbow Babies & Children's Hospital

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Outline 1

- Common childhood infections: themes
- Organisms and Antibiotics
- Fever
- Respiratory infections
  - Colds
  - Cough
  - Conjunctivitis (pink-eye)
  - Middle ear infection
  - Sinus infection
  - Sore throat
- Vomiting and Diarrhea







Outline 2

- Skin infections
  - Bacteria
    - Impetigo
    - Cellulitis
    - Abcess
    - Methicillin-resistant staphylococcal infections
  - Fungus
    - Tinea corporis
    - Tinea capitis
    - Candida
  - Parasites
    - Scabies
    - Lice
- Questions

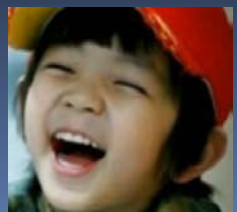
Themes

- Symptoms
- Causes
  - Organism
- Transmission
  - Infectiousness
  - Modes of spread
  - Prevention
- Treatments
- Exclusion/return









Symptoms

- What are the child's symptoms?
- What is the risk for serious illness?

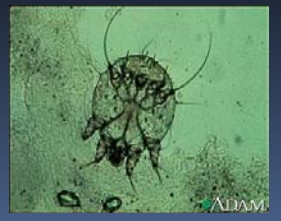






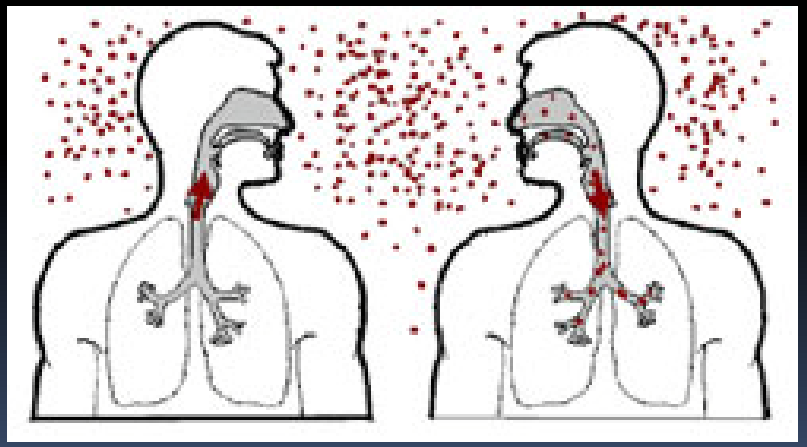
Causes/Organism

- What organisms usually cause this illness?
- (Non-infectious conditions)



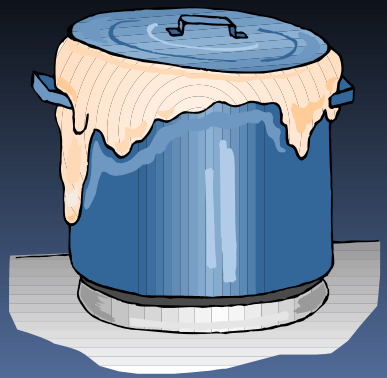
Transmission

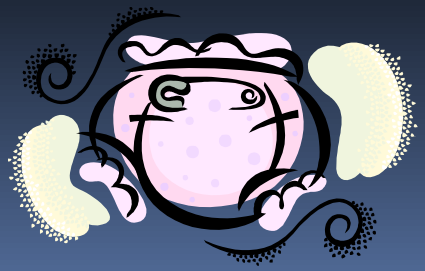
- Infectiousness
  - Does it spread easily?
  - Contagiousness
  - Timing



How infections spread

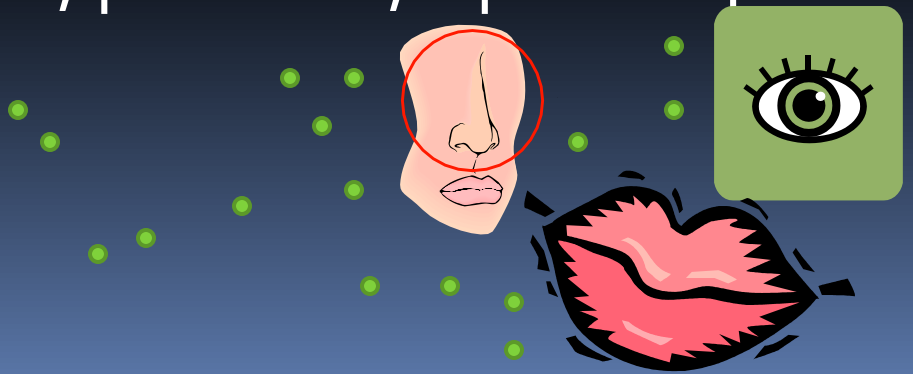
- Children sometimes don't have the best personal hygiene
- Modes of transmission
  1. Contact
  2. Droplet
  3. Airborne
  4. Bloodborne





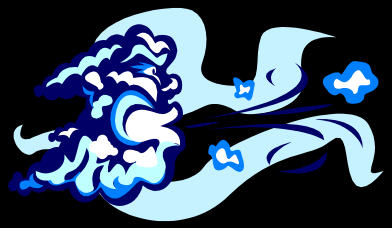
Modes of transmission

1. Contact
   - Direct: skin to skin (hands!)
   - Indirect: intermediate object (toys, doorknob)
   - Colds, Rotavirus, hepatitis A, Salmonella, Tinea
2. Droplet
   - Cough, sneeze => eyes, nose, mouth
   - Influenza, RSV, pertussis, Gp A strep

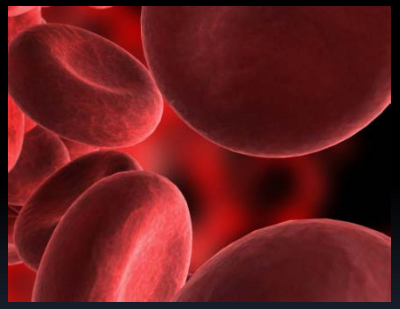


Modes of transmission

3. Airborne
   - Organisms carried by air currents
   - Chicken pox, measles, tuberculosis



4. Bloodborne
   - Rarer
   - HIV, hepatitis B, C, D



Prevention

- How can the illness be prevented?
  - Immunizations
    - Best protection against preventable illness
    - Especially important in childcare
- How can we keep the illness from spreading?
  - Handwashing/alcohol-based hand sanitizer!!!
  - Diaper/toileting hygiene
  - Cleaning surfaces
  - Universal precautions
  - Immunizations

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People. Saving Money through Prevention.

Handwashing: Clean Hands Save Lives

Keeping hands clean through improved hand hygiene is one of the most important steps we can take to avoid getting sick and spreading germs to others. Many diseases and conditions are spread by not washing hands with soap and clean, running water. If clean, running water is not accessible, as is common in many parts of the world, use soap and available water. If soap and water are unavailable, use an alcohol-based hand sanitizer that contains at least 60% alcohol to clean hands.

Wash Your Hands: The Right Way

When should you wash your hands?

- Before, during, and after preparing food
- Before eating food
- Before and after caring for someone who is sick
- Before and after treating a cut or wound
- After using the toilet
- After changing diapers or cleaning up a child who has used the toilet
- After blowing your nose, coughing, or sneezing
- After touching an animal or animal waste
- After touching garbage

What is the right way to wash your hands?

- Wet your hands with clean, running water (warm or cold) and apply soap.
- Rub your hands together to make a lather and scrub them well; be sure to scrub the backs of your hands, between your fingers, and under your nails.
- Continue rubbing your hands for at least 20 seconds. Need a timer? Hum the "Happy Birthday" song from beginning to end twice.
- Rinse your hands well under running water.
- Dry your hands using a clean towel or air dry them.

What if I don't have soap and clean, running water?

Washing hands with soap and water is the best way to reduce the number of germs on them. If soap and water are not available, use an alcohol-based hand sanitizer that contains at least 60% alcohol. Alcohol-based hand sanitizers can quickly reduce the number of germs on hands in some situations, but sanitizers do **not** eliminate all types of germs.

Centers for Disease Control and Prevention
http://www.cdc.gov/handwashing/

Recommended Immunization Schedule 0-6 years, U.S.-2011

Vaccine ▼ Age ▶	Birth	1 month	2 months	4 months	6 months	12 months	15 months	18 months	19–23 months	2–3 years	4–6 years
Hepatitis B[1]	HepB	HepB			HepB						
Rotavirus[2]			RV	RV	RV[2]						
Diphtheria, Tetanus, Pertussis[3]			DTaP	DTaP	DTaP	*see footnote*[3]	DTaP				DTaP
Haemophilus influenzae type b[4]			Hib	Hib	Hib[4]	Hib					
Pneumococcal[5]			PCV	PCV	PCV	PCV				PPSV	
Inactivated Poliovirus[6]			IPV	IPV	IPV						IPV
Influenza[7]					Influenza (Yearly)						
Measles, Mumps, Rubella[8]						MMR		see footnote[8]			MMR
Varicella[9]						Varicella		see footnote[9]			Varicella
Hepatitis A[10]						HepA (2 doses)				HepA Series	
Meningococcal[11]										MCV4	

Range of recommended ages for all children

Range of recommended ages for certain high-risk groups

http://www.cdc.gov/vaccines/recs/schedules/child-schedule.htm
http://www.cdc.gov/vaccines/default.htm

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Exclusion/Return

- Should the child be excluded from childcare? Does the child need medical attention before returning?
  - Contagious
  - Unable to participate in activities
  - Care for other children would be compromised
  - Fever with behavior change
  - Looks or acts very ill
- When can the child return?

The Pennsylvania Code: Chapter 27. Communicable and Noncommunicable Diseases
Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs
Model Child Care Health Policies, Healthy Child Care Pennsylvania, The Early Childhood Education Linkage System (ECELS)

Treatments

- Does the child need treatment?
- Antibiotics
  - Treat bacteria—not viruses
  - Side effects
    - Mild/moderate: rash, diarrhea
    - Severe: allergy/shock
    - Antibiotic resistance**

Antibiotic Resistance

- Antibiotic exposure: resistant bacteria
  - Progressively harder to treat
  - More severe illness
  - Longer illness

- Resistant bacteria in future:
  - Child
  - Family
  - Society

- Lagging new antibiotic development
- Judicious use prolongs antibiotic usefulness

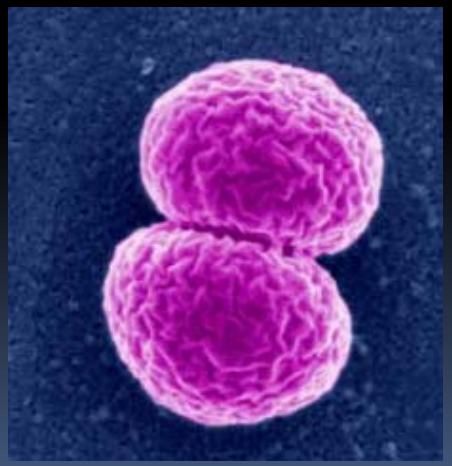
Types of infectious organisms

- Bacteria: Antibiotic responsive
  - Antibiotics +/- depending on illness
- Virus: Not antibiotic responsive
  - Antibiotics not used
- Fungus
- Parasites

Bacterial Illnesses

Always

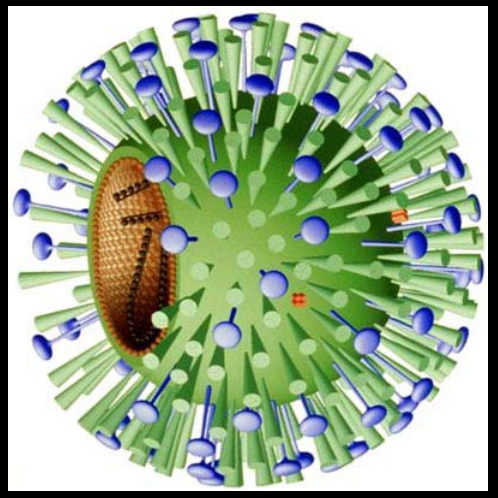
- Streptococcal pharyngitis (strep throat)
- Pertussis (whooping cough)
- Blood infections /bacterial meningitis



Sometimes

- Skin infections
- Ear infections (otitis media)
- Sinus infections (sinusitis)
- Conjunctivitis (pink eye)
- Pneumonia
- (Vomiting, diarrhea)

Viral Illnesses



Always

- Colds
- Bronchitis
- Bronchiolitis
- Herpes virus, chicken pox
- Parvovirus (Fifth's Disease)

Usually

- **Pharyngitis (sore throat)**
- **Conjunctivitis (pink eye)**
- **Coughs**
- **Gastroenteritis (vomiting, diarrhea)**

Not Viral or Bacterial

- Fungal Ilnesses
  - Tinea (ringworm)
    - Corporis (skin)
    - Capitis (scalp/hair)
  - Candida (yeast infection)
    - Diaper rash
    - Oral thrush
- Parasites
  - Scabies
  - Pinworms

Fever

- Definition
  - 100° F (37.8 ° C) axillary
  - 101 ° F (38.3 ° C) oral, ear
  - 102 ° F (38.9 ° C) rectal
- Prompt medical evaluation <4-6 mo (<2 mo. urgent)
  - 100° F (37.8 ° C) axillary
  - 101 ° F (38.3 ° C) rectal

Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs, 3rd Edition *(CFOC3);* National Resource Center for Health and Safety in Child Care and Early Education. http://nrckids.org/providers.htm

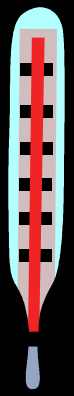
Fever

Audience question #1

A 1 year-old child with a fever over 102°F is most likely to have which of the following types of infection:

A. Virus: antibiotics needed
B. Virus: no antibiotics indicated
C. Bacteria: antibiotics needed
D. Bacteria: no antibiotics indicated
E. Other
F. Not sure

Fever



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- Prompt medical evaluation <4 mo (<2 mo. urgent)
  - 100° F (37.8 ° C) axillary
  - 101 ° F (38.3 ° C) rectal
- Usually self-limited virus
  - Immunized child without local symptoms
    - Antibiotic usually not indicated
  - Usual exclusions apply

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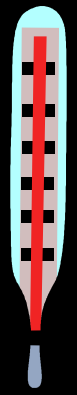
Fever



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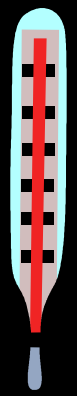
Fever



- Not harmful by itself
  - Some children prone to febrile seizures, kidney/bladder infections
  - Medical care if persistent or severe symptoms
- Care of underlying illness
- Fluids
- Analgesics (not aspirin)
  - Acetaminophen
  - Ibuprofen >6 months
- Usual exclusions except:
  - Breathing problems, pain
  - Child seems very ill
  - Unexplained rash with behavior changes
    - Purple, nonblanching rash

Colds

- 5-10 per year
- Congestion, sneezing, fever, cough,
  sore throat, mouth sores, swollen glands, croup
- Runny nose

Colds

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Colds
Audience question #2

When a child's nose mucous is green, he/she should be prescribed an antibiotic before being allowed to return to childcare

A. Yes
B. No
C. Not sure

Colds

- 5-10 per year
- Congestion, sneezing, fever, cough, sore throat, mouth sores, swollen lymph nodes
- Runny nose
  - Clear, white, yellow, green

Colds

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- Congestion, sneezing, fever, cough, sore throat, mouth sores, swollen lymph nodes
- Runny nose
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Colds

- Usually 'common cold' virus
  - Rhino-, corona-, adeno-, entero-virus, parainfluenza
  - Cocksackie (hand foot mouth)
  - Herpes virus (mouth sores)
  - Parvovirus B19 (Fifth's Disease)
  - Respiratory syncytial virus (RSV bronchiolitis)
  - Influenza (more severe symptoms)

Colds

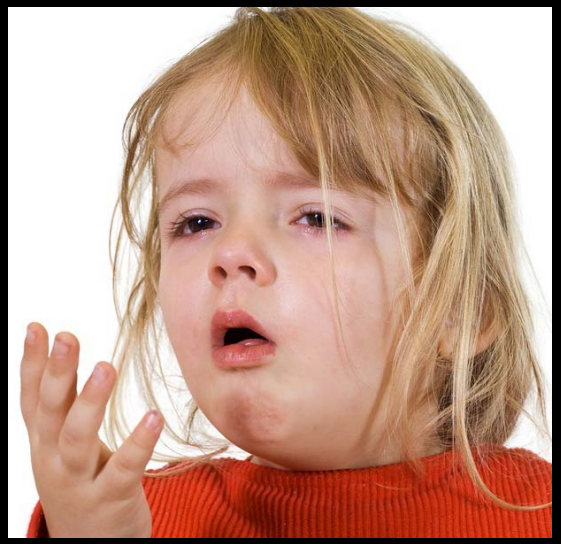
- Airborn, surface contamination, toys
- Most contagious in early course
- Self-limiting (1-2 weeks)
  - Fluids, symptom control
  - Antibiotics don't work
  - Nasal aspiration
  - Cold/cough medicines: side effects, don't work well
- Usual exclusions
  - Possible exclusion
    - Mouth sores with drooling
- Handwashing, and surface hygiene

Cough

- Cough-dominant cold
  - Cough, bronchitis

    Runny nose, congestion, wet/dry cough, hoarseness, bronchitis
  - Croup
- Usually common cold virus
- Self-limiting
- Treatment/transmission/contagion/exclusion
  - Same as cold

Cough



- Lower respiratory infection
  - Influenza A and B
  - Bronchiolitis (RSV)
    - Wheezing
  - Pneumonia
    - Viral
    - Mycoplasma
    - Bacterial (pneumococcus, pertussis): antibiotics
    - Treatment depends on probable organism
    - Pertussis exclude until treated for 5 days
- Symptoms of concern
  - Wheezing/asthma
  - Rapid breathing
  - Shortness of breath
  - Chest tugging
  - Can't drink
  - Persistent
  - Seems very sick
  - Usual exclusions

Cough

- Control:
  - Encourage older children to
    - Cover their mouth
    - Cough into arm
- Wheezing/asthma
  - Medications sometimes for wheezing/asthma
  - Wheezing is not contagious
- Prevention: immunization
  - Influenza
    - Yearly
  - Pneumococcus (Pneumococcal conjugate vaccine)
  - Hemophilus influenza B (Hib)
  - Varicella (chicken pox) , Measles

Conjunctivitis ‘pinkeye’

- ‘Cold’ in the eye
- Pink/redness of white part of eye,
  runny (white, yellow), mild crusting, mild eyelid swelling
  - No severe eyelid swelling, significant pain
- Usual common cold virus most common
  - Adenovirus can be very contagious
- Spreads by eye rubbing, contact, surfaces

Conjunctivitis ‘pinkeye’ Audience question #3

Conjunctivitis (pink-eye) should be treated with antibiotics before the child is allowed to return to childcare

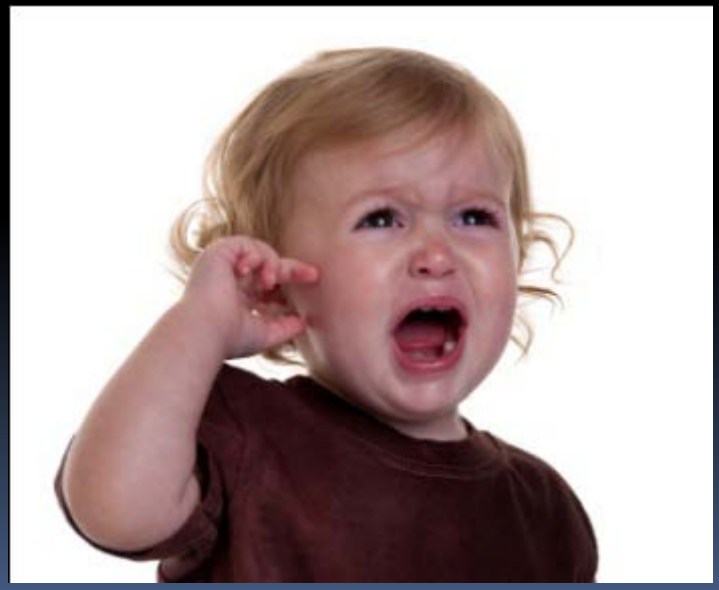
A. Yes
B. No
C. Sometimes
D. Not sure

Conjunctivitis ‘pinkeye’

- ‘Cold’ in the eye
- Pink/redness of white part of eye, runny (white, yellow), mild crusting, mild eyelid swelling
  - No severe eyelid swelling, significant pain
- Usual common cold virus most common
  - Adenovirus can be very contagious
- Spreads by eye rubbing, contact, surfaces
  - Antibiotic drops: bacterial super-infection
    - Sometimes used, sometimes speeds resolution
    - Don’t decrease viral contagiousness
- Usual exclusions
- Handwashing, towels, linens

Middle ear infection
otitis media

- Often begins with cold, eustachian tube dysfunction
- Fever, congestion, runny nose, ear discomfort
- Infection behind ear drum
  - Inflammation, red, discomfort
  - Fluid/pus
- Viral and/or bacterial
- Antibiotics sometimes used
  - Especially <2 years of age
- Not contagious
- Usual exclusions



Sinus infection
bacterial sinusitis

- Diagnosis: Nasal discharge/daytime cough
  - Persistant for >10 days without improvement
  - Worsening ≥6 days
    - Worsening symptoms after transient improvement
  - Severe
    - Fever
    - Purulent nasal discharge: thick, colored, opaque
- Streptococcus pneumoniae, Haemophilus influenza, Moraxella catarrhalis
- Sometimes treated with antibiotics
- Contagiousness: no, just the viral cold
- Usual exclusions

Sore throat pharyngitis

- Pain with swallowing, red throat, swollen lymph nodes, fever
- Commonly viral
  - Usual cold viruses, adenovirus
  - Congestion, runny nose, cough
  - Supportive care
  - Contagious, control: like a cold
- Additional exclusions
  - Poor fluid intake
  - Breathing distress

Streptococcal pharyngitis ‘strep throat’

- Bacteria
- Swollen red tonsils, white patches
- Fever, stomach ache, swollen lymph nodes
- Rarely congestion, runny nose, cough
- Older kids
- Rapid diagnostic test
- Antibiotics effective
- Occasionally ‘scarlet fever’ rash
- Moderately contagious
- Exclude until antibiotics for 24 hours

Vomiting and Diarrhea

- Vomiting, abdominal cramps, fever => diarrhea
- Usually viral
  - Rotavirus, Enterovirus,, Norwalk virus
- Rarely bacterial or parasitic
  - (Salmonella, Shigella, Giardia)
- Spreads: stool contamination, hand mouth
- Fluids, bland diet
- Handwashing, diaper hygiene, careful food preparation
- Prevention
  - Rotavirus immunization

Vomiting and Diarrhea

- Concerns/Exclusions
  - Severe abdominal pain
  - Dehydration
    - Dry mouth
    - No urination in 8 hours
    - Dizzy
    - Weak, seems very ill
  - Vomiting
    - Green or blood
    - Frequent
  - Diarrhea
    - Blood, mucous
    - Not contained in diaper or toilet
    - Frequency depending on context
    - Shigella, certain E. coli, Salmonella, Hepatitis A

Skin Infections: Bacterial

- Streptococcus, staphylococcus (MRSA)
- Increasingly antibiotic resistant
- Impetigo: Pink, crusty, superficial
  - Antibiotic ointment

- Cellulitis: pink, deeper, tender, +/- fever
  - Oral antibiotic

- Abcess: deep, tender,
  - Warm compresses, incision and drainage, +/- antibiotic
- Handwashing, surfaces, linens, towels
- Exclusions
  - Oozing, open wound
  - Tender, red area increasing in size /severity
  - Return when treatment has been started, following other exclusions

Skin Infections Fungal

- Candida diaper rash
  - Red diaper rash with satellite lesions
  - Not very contagious
  - Anti-fungal cream
  - Don't exclude
- Oral thrush (Candida)
  - Usually young infants
  - White patches: cheeks, lips, tongue, don't wipe off
  - Mouth sore
  - Not contagious
  - Anti-fungal drops
  - Sterilize nipples
  - Don't exclude

Fungal

- Tinea corporis
  - 'Ringworm'
  - Oval pink, fine scale
  - Mildly/moderately contagious
  - Anti-fungal cream
  - Don't exclude if under treatment
  - Handwashing, linens, towels, toys

- Tinea capitis
  - 'Ringworm' of scalp
  - Rash with fine scale, bald patches, crust, not usually painful
  - Mildly/moderately contagious
  - Oral anti-fungal for weeks
  - Don't exclude if under treatment
  - Handwashing, linens, towels, toys, brushes, combs, hats

Parasites

- Scabies
  - VERY ITCHY, sometimes burrows
  - Mildly/moderately contagious
  - Cream at bedtime, wash off in a.m.
  - Can return to childcare once treated
  - Linens, towels

- Lice
  - Lice visible on scalp, nits adhere to hair
  - Moderately contagious
  - Various treatments available
    - Some resistance but treatable
    - Retreatment often useful

  - Combing nits tedious, helpful
  - Exclude the next day until after first treatment; can return to childcare once treated

Summary

- Most childhood infections
  - Mild, self-limiting
  - Viral etiology
  - With supportive care, most children can participate in childcare
    - Exclusion policies for contagion, severe illness, conditions precluding participation
- Bacteria can be antibiotic-responsive
- Viruses don't respond to antibiotics
  - Antibiotics don't reduce symptoms , or shorten illness/contagion
- Judicious antibiotic use
  - Minimize future resistance
- Control
  - Immunizations
  - Handwashing
- Model policies, PA Code, guidelines: resources

Resources

- The Pennsylvania Code: Chapter 27. Communicable and Noncommunicable Diseases http://www.pacode.com/secure/data/028/chapter27/chap27toc.html
- Childcare and Antibiotics. Commonwealth of Pennsylvania, Center for Clinical Epidemiology and Biostatistics at Penn, Centers for Disease Control and Prevention. http://www.med.upenn.edu/antibiotics/
- CDC Get Smart About Antibiotics. http://www.cdc.gov/Features/GetSmart/
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Resources

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- Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings http://www.cdc.gov/hicpac/pdf/isolation/Isolation2007.pdf
- American Academy of Pediatrics' Red Book: Report of the Committee on Infectious Diseases (Red Book) Centers for Disease Control and Prevention http://www.cdc.gov/handwashing/

Questions and Discussion