Curriculum for Managing Infectious Diseases in Early Education and Child Care Settings

MODULE 1
Understanding Infectious Diseases

• Impact
• Vulnerability
• Symptoms
• Spread
#1 Objectives

A. Knowledge
Each participant will be able to:

• Identity 3 ways infectious diseases impact our society.
• State reasons why some children with special health care needs are at higher risk for acquiring infectious diseases.
• Name the 3 most common symptoms of infectious diseases in children in early education settings.
• Identify 5 ways infectious diseases are spread.

B. Attitude
Each participant will be able to:

• Have an understanding of the different impacts of infectious disease on parents, caregivers/teachers, and health care professionals.
• Be willing to educate parents and other child care staff members on methods to decrease the spread of infectious diseases.

C. Behavior
Each participant will:

• Answer the pre-assessment questions under Getting Started in the Participant’s Manual.
• Correctly identify methods by which infectious diseases spread through the bingo matching exercise.

#2 Lecture
Briefly review definitions to establish common vocabulary.

• **Virus**
  - Microscopic organism.
  - Can grow or reproduce only in living cells with limited ability to survive outside of the body.
  - Few medications to treat viruses (ie, influenza, herpes)
  - Examples are the common cold, influenza, measles, hepatitis B virus, and chicken pox.

• **Bacteria**
  - Organism is larger than a virus.
  - Can survive in or out of the body.
  - Examples are staphylococcus, streptococcus, salmonella, and shigella.

• **Fungus**
  - Organisms that get their nutrition from other living organisms or dead organic matter.
  - Examples are yeasts, molds, mildew, thrush, ringworm, and yeast diaper rash.

• **Parasite**
  - Single or multicellular organism.
  - Lives on or in another living organism.
  - Examples are tapeworm, louse, mite, pinworm, and giardia.

#3 Lecture

• **Infection** is a condition that is caused by a multiplication of an infectious agent in the body.
• **Contamination** is the presence of infectious microorganisms in or on the body, environmental surfaces, articles of clothing, food, or water.
#5 Guided Discussion
- Have participants divide into 2 groups; some acting as parents and some as caregivers/teachers.
- Have them share their thoughts and think about the impact on each group. Then provide participants with the view of the health care professional.
- Examples:
  - Parents: Missing work, possible missed revenue, who will care for the sick child, fear of exposing family/friends, guilt.
  - Caregivers: Concern about other children being exposed, concern about themselves being exposed, extra work to care for a sick child, frustration from other parents about their child being exposed to illness, does this child need to be seen by a health care professional?
  - Health care professionals: Does this child need to be seen, or should the child be observed at home with symptomatic care? Are there any reasons to exclude this child from care or to report this illness to the health department?

Resource
1. “Fact Sheet: Paid Sick Days Are Good for Children's Health,”
   www.nationalpartnership.org/site/DocServer/Fact_Sheet__Paid_sick_days_are_good_for_childrens_health.pdf?docID=4182

#6 Lecture
- **Economic:** A Canadian study in 1999 found the costs related to 1 child were $260.70 (Canadian) per illness. Canada has socialized medicine, so the costs in the United States 1 decade later are likely greater.1
- **Contagion/Disruption:** Another study showed that greater than one-third of families face over 2 weeks of sick time per year.2
- **Health care:** In one study of 34 child care centers, antibiotics were thought useful for nonspecific upper respiratory tract infections to prevent the spread of infection in 9 centers (26%), to speed up recovery in 7 centers (21%), and to prevent bacterial infection in 13 centers (38%).3 All of these are incorrect assumptions.

References

(3 minutes)
Impact of Infectious Diseases

- All members of society are affected

**Lecture**

- Tympanostomy tubes are small tubes that are surgically inserted into the ear drum to drain fluid to the outside.

**References**


### Bad News: Illness Frequency

- Children in early education and child care
  - Sick more often
  - Illnesses last longer
  - More ear infections and are more likely to have tympanostomy tubes placed
  - More antibiotic-resistant bacterial infections

**Lecture**

- As children age, the incidence of illness decreases from 12 per year to 4 per year by the time the child is 5 years old.

**Reference**


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### Good News: Annual Illness Incidence by Age

- Germs in early education programs are the same as those in community outbreaks
- 90% of infections are mild, self-limited, and require no treatment

**Lecture**

- ...
#11 Lecture

- Illness incidence decreases after the first full year of attendance.  
- Kindergartners with prior early education program attendance have fewer infections.
- Many factors contribute to causing asthma and this needs further study, but the association of attending early education and decrease in asthma is present.

References


#12 Reasons why children are more vulnerable to infectious diseases include:

- Frequent hand-to-mouth behaviors
- Still learning appropriate hygiene skills (keeping fingers out of nose, covering coughs, proper hand washing, etc)
- Some children may not be fully immunized, such as young infants
- Children have close physical contact/do not practice much social distancing

#13 Lecture

- **Young infants** are more susceptible because their immune systems are immature and don’t have a lot of defenses (antibodies) built up yet. Some immunity is received from the mother through the placenta and some can be passed through breast milk, but it is still less than adults have.
- Children with **special health care needs**, including equipment in bodies: foreign bodies like metal devices can carry or capture bacteria, even if they were sterile when the device was placed. Devices like catheters can also carry bacteria even if the catheter is sterile and good cleaning procedures are followed.
- Children with **impaired immune systems**, including HIV/AIDS, chemotherapy, genetic conditions, transplants, or high-dose steroid therapy for longer periods.
- **Pregnant women** are not necessarily more susceptible themselves, but they can pass on certain infections to the fetus if the mother is not immune to the disease.
#14 **Guided Discussion**
**Remind** participants of the earlier scenario for this child: A 20-month-old child wakes up from a nap and is flushed. She does not want to play with other children and is irritable. Her temperature was taken and is 101°F.
- Elicit audience response about what symptoms the child might develop.
- Do not linger over these points. Keep the discussion moving.
- If audience is not responding, suggest an answer, such as a runny nose.

(2 minutes)

#15 • Refer to Enrollment/Attendance/Symptom Record in Module 1 of the Participant’s Manual. This record can help teacher/caregivers note symptoms over time for individual children and for the group to spot trends and outbreaks as early as possible.

**Manual Material**
- Enrollment/Attendance/Symptom Record

(>1 minute)

#16 **Lecture**
- Respiratory symptoms (cough, congestion, runny nose) are the most common symptoms seen in early education settings. They comprise 66% of the total.
- The second most common is fever (14%).
- The third most common is gastrointestinal (vomiting and diarrhea) (9%).

Ask the audience if this matches with their experience.

**Reference**

(1 minute)

#17 **Lecture**
- Although respiratory symptoms are the most common (65%), they only cause 11% of the absences.
- Symptoms that are more likely to cause absence are rash, gastrointestinal (vomiting and diarrhea), and pinkeye.
- The difference between which symptoms are common and which ones cause absence probably has to do with exclusion policies.
- New vaccines like rotovirus and pneumococcal may change these statistics.

**Reference**

(1 minute)
#18 Lecture

- **Respiratory droplets**
  - Some germs from the respiratory tract can spread by breathing the air close to someone who has coughed or sneezed.
  - Most germs from the respiratory tract, however, are spread when a person’s hands are contaminated by touching moist secretions from an infected person’s nose, eye, or mouth, and then touching his or her own eyes, nose, or mouth.

- **Fecal-Oral**
  - Germs spread from the feces to the mouth, usually via the hands.
  - With typical diaper changing and mouthing behaviors, hands, floors, toilet and faucet handles, diaper changing areas, toys, and countertops frequently are contaminated with fecal matter.

- **Direct contact**
  - Touching the person or the object that has live germs on it.
  - Examples are: hands mix germs into modeling compound, and mucus is mouthed onto toys.
  - This can be easily confused with the other methods since there is always some direct contact with the germs.

- **Body fluids**
  - Blood, urine, and saliva have germs that touch someone and enter the body through open skin, the mouth, nose, or other mucous membranes.
  - In most cases, intimate contact is required for transmission and does not usually occur in child care settings.

- **Insects**
  - Can harbor germs that can be passed, especially if the insects pierce the skin.

(3 minutes)

#19 Participant Exercise

- Blank bingo cards are in Module 1 of the Participant’s Manual.
- Instruct participants to fill in their cards.

Manual Materials
- Bingo

(11 minutes for bingo exercise)

#20 Participant Exercise

- Show the slides depicting how infectious diseases are spread.
- The participants will mark the right response on their cards.
- The first participant to have “BINGO” should read out the 3 items that made the bingo and connect those with the pictures.
- There might be some controversy over whether something is “direct contact” or “body fluid” or “respiratory.”

#21 Answer

- Sneezing spray: Respiratory
#22 Answer
- Changing diaper: Fecal-Oral

#23 Answer
- Potty: Fecal-Oral

#24 Answer
- First aid to a cut: Body Fluids

#25 Answer
- Child mouthing a toy: Body Fluid/Direct Contact

#26 Answer
- Child with a weeping sore: Body Fluid/Direct Contact
Module 1: Instructor’s Manual

#27 Answer
- Mosquito: Insect

#28 Answer
- Sharing food: Body Fluid

#29 Answer
- Spoiling food: Direct Contact

#30 Answer
- Runny nose: Direct Contact

#31

(1 minute)
Module 1: Understanding Infectious Diseases

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2. Correctly identify methods by which infectious diseases spread through the bingo matching exercise.
Module 1: Understanding Infectious Diseases

References

- Ball TM, Holberg CJ, Aldous MB, Martinez FD, Wright AL. Influence of attendance at day care on the common cold from birth through 13 years of age. *Arch Pediatric Adolescent Medicine.* 2002; 156:121–126 (Slide 11)
Module 1: Understanding Infectious Diseases

Resources

1. “Fact Sheet: Paid Sick Days Are Good for Children’s Health,”

   www.nationalpartnership.org/site/DocServer/Fact_Sheet__Paid_sick_days_are_good_for_childrens_health.pdf?docID=4182
### Enrollment/Attendance/Symptom Record

For each child, each day: code top box “+” = present, or “O” = absent, or N = not scheduled

code bottom box “O” = well, or with the numbers from bottom of the page

<table>
<thead>
<tr>
<th>Name</th>
</tr>
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| Age in Months | Daily Hours in Care | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|---------------|---------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

Symptom Codes:
1 = Asthma, wheezing
2 = Behavior change with no other symptom
7 = Respiratory (cold, cough, runny nose, earache, sore throat, pink eye)
3 = Diarrhea
8 = Stomachache
4 = Fever
9 = Urine problem
5 = Headache
10 = Vomiting
6 = Rash
11 = Other

(specify on back)
B I N G O!

In a random order, fill in the squares below with these methods of how infectious diseases are spread:

Direct Contact 1  Direct Contact 2
Fecal-Oral 1       Fecal-Oral 2
Body Fluids 1      Body Fluids 2
Insects            Free Space
Respiratory

View slides depicting how infectious diseases are spread.
Mark the right response on your card.
Get 3 in a row and be the first 1 to have BINGO!