Super Protection from Superbugs: the Fight Against Antibiotic Resistance

An Introduction To The Teachers’ Lesson Plan

MARR
Michigan Antibiotic Resistance Reduction Coalition
Preventing the Spread of Infection

- Avoid close contact
- Stay at home when you are sick
- Minimize touching your eyes, nose or mouth
- Wash hands frequently

- Cover your mouth when you sneeze
  - Best to cover with tissue
- Clean and disinfect surfaces or objects
  - Cell phones have more germs than toilets!

Image from: goodfreephotos.com
Which one is preferred/more effective?

VS
Handwashing Prevents the Spread of Infection

• Wash your hands with clean, running water and soap to REMOVE germs from your hands
• When soap and water are not available, use alcohol-based hand sanitizer to KILL most germs (Does not kill them all!!)

Graphic used with permission from APIC
Handwashing image used with permission from Google image
What Can You Do?

How long should you wash your hands for?

A. 5 seconds  
B. 10 seconds  
C. 15 seconds  
D. 20 seconds
Glo Germ Activity
# Bacteria vs. Virus? What’s the difference?

<table>
<thead>
<tr>
<th>Bacteria</th>
<th>Virus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Able to live in many different types of environments</td>
<td>Requires a living host to multiply</td>
</tr>
<tr>
<td>Complex, single-celled creatures</td>
<td>Tiny without a cell structure</td>
</tr>
<tr>
<td>Many are harmless and some help with many functions of the body</td>
<td>Some viruses cause disease, and they’re very specific in the cells they attack</td>
</tr>
<tr>
<td><strong>Cause</strong> bacterial infections</td>
<td><strong>Cause</strong> viral infections</td>
</tr>
<tr>
<td>Antibiotics can be used to treat these bacterial infections</td>
<td>Antibiotics are <strong>NOT</strong> effective against viruses; anti-viral medications can be used for <strong>SOME</strong> viral infections</td>
</tr>
</tbody>
</table>
Do Probiotics Help Antibiotics Work Better?

<table>
<thead>
<tr>
<th>Probiotics</th>
<th>Antibiotics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live microorganisms, found in some yogurts and foods, that are intended to have health benefits.</td>
<td>Kill or inhibit bacteria that cause infection</td>
</tr>
<tr>
<td>Help digest food, destroy bacteria that cause disease, and produce vitamins</td>
<td>Also interact with other bacteria in and on your body, which may result in side effects or antibiotic resistance</td>
</tr>
</tbody>
</table>

**NO!**

Information from: [https://nccih.nih.gov/health/probiotics/introduction.htm#hed2](https://nccih.nih.gov/health/probiotics/introduction.htm#hed2)

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How Does Resistance Occur?

1. Lots of germs. A few are drug resistant.
2. Antibiotics kill bacteria causing the illness, as well as good bacteria protecting the body from infection.
3. The drug-resistant bacteria are now allowed to grow and take over.
4. Some bacteria give their drug-resistance to other bacteria, causing more problems.

Click here for 30 second YouTube Video

Image from: www.cdc.gov/antibiotic-use/community/about/antibiotic-resistance-faqs.html
Antibiotic resistance adds $20\text{ billion}$ in extra health care costs PLUS the cost to society in lost productivity of $35\text{ billion}$ per year.
Antibiotics are life-saving drugs, but...

Common Side effects

• Nausea, vomiting, diarrhea
• Allergic reactions
  • Full body rash, difficulty breathing, swelling of mouth, lips, and/or tongue

Serious/life threatening side effect: C. diff
If you are prescribed an antibiotic, make sure you take it correctly!

- Patients should make sure they understand the directions
  - Take all with a full glass of water
  - Some should be taken with food, some on an empty stomach and for others it doesn’t matter
- Take at the same time(s) each day
- Do not skip doses
  - If you miss a dose, take it as soon as you remember
- Never share antibiotics and do not save them for the next time you are ill
  - Infections can be caused by many different bacteria and viruses
<table>
<thead>
<tr>
<th>Illness</th>
<th>Usual Cause</th>
<th>Antibiotic Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Viruses</td>
<td>Bacteria</td>
</tr>
<tr>
<td>Cold/Runny Nose</td>
<td>![✓]</td>
<td></td>
</tr>
<tr>
<td>Bronchitis/Chest Cold</td>
<td>![✓]</td>
<td>![✓]</td>
</tr>
<tr>
<td>Whooping Cough (pertussis)</td>
<td>![✓]</td>
<td>![✓]</td>
</tr>
<tr>
<td>Flu (influenza)</td>
<td>![✓]</td>
<td></td>
</tr>
<tr>
<td>Strep Throat</td>
<td>![✓]</td>
<td>![✓]</td>
</tr>
<tr>
<td>Sore Throat (except strep)</td>
<td>![✓]</td>
<td></td>
</tr>
<tr>
<td>Middle Ear Infection</td>
<td>![✓]</td>
<td>![✓]</td>
</tr>
<tr>
<td>Urinary Tract Infection</td>
<td>![✓]</td>
<td>![✓]</td>
</tr>
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</table>
Spread the word...not the germs

• Covering your cough and washing your hands can prevent the spread of disease

• Antibiotics should only be used to treat infections caused by bacteria, NOT viruses

• Not using antibiotics the right way can lead to antibiotic resistance

• You can help by telling your family members what you learned during this presentation