About this presentation:

*Handwashing in Schools* was prepared by the Do Bugs Need Drugs? program in collaboration with Alberta Health and Alberta Education. The content has been reviewed by Alberta Education, Alberta Health, Alberta Health Services, Alberta School Boards Association, College of Alberta School Superintendents and Indian and Northern Affairs Canada.

Using this presentation:

If you use this presentation, do not alter the slides or notes to the slides. Please include the following acknowledgement: “This presentation was developed by Do Bugs Need Drugs? A Community Program for Wise Use of Antibiotics, with funding from Alberta Health through a grant to Alberta Health Services.”

This presentation includes information about:

- The importance of handwashing in schools
- How to wash your hands
- When to wash your hands
- Selecting handwashing and hand sanitizer products
- Evaluating handwashing in your school
- Practical solutions to handwashing problems
Handwashing is the best way to stop the spread of infections.

Handwashing is particularly important in communal settings, such as schools, where infections can spread rapidly from one person to another.
Many studies have shown that surfaces in schools and other public places are contaminated with disease causing germs. This study by researchers at the University of Arizona showed that 44% of surfaces in playgrounds and 35% of bus rails were contaminated with bacteria found in fecal matter.
In another study from the University of Arizona, the desks of business professionals were tested to see which ones had the most bacterial contamination. The number of bacteria per square inch of desk surfaces ranged from 900 to 17,800. Out of this list, which do you think was the most contaminated?

- Accountant
- Banker
- Doctor
- Lawyer
- Teacher
Teacher’s desks were the most contaminated with over 17,000 bacteria per square inch. In order from most to least contaminated:

1. Teacher  
2. Accountant  
3. Banker  
4. Doctor  
5. Lawyer
80% of common infections can be spread by the hands. That is why it is important to keep the hands clean.
Germs Are Everywhere
The hands pick up germs from the environment and transfer them into the body.
You actually don’t get sick just by having germs on your hands (unless you have a cut or scrape).
Germs get into the body through your mucous membranes, the pink moist areas around your eyes, nose and mouth.
Handwashing is important because it stops the transfer of germs from the environment to the mucous membranes.
Does handwashing work?

Dr. Margaret Ryan is a physician in the United States Navy. Dr. Ryan conducted a handwashing study among naval recruits at the US Naval Base in San Diego, California.

The number of respiratory illnesses among the recruits was measured before and after a mandatory handwashing policy was put into effect. Recruits were ordered to wash their hands at five specific times during the day.

What was the result? Respiratory illnesses were reduced by 45%.
In another, large scale study, squatter settlements in Karachi, Pakistan were divided into three groups.

One group received regular soap, the second group received antibacterial soap and the third group did not receive anything.
Not surprisingly, the households receiving soap had significantly fewer infections: 50% fewer cases of pneumonia, 53% fewer cases of diarrhea and 34% fewer cases of impetigo, a skin infection.

Importantly, antibacterial soap was no better than plain soap in reducing illness.
There are six steps to good handwashing.

1. Wet your hands
2. Apply soap
3. Rub your hands together for 20 seconds (sing *twinkle twinkle*)
4. Rinse your hands for 10 seconds
5. Dry your hands with a clean towel
6. Use the towel to turn off the taps and open the washroom door

Leave the washroom neat and tidy

Don't forget to leave the washroom neat and tidy.
When rubbing hands together with soap, wash all of the surfaces of the hands including the:

1. Palms
2. Between fingers
3. Backs of your hands
4. Wrists
5. Thumbs
6. Fingertips
7. Nails

This process should take about 20 seconds.

Remember to wash both hands equally.

To wash the fingertips, cup the fingertips of one hand in the other (step 6). Rub back and forth.

If nails are not too long, they can be washed by gathering all of the fingers together and rubbing them against the opposite palm (step 7). Repeat with the other hand. There is no need to individually clean each nail as long as the nails are short.
The friction of drying your hands with a towel removes 42% more germs than washing alone.

That is one reason why it is better to have paper towels in school washrooms than hot air dryers.

Also, hot air dryers often leave the hands warm and not completely dry, ideal conditions for growth of microorganisms on the skin.

If germs come off the hands when you dry your hands with a towel, think about what is left on the towel. Don’t share towels because it is one way to spread germs from one person to another.
The hands should be washed anytime they might be contaminated with germs. The hands should also be washed whenever they might transfer germs to the mucous membranes, either by direct or indirect contact.
Before eating or preparing food. Much of what we eat is finger food.
Germs can be transferred to the hands by handling objects that are touched by many people. Examples of shared objects include:

- Computer keyboards
- Pens, pencils and other craft and art supplies
- Library and text books
- Cell phones.
Other examples of shared objects are:

- Gym equipment
- Laboratory equipment
- Musical instruments

Recorders and mouthpieces should not be shared as this is another way that germs can be directly transferred from one person to another.
Hands should be washed after coming in from the outdoors and after recess to get rid of germs and the dirt and grime that attract germs.
Hands should be washed after using the washroom. Not only are there many disease causing germs in body wastes, the surfaces in washrooms are often contaminated.
Last, hands should be washed after blowing your nose, picking your nose or coughing or sneezing into your hand.
To avoid getting cold or influenza germs on your hands, remember to cough or sneeze into a tissue or into your sleeve. This is sometimes called good "respiratory etiquette".
What are some of the barriers that prevent proper handwashing in schools?
Some school washrooms and classroom sinks do not have any soap. Some do not have paper towels.
In some cases water is not available.
Sinks, taps, soap and paper towels may be too high for young children to reach.
Push type faucets do not stay on long enough to wash or rinse properly. Repeated pushing recontaminates the hands.
Drying with a towel is preferable to a hot air dryer because the friction of rubbing the hands with the towel removes a significant amount of germs.

Towels may be needed to turn off the tap and open the washroom door to prevent recontamination of the hands.

Last, hot air dryers often leave the hands warm and moist, ideal conditions for the regrowth of organisms on the skin.
Antibacterial soap has the negative medical consequence of promoting resistance to antibiotics. Resistance prevents antibiotics from working when they are really needed to cure infections.

Plain soap works just as well as antibacterial soap in preventing disease. There is no need to use antibacterial soap in schools, at home or in the community.
Soaps and Hand Sanitizers
Despite advertising on television and in magazines, not all bacteria cause disease. Most bacteria are harmless and many are beneficial.

If all of the living matter on the face of the earth was gathered together, 60% would be bacteria.

Bacteria have existed for over 3 billion years, long before plant and animals populated the earth.

Bacteria live in the soil, lakes, streams and oceans, are vital to plant and animal life and contribute to balanced ecologies.

Bacteria are essential to human health, for example by helping with digestion or protecting the skin from disease causing organisms.
Good bacteria are on all skin surfaces and in the digestive tract. They don’t make you sick. Good bacteria protect against disease by helping with digestion and strengthening the immune system.

In fact there are more bacterial cells in the human body than human cells. Good bacteria stay with you all of your life; the same species can be found in the same location on the body throughout a person’s lifetime.

<table>
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<th>Good Bacteria</th>
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<td>- On your skin and in your body</td>
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<tr>
<td>- Don’t make you sick</td>
</tr>
<tr>
<td>- Protect against disease</td>
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<tr>
<td>- More bacteria cells than human cells in your body</td>
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<tr>
<td>- Stay with you all of your life</td>
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Bad bacteria, on the other hand, don’t stick around. They survive on the skin for less than 24 hours and do not multiply on the skin. These germs make you sick.

But they can be easily removed by handwashing.
The objective of handwashing is to remove the bad bacteria on the hands and leave the good bacteria alone.

There is no need to kill or attack germs on the hands with antibacterial soap. Plain soap and water remove germs quite effectively. Plain soap works just as well as antibacterial soap in preventing infections.

Attacking the bacteria on the hands with antibacterial products has the negative medical side effect of promoting antibiotic resistance.

Antibacterial products are not recommended.
Ingredients to avoid
Triclosan is the most common antibacterial additive in soap. Triclosan, like antibiotics used in medicine, is a chemical that interferes with the biological processes inside the bacterial cell. With repeated use, bacteria find ways to avoid being killed by triclosan. These bacteria are said to have “antibiotic resistance”.

Importantly, bacteria that are resistant to triclosan also are resistant to antibiotics that are used in medicine. This means that antibiotics that are used to cure infections no longer work. These infections are difficult to treat and can be fatal.

Triclosan promotes co-resistance to medically useful antibiotics. This is a serious negative consequence of using triclosan and is the primary reason why products containing triclosan should be avoided.
A second ingredient to avoid are the chemicals known as quaternary ammonium compounds or "quats". All of these ingredients have long names, but they can be identified because they end in "-nium".

Note that ammonia and quaternary ammonium compounds are not the same. The ammonium compounds are complex molecules that don't work the same way as ammonia.

Advertising can be quite misleading and may suggest that quats will kill germs on the skin. This however is not the case, as laboratory studies have shown.

Note: Quats, like triclosan, can cause co-resistance to medically useful antibiotics.
Hand sanitizers
Alcohol based hand sanitizers are effective in killing germs without causing antibiotic resistance. Alcohol based hand sanitizers need to contain at least 60% alcohol in order to be effective.

Some alcohol based hand sanitizers contain triclosan or quats. These products should be avoided. The only active ingredient that is recommended for hand sanitizers is alcohol (ethanol, isopropanol or n-propanol).
However, alcohol based hand sanitizers do not work if the hands are greasy or dirty, nor will they kill some of the germs that cause diarrhea.

In schools these products need to be used with care because they are flammable and are poisonous if consumed. Dispensers should not be located near a source of heat or above an electrical outlet. Dispensers should be located only in supervised areas and need to be out of reach of younger children.
The preferred method of preventing the spread of infections is handwashing. Alcohol based hand sanitizers are acceptable when soap and water are not available, but these products are not a substitute for handwashing.
The active ingredient in non-alcohol based hand sanitizers is benzalkonium chloride, a quat. Quats have not been shown to be effective in killing germs on the skin so hand sanitizers containing benzalkonium chloride are not recommended for use in schools, office buildings, homes or elsewhere.

Alcohol free hand sanitizers are not recommended by Alberta Health Services or the Public Health Agency of Canada.
In summary, handwashing is the best way to remove germs from the hands. If soap and water are not available, an alcohol based hand sanitizer is acceptable. Soaps and hand sanitizers that contain triclosan and/or quats are not recommended.
How to spread the word, not the germs
A teaching resource for Kindergarten - Grade Three students was developed in 2009 that focuses on handwashing and how to stop the spread of infections. This program fits with the Health and Life Skills curriculum and is available on-line on the Do Bugs Need Drugs? website and through Alberta Learning. The resource includes lesson plans, activities, a handwashing video and a handwashing sign.

The resource is available in English and French and is called "Wash Your Hands" and "Lave-toi les mains".

These student support resources were authorized by Alberta Education for use in Alberta schools in November 2009 and February 2010 respectively.

The materials can be downloaded or viewed on a computer or SMART board. There is no charge for these materials.
Handwashing video for elementary grades

Video is part of the authorized resources and can be viewed or downloaded from: http://www.dobugsneeddrugs.org/schools/video.html
Video can be viewed or downloaded from:
http://www.dobugsneeddrugs.org/schools/videob.html
This slide set is part of a larger resource for school superintendents, principals, administrative and support staff, teachers and parents titled Wash Your Hands! Resources for Schools.

The manual includes:

- Information about handwashing, respiratory infections and hand hygiene products
- Information sheets for school personnel including principals; office staff; lunch room aides; teachers who work with objects used by many students such as music teachers, librarians, computer room teachers, gym teachers; bus drivers; school councils and parents.
- Articles for school newsletters
- How to wash sign and an illustration showing how to wash all parts of the hands
- Checklist for assessing handwashing in school washrooms
- Table of practical solutions to handwashing problems
- Handwashing video for younger students
- Handwashing video for older students and adults
What can you do?

- **Soap.** Ensure plain soap is provided in all washrooms.

- **Paper towels.** Make sure paper towels are available in all washrooms.

- **Hand sanitizers.** Use products whose only active ingredient is alcohol. Make sure dispensers and bottles are properly located.

*Note for the presenter:* The Checklist for evaluating handwashing resources in your school and the table of Practical Solutions to Handwashing Problems might be useful references for this part of the presentation.
What can you do?

To avoid recontaminating hands

- Move trash can outside the washroom door to encourage opening the door with the towel
- Prop open the washroom door, if possible
- If school is renovating, consider motion-sensitive taps, hospital taps that can be pushed with the wrist, doorless washrooms
What can you do?

Make handwashing a priority in your school

- Inform K-Gr 3 teachers of the authorized resources for handwashing
- Help lunch room aides to make handwashing a routine practice before eating
- Work with computer room teachers, librarians, etc. to promote handwashing to reduce the spread of germs through contact with shared objects
What can you do?

Washroom courtesy

- Speak with custodians and help them to understand that soap and towels need to be available all the time
- Encourage students to be neat and tidy in the washroom
What can you do?

Work with parents

- Include articles about handwashing in your school newsletter
- Ask School Councils to assist with promoting handwashing in your schools
- Be a positive role model for staff, students and families
Apply rules at home
Be role models in the community
Websites with more information about infectious diseases, handwashing and selection of soap and cleaning products.
Contact Us

info@dobugsneeddrugs.org

1-800-931-9111