

THE INSIDE STORY[®]

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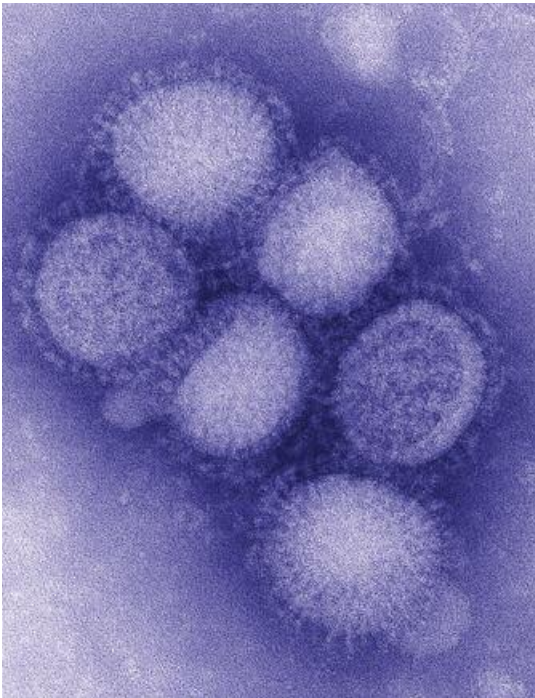
*It all comes down to the bug factor:
is it bacteria or a virus?*

We've all been there... *the runny nose... the runny eyes... the colleagues running away when you sneeze*—you've caught something. But just what have you caught? This is where the mind games begin—after days of sneezing and not sleeping—you start agonizing about how to get better and whether you should go to the doctor or not.

To help you make this decision, you must get up close and personal with... "bugs" (the microorganism type that is—not the six-legged type crawling across your basement floor).

Should I stay or should I go?

The answer lies in your grade 9 Biology textbook...



The H1N1 Virus, up close.

When you are sick and have “caught a bug”, what type of microorganism it makes all the difference in terms of treatment—and for the future, in terms of prevention. Remember grade 9 science class? The microscope, the amoeba, the nucleus—just in case it’s not all coming back to you—here’s a refresher. Microorganisms are tiny entities that can only be accurately seen by using a microscope, and two common types are bacteria and viruses:

■ **Bacteria:** although they are incredibly tiny, they are true cells and living entities and they can reproduce on their own. After invading another organism (like humans) referred to as the “host”, they start multiplying and causing illness. Examples of bacterial infections include strep throat and bacterial pneumonia.

■ **Viruses:** are not considered true cells or living entities. They cannot reproduce on their own and to multiply, must invade the cells of another organism” and “hijack” some of the machinery in the host’s cells. Examples of viruses include the common cold, influenza, measles and HIV.

Knowledge is power. Understanding the difference between bacterial and viral infections can help guide our decision making regarding treatment—not to mention save time and money, both on an individual basis as well as for

society, in terms of when it is most appropriate to access public health-care services. To help you decide whether what you have caught is bacterial or viral and whether you should access the healthcare system, take a look at the Public Health Agency of Canada A to Z listing of infectious diseases for information like what the disease is, how it spreads, and typical symptoms: <http://www.phac-aspc.gc.ca/id-mi/index-eng.phpz>

Combating these invisible invaders... What’s the best way?

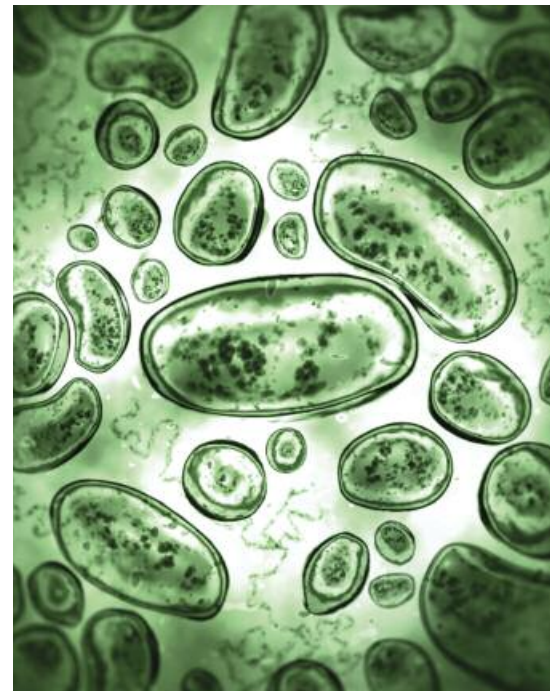
The human immune system is our natural disease-fighting machine. It recognizes invading bacteria and viruses and produces chemicals, called antibodies, to kill them. In the

medical world, this is called active immunity. You may also be able to help your immune system along:

■ **If your illness is bacterial:** bacterial infections can be treated with antibiotics, so a visit to the doctor may be useful to help your immune system and speed up recovery. If the doctor prescribes an antibiotic, it is important to *not* stop taking the medication part way through (unless you are having a serious adverse reaction) without first discussing it with your doctor. Even if you feel better, use the entire prescription—this makes sure that the infection is completely destroyed.

■ **If your illness is viral:** you just have to wait it out until your immune system kicks in and in essence, kicks out the virus by killing it.

An example of a common bacteria.



See more *Information on Sneezing on the next pages*

Modern medicine to the rescue

In addition to active immunity where our natural immune system tackles the infection on its own *after* we have caught a bug, we can also practice passive immunity as a preventive measure. Passive immunity means immunization—a preventive way to try to avoid having to battle the infection in the first place. The immunization process requires that we inject vaccines into our bodies to prepare our immune systems to effectively ward off diseases. Each vaccine is



developed by using a small portion of the dead bacteria or virus. When the vaccine is injected, there is just enough of the microorganism to stimulate our immune systems to produce antibodies to prevent the disease.

Health Canada recommends vaccines as a safe and effective way to prevent a number of potentially serious diseases. "Health Canada regulates vaccines through a rigorous licensing process that includes an extensive pre-market review of information about a

Vaccine Myth Busting: *Fact or Fiction?*

- *There are many serious side effects from vaccines.*
- *Vaccine-preventable diseases don't exist in Canada anymore, so there is no need for my child to be immunized.*
- *Many people who are immunized still get the disease, and this proves that vaccines don't work.*

Get the lowdown on these and a variety of other common vaccine myths by visiting the Public Health Agency of Canada website at <http://www.phac-aspc.gc.ca/im/iyc-vve/fiction-eng.php>

Health Canada also provides a fact sheet called *Misconceptions about Vaccine Safety* downloadable at <http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/med/misconception-eng.php#co>

product's safety and effectiveness, and post-market assessments, such as adverse reaction tracking. In addition, Health Canada monitors and analyzes the incidence of vaccine-preventable diseases, identifies risk factors, develops guidelines for the control of vaccine-preventable diseases, and works with the provinces and territories during emergency situations to help ensure that outbreaks of disease are



contained."¹ For a list of vaccine preventable diseases, visit the Public Health Agency of Canada website at <http://www.phac-aspc.gc.ca/im/iyc-vve/prevention-eng.php#diseases>.

¹Health Canada website: <http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/med/immuniz-eng.php>

But who pays for immunization?

Although vaccines play a fundamental role in the prevention of serious diseases, benefit plan coverage varies by employer. For instance, some plans cover all of the vaccines available on the market while others cover none. This is likely the case because the health authority in every province and territory provides a routine series of vaccinations to all citizens.

The provision of this basic public coverage may lead some plan sponsors to conclude that additional vaccine coverage is not necessary. However, due to ongoing research and development, the list of products on the market beyond the public health programs is constantly evolving. As a result, similar to other drug categories, it is important for plan sponsors to take a closer look at their vaccine coverage so that it is precisely defined, reflecting exactly the right type of coverage for their employee group. For an overview of vaccine coverage by province, visit <http://www.phac-aspc.gc.ca/im/ptimprog-progimpt/>.

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The Good, The Bad, The Ugly... and The Promising in the bug world

The Good: Prevention gets results

In the old days, diseases like measles and mumps were considered life threatening. Fast forward to today and although “killer diseases” of the past have not completely disappeared worldwide and can come back, for the most part, in Canada they are considered vaccine-preventable. The facts speak for themselves—vaccines have had a major impact on the number of children affected each year by serious diseases that in the past would likely have killed them. (See chart - right.)

Disease	Average # of cases before vaccines introduced (Characteristic 5-year period)	Average # of cases today (2000-2004)
Diphtheria	9,010	1
Pertussis (Whooping Cough)	19,878	4,751
Measles	61,370	199
Mumps	43,671	202
Rubella (German Measles)	37,917	29

(Source: Public Health Agency of Canada website: <http://www.phac-aspc.gc.ca/im/iyc-vve/prevention-eng.php#diseases>)



Recent pharmaceutical developments provide promise that the list of vaccine-preventable diseases will keep growing. For instance, Gardasil® is a cervical cancer vaccine that helps protect against 4 types of human papillomavirus (HPV) for girls and young women ages 9 to 26, and Zostavax® is a vaccine that can help prevent shingles in adults 60 years of age or older. There are certainly exciting times ahead: both good times and bad...

The Bad: Bugs are the ultimate masters of disguise

Although the discovery of new antibiotics and vaccines has dramatically improved disease prevention and treatment, some bacteria are becoming resistant to the antibiotics used to fight them, and some viruses continue to mutate rapidly making the total eradication of viruses a challenge.

For instance, antibiotic resistance occurs when an antibiotic is no longer effective and one of the major causes is our overuse and inappropriate use of antibiotics. This promotes antibiotic resistance because bacteria are chameleons—continually adapting to their environments and taking on the characteristics of other bacteria. As a result, when we use antibiotics inappropriately, we end up killing the weak bacteria, while the stronger, more resistant ones survive and

thrive. And it doesn't stop there—cross resistance occurs—this is when bacteria develop resistance to one antibiotic then also develop resistance to another antibiotic and so on. Similarly, when viruses mutate rapidly and uncontrollably, it is difficult to identify the new strain of virus and, in turn, difficult to develop new vaccines. Drug resistance and rapid mutation make us wonder, *can we keep up?*



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The Ugly: Say hello to the superbug

Superbugs are super drug resistant bacteria or super mutating viruses. The term superbug was traditionally used (and is still most commonly used) when referring to bacteria that have become resistant to antibiotics like the superbug MRSA (Methicillin-resistant Staphylococcus aureus). However, the term is now also often being used in the media in relation to mutated viruses that are difficult to control. Accordingly, we can consider a superbug as either bacteria that has developed a resistance to antibiotics, or viruses that continue to mutate uncontrollably not allowing us to develop appropriate vaccines. As the bacteria or viruses gain power, they have free reign to run their course, potentially spreading widely throughout the population.

The Promising: Taking the “super” out of superbugs

Superbugs may have super resistance or super mutation abilities on their side, but we have super minds. Continual research and development, combined with prevention, is

H1N1 influenza: no superbug here

As of September 2009, new research suggests that the H1N1 influenza is not likely to mix with the seasonal flu and mutate into a new and more dangerous virus. The fear was that the virus might exchange genes with seasonal strains and become more powerful. However, in a recent study, instead of H1N1 joining forces with seasonal flu to create a new superbug, the H1N1 pushed the other strains aside. This has led researchers to conclude that there is little reason to fear that H1N1 will morph into a superbug.

our best defense against superbugs. For instance, in terms of MRSA, a new experiment shows promising results—based on honey. The antibacterial properties found in honey have been well-documented, however, researchers have not been sure why—until now.

A dark, bitter type of honey called manuka honey has a crippling effect on MRSA. A recent experiment found that the MRSA bacteria treated with manuka honey more often lacked a particular protein necessary for synthesizing the fatty acids MRSA needs for building cell walls and internal structures. As a result, the MRSA bacteria treated with manuka did not have the proteins they needed to reproduce and they eventually died. Additional research using manuka honey could

eventually lead to new treatments for drug-resistant bacteria strains.

Whether a superbug or a more typical microorganism, disease prevention is an issue that affects us all. As a result, it is important that



we try to keep abreast of new research and development in battling diseases worldwide. We can each also do our part on the day-to-day battlefield by—you guessed it—effective hand washing. The importance of hand washing cannot be understated as one of the best ways to deter the spread of infection. The key is *effective* hand washing—so although we have heard it before, it cannot hurt to hear it again, and it may help a lot. Check your local public health authority or provincial health ministry for hand washing instructions, and consider posting a chart like this at your workplace:

<http://www.toronto.ca/health/cdc/resources/index.htm>

The M... R... S... what?

You may remember MRSA as the “hospital superbug”. It became known as the “hospital superbug” because so many patients acquired it in acute-care hospitals and nursing homes worldwide.

- *It is resistant to antibiotics penicillin and methicillin. It must be treated with vancomycin—however, this is only used as a last resort because it is extremely irritating to human tissue.*
- *It usually only causes mild infections, rarely affects healthy people, and is most often seen in hospitals and nursing homes.*
- *If it progresses, it can lead to damage such as blood poisoning, decayed lungs, pneumonia, and infected heart valves.*

WHAT'S NEW

Ongoing vaccine research and development...

GSC responds with enhanced vaccine coverage program

Remember when Gardasil® came on the scene and the immediate impact it had on private drug plans? Now more than ever it is important to keep up with the latest and greatest advancements in vaccine research and development because new vaccine products currently under development may soon be entering the Canadian market place.

Accordingly, we are delighted to tell you about our new vaccine coverage

program. This flexible program allows you to make practical decisions regarding your drug plan—you can choose from a series of vaccine categories to more precisely define exactly the types of vaccines you wish to cover.

Although we will continue to coordinate your vaccine coverage with publicly funded vaccine programs so you receive the best cost/benefit, you now have access to supplement the

publicly provided coverage with more targeted and comprehensive coverage in the areas of most concern. We have taken into consideration therapeutic, economic and public coverage factors, as well as organizational considerations like geography and type of business practice.

At renewal, your Green Shield Canada Account Executive will be in touch with you to provide complete program details.

Crisis... What Crisis? Benefits Forum in a city near you...

We will be hosting Benefits Forums in the following cities on the following dates:

- Toronto – Wed., Nov. 4th, from 4:00 – 8:00 pm
- London – Thurs., Nov. 26th, from 4:00 – 8:00 pm
- Vancouver – Thurs., Nov. 19th, from 3:30 – 7:30 pm
- Windsor – Wed., Dec. 9th, from 3:00 – 7:00 pm

Contact your Account Executive for more details.

Customer Service Centre expands hours of operation

We have expanded our Customer Service Centre hours of operation:
Monday to Friday, 8:30 am to 8:30 p.m. (Eastern Time)

Winner of the draw for an iPod shuffle



Congratulations to **Waylon Heavyrunner**, of Lethbridge, AB, the winner of Green Shield Canada's monthly draw for an iPod shuffle. Through this contest, one name will be drawn each month from plan members who have registered for Plan Member Online Services for that month. To learn more, visit greenshield.ca.

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