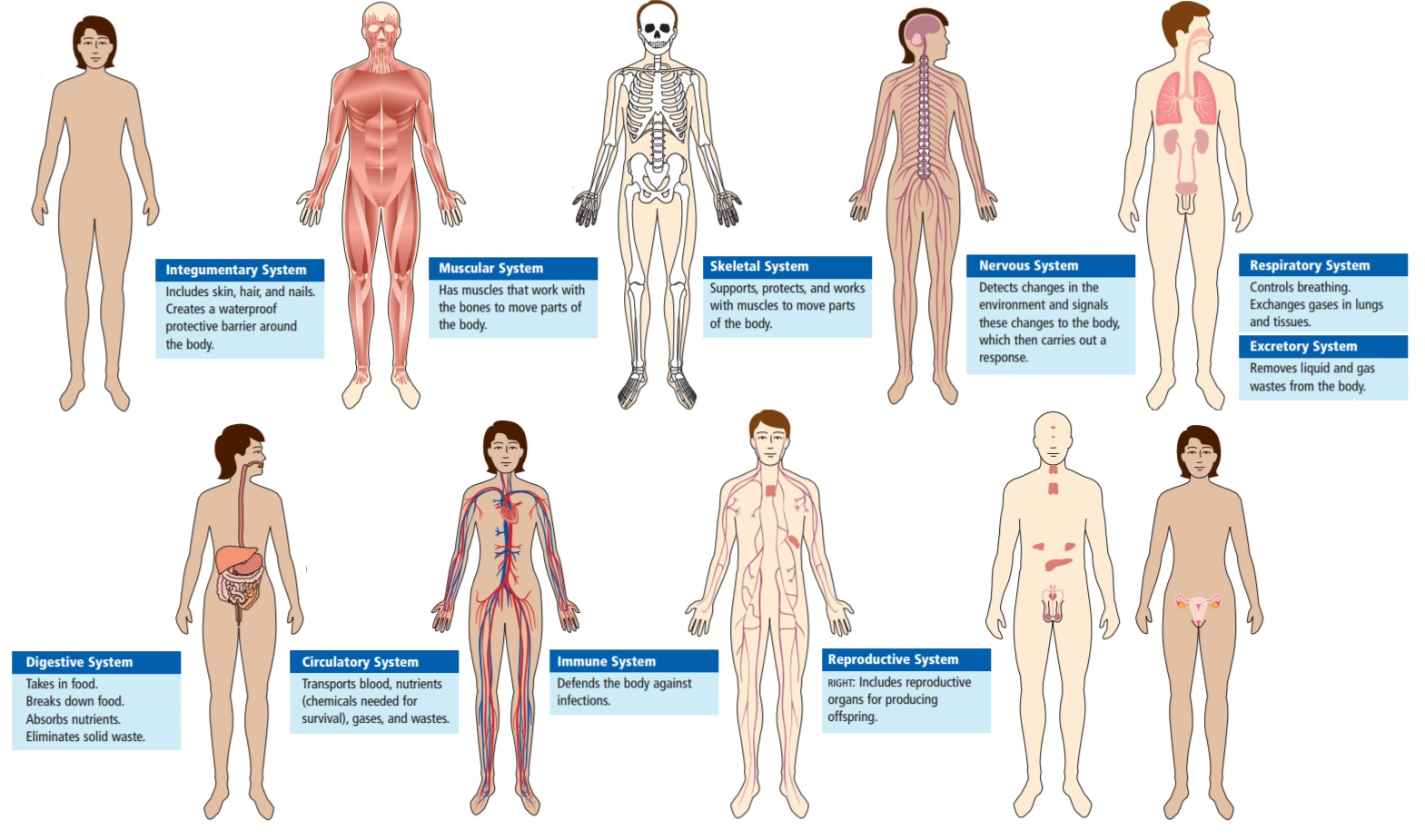
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| Chapter 1  1.5 | The Immune System  P. 54-63 & P. 100-119 BC Science 8, P. 48-63 BC Connections | | | |
| **Vocabulary & Concepts** | | | | |
| body system | | immune system | lines of defense | inflammation |
| antigen | | white blood cell | outbreak | epidemic |
| pandemic | |  |  |  |

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| The Body Systems |



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| The Immune System |

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|  | **Brainstorm:** What do you already know about the immune system? What organs or body parts are involved in the immune system? |

The immune system defends the body against infection and disease causing substances such as bacteria, viruses and cancer cells. It contains several lines of defense that help protect us against these \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

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| **The 1st line of defense** |
| Image result for door with keep out signImage result for skin anatomy no labels no watermarkImage result for stomach acidImage result for cilia in throathttp://2.bp.blogspot.com/-9dkHQY5qeBI/UhXMjLmV48I/AAAAAAAACZI/olqObimFNuc/s1600/mucus+and+cilia.png |

The **first line of defense** includes

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that kill pathogens on the skin’s surface
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the respiratory system to trap and sweep pathogens away
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to trap pathogens
* Strong \_\_\_\_\_\_\_\_\_\_\_\_\_\_ in your stomach to kill pathogens

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| **The 2nd line of defense** |
| http://3.bp.blogspot.com/-QGcdOpfuYeE/UKEg02MBFrI/AAAAAAAABzc/9C4mGXjBisU/s1600/inflammatory+response.jpghttp://www.rnceus.com/cbc/whitecells.jpg |

The **second line of defense** includes

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which engulf and kill pathogens, release chemicals that aid in this process
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the body’s response to injury or infection. The affected area receives \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to allow more white blood cells to arrive. \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for an antibiotic effect.

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| **The 3rd line of defense** | |
| The **third line of defense** includes   * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that remember what a pathogen looks like so that the immune system is ready for future attacks. | http://www.vce.bioninja.com.au/_Media/clonal_selection_med.jpeg |

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| Disease Outbreaks |

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| **Brainstorm:** What outbreaks can you think of that have happened in history? |

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| Outbreak | Epidemic | Pandemic |
| A sudden occurrence of a disease in a community where the number of affected individuals is greater than expected.  An example is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | A disease that spreads to many people rapidly in an area.  An example is  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | An epidemic that has spread over several countries or continents, or around the world. This is an outbreak on a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  An example is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **Brainstorm:** There is a sudden outbreak of CW virus in West Vancouver. The virus induces severe vomiting and dehydration and has infected 150 individuals over 8 days.  You work for the local health authorities. What steps would you take to insure that the virus doesn’t spread further?  Measures to hinder the spread of the CW virus has failed. You work for Health Canada. What steps would you take to insure that the virus doesn’t spread globally? |

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| Chapter 1  1.6 | Vaccines & Antibiotics  P. 64-79 BC Connections | | | |
| **Vocabulary & Concepts** | | | | |
| vaccine | | immune response | immunity | antibiotic |
| antibiotic resistance | | penicillin | superbug | eradicate |

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| Vaccines |

**Vaccine:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Analogy: We respond to a fake fire in a fire drill by evacuating the building. We are then prepared for a real fire because we have practiced the proper response.

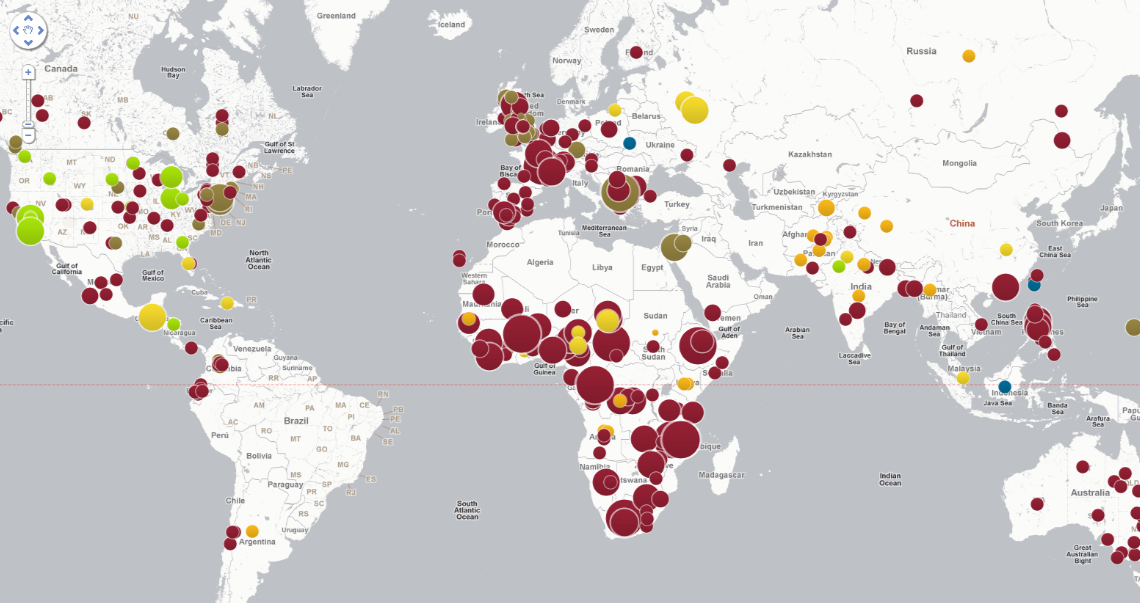


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| **Types of Vaccines** | | | |
| Vaccine Type | How it Works | | Examples |
| Live, attenuated vaccine | * you are injected with \_\_\_\_\_\_\_\_\_\_\_\_\_\_, but \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ microbes, that don’t cause disease * your immune system responds and remembers * receive lifelong immunity after 1-2 shots | | Measles  Mumps  Chickenpox  Yellow fever |
| Inactivated vaccines | * you are injected with \_\_\_\_\_\_\_\_\_\_\_\_ microbes * your immune system responds somewhat and remembers * receive immunity ONLY if booster shots are maintained | | Hepatitis A  Rabies  Whooping cough |
| Subunit vaccines | * you are injected with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of microbes * your immune system responds and remembers * receive immunity after several doses | | Hepatitis B  Flu |
| Toxoid vaccines | * you are injected with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ from microbes that don’t cause disease * your immune system responds and remembers * receive immunity ONLY if booster shots are maintained | | Diphtheria  Tetanus |
| **Benefits of Vaccines** | | | |
| Individual immunity | |  | |
| Population immunity | |  | |
| Disease eradication | |  | |
| Economic savings | |  | |

Sometimes people choose not to vaccinate because severe reactions are possible

* high fever
* severe allergic reactions
* brain infection (meningitis)

However, these reactions are very \_\_\_\_\_\_\_\_\_\_\_\_\_. It is important to remember that the possible side effects for each vaccine is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Over the last decade, it has been scientifically proven countless times that vaccines do NOT cause two side effects that have been popularized on social media: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



Previously eradicated diseases are now coming back because there has been a decrease in vaccination rates.

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| Antibiotics |

**Antibiotic:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **In your own words:** Watch *Antibiotic Apocalypse* and use the image below to describe what **antibiotic resistance** is. How does it occur? What is a **superbug**?  Image result for antibiotic resistance |