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| ***Year 12 Biology Unit 4***  ***Infectious Diseases: Student Checklist*** | |
| ***Infectious disease differs from other disease in that it is caused by invasion by a pathogen and can be transmitted from one host to another*** | |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Use given examples of infectious diseases to compare to non-infectious diseases |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Relate pathogen, infectious disease, vector |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | • Methods of transmission including   * direct through the air, maybe as droplets * direct or indirect contact with an infected organism * materials carrying pathogens e.g. soil * blood and body secretions – animals * fluids or products from plants – sap, fruit * through contaminated food and water |
| ***Zoonoses, such as influenza, can be transmitted between vertebrate species*** | |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Examples; swine flu, E. coli, HIV, Ebola, rabies, Hendra virus and how they are transmitted between species |
| the major groups of organisms that cause disease are   * bacteria, * fungi, * protists and   + viruses;   each group can be distinguished by its structural characteristics | |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Basic structure and life cycle of each pathogen group |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Living vs. non-living viruses, protists |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Eukaryotes vs prokaryotes |
| ***diseases caused by these major pathogen groups include***   1. ***tuberculosis, tetanus, crown gall of plants*** 2. ***chytridiomycosis (amphibian chytrid fungus disease)*** 3. ***malaria, Phytophthora dieback (jarrah dieback)\**** 4. ***influenza, Ross River virus, viral diseases of honeybees, Australian bat lyssavirus***   ***\*The Phylum Oomycota containing Phytophthora dieback has been removed from the Fungi Kingdom and placed in the Protista Kingdom*** | |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Identify the pathogen that causes each disease   * 1. bacteria   2. fungi   3. protists   4. viruses |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Symptoms of infection for each disease |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Importance of these diseases economic control within Australia and globally |
| the life cycle of a pathogen and its associated diseases, including   1. the method of invading the host, 2. the impact on the host, 3. the mode of transmission (direct or indirect),   determines its success for survival | |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Outline for each pathogen group how its   1. life cycle 2. method invasion 3. impact on host (cellular level) 4. How the mode of transmission has made it a successful pathogen and helps in its survival |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Dependence on climatic factors for vector (Malaria) |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Varroa mite disease of honeybees risks spreading into native bee population |
| the spread of a specific disease involves a range of interrelated factors,   1. growth of the pathogen population 2. density of the host population 3. mode of transmission | |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Show population curves in stable environment (S curve) and in case of unlimited resources (exponential growth) |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Limited by food, temperature, pH, poisonous wastes, oxygen |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Spread in cities and intensive agriculture vs low density small population |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Air, droplet, water-borne movements examples of contact transmission E Implications for rapidity of spread of infections |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Travel in infected areas related to soil movement – e.g. phytophthora |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Vaccinations and naturally acquired immunity results in protection of individuals |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Herd immunity is a strategy used to control the spread of some infectious diseases |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Antibiotics can be used to control bacterial diseases, but overuse has created antibiotic resistant strains. |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Antivirals can be used to reduce the effects of viruses. |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Implications from control strategies e.g. quarantine restrictions, forest area closures |
| ***Transmission and spread of disease is facilitated by regional and global movement of organisms*** | |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Increasing human movement, trade in live animals and plants |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Relate to Australian quarantine restrictions at international and state borders for the health of human and native flora and fauna ecosystems and populations |
| [Image](http://nexnet.files.wordpress.com/2013/02/kliponious-black-tick.png) | Movement restrictions within Australia for specific purposes E.g. transport of horses during a lyssavirus outbreak; movement of fruit, flowers and honey interstate |