What is antibiotic resistance?

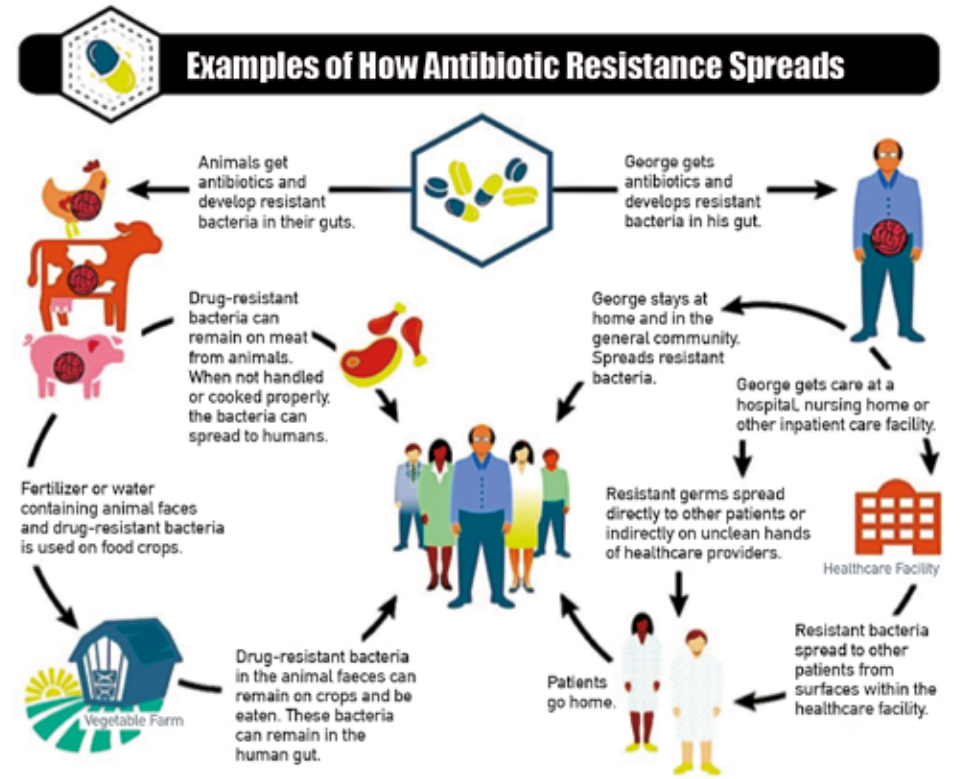
Antibiotic resistance is something that we hear now more often that previously. But what is it and why is it an issue now. Antibiotic resistance is derived from two words; antibiotic and resistance.

An antibiotic is a chemical commonly called a drug that is used to treat infections. Infections are diseases mainly caused by small organisms that so small that they cannot be seen by the eyes called bacteria. When these bacteria that cause such infections invade the body, they damage the tissues and cause it to change for example resulting in pus or a sore throat. These infections are different from other infections caused by other even smaller organisms called viruses which are not treatable by antibiotics.

Resistance therefore results when those antibiotics can no longer heal or stop those bacteria from causing infections. Because antibiotics have been used for long time, many bacteria are now resistant. This is why it has reached alarming levels and something needs to be done to reduce or contain this problem. Almost every type of bacteria has become less responsive to antibiotic treatment. These antibiotic-resistant bacteria can quickly spread to family members, schoolmates, and co-workers - threatening the community with a new strain that is resistant.

How does resistance develop?

Resistance happens because the organisms have become so much used to antibiotics that they can now co-exist without being killed by them. Scientists have found out how the organisms develop resistance. Some of examples of this, is when organisms expel or vomit the antibiotics whenever they get into them so that they do not accumulate enough dose to kill them. Another example is where the organisms develop a different part from that which is normally affected by the antibiotic. Overall the organisms develop ways to make sure they avoid being killed by the antibiotic depending on what methods the antibiotic normally uses to kill them.



When farmers mix antibiotics with feeds to increase livestock growth, some bacteria in these animals become resistant to the antibiotics. This resistance is passed on to people when they consume meat, eggs and milk from these animals or have direct contact with them. Environments polluted by antibiotics also contribute to the problem, in example fish farming, agriculture practices or waste from hospitals, pharmaceutical industries and human settlements.

What brings about resistance?

Resistance by organisms to antibiotics normally comes about by different ways. Many of them are related to how people use antibiotics. Examples include:

When people use less of the antibiotic that is required to kill off the bacteria, then the bacteria will survive, get used to the antibiotic and develop ways to avoid being killed even by full dose, just like a drunkard starts by being knocked off by one beer but as they get used, even 20 buys cannot make them drunk. It does not matter where the antibiotics are used whether in animals or in humans because the organisms that cause infections are related and share information to help their friends survive the antibiotics. For example drinking raw or not well prepared milk from a cow that has been treated with antibiotics, you are taking in antibiotics yourself but also could take in resistant organisms directly. The same applies to eating other foods such as vegetable that have been irrigated with water containing lots of antibiotics.

Resistant organisms share the attributes that make them survive within such harsh conditions with other that may not be resistant and in so doing create many different antibiotic survivors all over the place in a phenomenon of survival for the fittest.

Besides this, the discharge of antibiotic containing materials from hospitals or drug companies also makes the organisms in the environment get used and to develop resistant.

What are the Implications of Resistance?

So if one gets infected with such resistant organisms to a certain antibiotic, it means that that antibiotic will not cure the infection and therefore one will have to change to another antibiotic that can kill the bacteria and therefore cure the infection. If bacteria get used to more and more antibiotics that are commonly used and cheap, it means once one get infected with such bacteria that are resistant to many antibiotics, the options available will be very limited and sometimes not available and in most cases those antibiotics will often be very expensive and sometimes cause serious side effects

What can the community do to reduce development and spread of resistance?

The community can contribute to reducing development of resistance in the following ways:

- Making sure you take an antibiotic only when recommended by a qualified health worker who has determined that you need to take an antibiotic.
- Do not buy antibiotics by yourself from a drug store without advice from the health worker. Antibiotics do not cure certain infections such as flu or common cold because they are caused by other organisms (viruses) that are not killed by antibiotics.
- Always making sure you finish your antibiotic dose even when you feel better before the drugs are finished. This is because sometimes you feel better because the antibiotic has started killing the bacteria, thus making you fill better but the bacteria are not yet completely eliminated. So if you stop taking the antibiotic you encourage the surviving bacteria which are getting used to the antibiotic to continue to live and they will become resistant to that antibiotic
- Do not share your drugs with anybody because what the health worker has given you is specific to your kind of infection and is only enough for you.
- Always wash your hands whenever you have an infection to avoid spreading while greeting other people or touching places where other people will touch. This includes when you use the latrines or toilets, or from hospitals, or from visiting a sick person who may be sick with a resistant organisms. General good hygiene helps reduce the spread of such organisms.
- Finally spread the word around in your community about the gospel according to "resistant bacteria". When only you practice measures to reduce resistance, it is not enough because as long as other people do not practice the above, it means resistant organism will develop and spread and may be come to infect you through the many ways we have mentioned above.

EPN
Ecumenical Pharmaceutical Network
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ReAct
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This material is also available in French and Swahili.