



Let's reduce it!

# Antimicrobial Resistance

What we can do to prevent antimicrobial resistance (AMR)



Produced by:

Cabinet Agency for Infectious Disease Crisis Management, Cabinet Secretariat

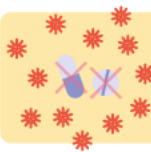
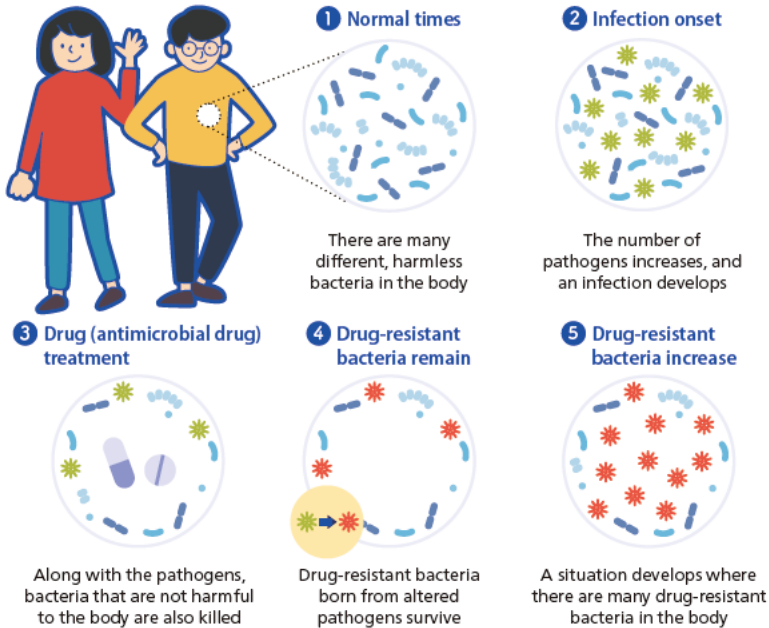
# Q.1

## What is antimicrobial resistance (AMR)?

**A.** This is when antimicrobial drugs (antibiotics) are no longer effective against pathogens that cause infections.

When bacteria (pathogens) enter the body and cause a disease, it is treated by taking prescribed antimicrobial drugs (antibiotics), but this also eliminates harmless bacteria in the body together with the pathogens. At this time, to escape the antimicrobial drugs (antibiotics), pathogens may transform into “drug-resistant bacteria” that have resistance. In addition, drug-resistant bacteria increase in an environment that is easier to live in because other bacteria are no longer around them. This makes it difficult for antimicrobial drugs (antibiotics) that originally should have been effective to work against the pathogens.

### Until antimicrobial resistance develops



When antimicrobial drugs (antibiotics) become ineffective, it becomes difficult to prevent and treat infections, and various medical treatments cannot be provided safely.



# Q.2

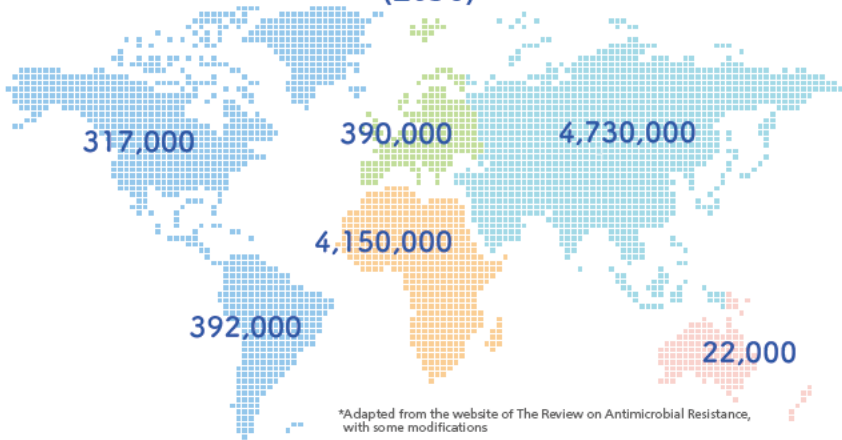
## What are the effects of antimicrobial resistance?

**A.** If no action is taken, antimicrobial resistance is expected to kill 10 million people in about 30 years, surpassing the number of deaths from cancer.

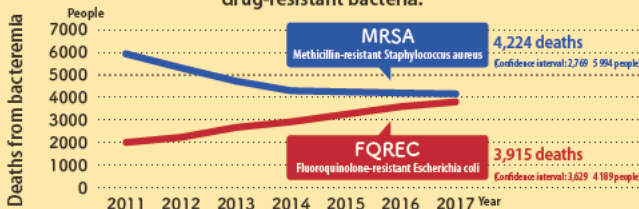
The number of deaths due to antimicrobial resistance worldwide is approximately 1.27 million people per year (as of 2019). Moreover, estimates in 2013 indicated that if no action is taken, it will kill approximately 10 million people worldwide by 2050.

The Global Action Plan on Antimicrobial Resistance was adopted by the World Health Organization (WHO) World Health Assembly in 2015, and in Japan, the Action Plan on Antimicrobial Resistance (AMR) was formulated in 2016 to address the issue of antimicrobial resistance. A new action plan is also being developed in 2023 to promote further antimicrobial resistance (AMR) measures.

### Expected number of deaths due to antimicrobial resistance (2050)



In Japan, 8,000 people a year die of bacteremia caused by two strains of drug-resistant bacteria.



Tsuzuki S et al. JIC. ther 26 (2020) 367e371368. <https://doi.org/10.1016/j.jiac.2019.10.017>



# Q.3

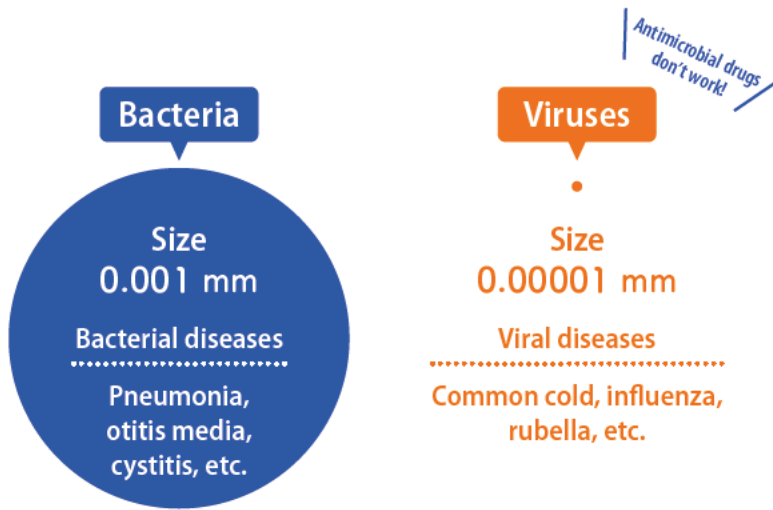
## Can antimicrobial drugs (antibiotics) cure the common cold?

**A.** Antimicrobial drugs (antibiotics) are not effective against colds, influenza, and other diseases caused by viruses.

Antimicrobial drugs (antibiotics) are effective against bacteria, and are not effective against viruses, which cause diseases like colds and influenza.

Incorrectly taking antimicrobial drugs (antibiotics) just because you have a cold is not only ineffective, but can also cause side effects such as diarrhea, vomiting, and rashes, and further increases the risk of developing drug-resistant bacteria.

### Differences between bacteria and viruses



Bacteria and viruses differ in their size, structure, and how they multiply.

Antimicrobial drugs (antibiotics) are medicines effective against bacteria.

Antimicrobial drugs (antibiotics) are not effective against viral diseases. If you feel better after taking antimicrobial drugs (antibiotics) when you have a cold, it may be because you beat the virus with your own immunity, not because of the effects of the antimicrobial drugs (antibiotics).



# Q.4

## How can we prevent drug-resistant bacteria from increasing?

**A.** It is important to avoid taking antimicrobial drugs (antibiotics) when it is not necessary, and to take antimicrobial drugs (antibiotics) as directed by your doctor when they are prescribed.

Antimicrobial drugs (antibiotics) are not general-purpose medicines for colds and other diseases. Do not take or ask to take antimicrobial drugs (antibiotics) that you do not need. Also, your doctor prescribes antimicrobial drugs (antibiotics) to match your body. It is important to take prescribed antimicrobial drugs (antibiotics) as directed by your doctor.

### Take antimicrobial drugs (antibiotics) correctly



Take antimicrobial drugs (antibiotics) as directed by your doctor



Don't keep leftover antimicrobial drugs (antibiotics)



Don't ask to receive antimicrobial drugs (antibiotics) yourself



Don't give away or receive antimicrobial drugs (antibiotics)

# Q.5

## Is there anything we can do right now?

**A.** Preventing infections also helps to prevent antimicrobial resistance.

What we can do right now to prevent infections, starting today!

### Hand washing



#### The first thing is hand washing!

Our hands carry a lot of bacteria, which we cannot see, and we take them in or they attach to us without us even noticing. Hand washing is very effective in blocking infection routes.



### Cough etiquette



Wear a mask if you have a cough or runny nose. Wear it so that it completely covers the chin with no gaps. In an emergency, cover your mouth and nose with a handkerchief or the like.

### Vaccinations



There are many infectious diseases that are preventable by vaccines. Vaccinations help people acquire immunity to pathogens, making a disease harder to catch and the symptoms less severe.



Avoiding the use of unnecessary antimicrobial drugs (antibiotics) prevents antimicrobial resistance. Keep hand washing in mind every day, be sure to get the necessary vaccines, and prevent infections.



# Q.6

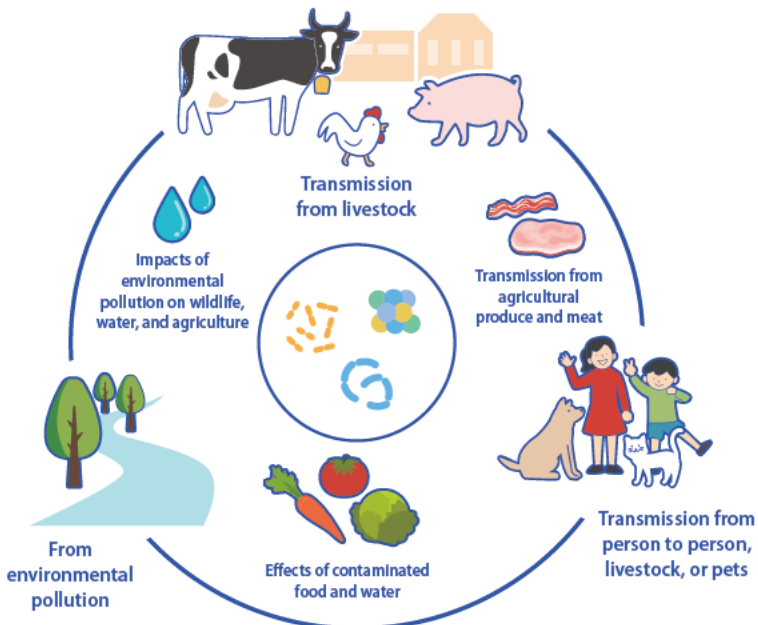
## Is antimicrobial resistance only a problem for people?

**A.** Antimicrobial drugs (antibiotics) are used everywhere, including livestock, fisheries, and agricultural products, so drug-resistant bacteria can be transmitted through foods and other products.

In addition to human and animal medical care, antimicrobial drugs (antibiotics) are used everywhere, including livestock, fisheries, and agricultural products. It is also said that genes for antimicrobial resistance can be transmitted through the environment and food to people and animals.

Antimicrobial resistance is not only a problem for people. The “One Health Approach” is a way of thinking that also cares about animal health and environmental preservation, and people in various related fields work together to solve problems.

### Transmitted drug-resistant bacteria



There are various issues all around us, such as ecosystems caused by development, destruction of the environment, the effects of climate change, and the economic and social background. We also need to work together based on the “One Health” philosophy.



# “Take medication according to the correct dosage and usage”

What we can do for a future where antimicrobial drugs (antibiotics) can be used



With everyone’s awareness, there is a future we can save.

If we fail to follow the dosage and usage of antimicrobial drugs (antibiotics), they may not be effective when we really need them.

From now on, let’s get into the habit of taking them properly.

Getting the right knowledge will help to keep you and your loved ones healthy.

## For those who want to know about “Antimicrobial Resistance (AMR) Countermeasures”



Cabinet Agency for Infectious Disease  
Crisis Management, Cabinet Secretariat

Website



Cabinet Agency for Infectious Disease  
Crisis Management, Cabinet Secretariat

Public awareness videos

Production cooperation:

AMR Clinical Reference Center

Center Hospital of the National Center for Global Health and Medicine