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WHO publishes a list of "priority pathogens" that need urgent attention

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Singapore: The World Health Organisation (WHO) has published a list of antibiotic-resistant "priority pathogens", 12 families of bacteria that pose the greatest threat to human health. The list was drawn up in a bid to guide and promote research and development (R&D) of new antibiotics, as part of WHO's efforts to address growing global resistance to antimicrobial medicines.

The health agency said that the list is divided into three categories based on the urgency of need for new antibiotics: critical, high and medium priority. The list highlights in particular the threat of gram-negative bacteria that are resistant to multiple antibiotics. These bacteria have built-in abilities to find new ways to resist treatment and can pass along genetic material that allows other bacteria to become drug-resistant as well.

Dr Marie-Paule Kieny, WHO's Assistant Director-General for Health Systems and Innovation, said, "This list is a new tool to ensure R&D responds to urgent public health needs. Antibiotic resistance is growing, and we are fast running out of treatment options. If we leave it to market forces alone, the new antibiotics we most urgently need are not going to be developed in time."

The most critical group of all includes multidrug resistant bacteria that pose a particular threat in hospitals, nursing homes, and among patients whose care requires devices such as ventilators and blood catheters. They includeAcinetobacter, Pseudomonas and various Enterobacteriaceae (including Klebsiella,E. coli, Serratia, and Proteus). They can cause severe and often deadly infections such as bloodstream infections and pneumonia.

These bacteria have become resistant to a large number of antibiotics, including carbapenems and third generation cephalosporins - the best available antibiotics for treating multi-drug resistant bacteria.

The second and third tiers in the list - the high and medium priority categories - contain other increasingly drug-resistant bacteria that cause more common diseases such as gonorrhoea and food poisoning caused by salmonella.

The list was developed in collaboration with the Division of Infectious Diseases at the University of TÃ¼bingen, Germany,

using a multi-criteria decision analysis technique vetted by a group of international experts. The criteria for selecting pathogens on the list were: how deadly the infections they cause are; whether their treatment requires long hospital stays; how frequently they are resistant to existing antibiotics when people in communities catch them; how easily they spread between animals, from animals to humans, and from person to person; whether they can be prevented (e.g. through good hygiene and vaccination); how many treatment options remain; and whether new antibiotics to treat them are already in the R&D pipeline.

"New antibiotics targeting this priority list of pathogens will help to reduce deaths due to resistant infections around the world," says Prof Evelina Tacconelli, Head of the Division of Infectious Diseases at the University of TÃ¼bingen and a major contributor to the development of the list. "Waiting any longer will cause further public health problems and dramatically impact on patient care."

WHO further cautioned that though more R&D is vital, it alone cannot solve the problem. To address resistance, there must also be better prevention of infections and appropriate use of existing antibiotics in humans and animals, as well as rational use of any new antibiotics that are developed in future.