Stop AMR Global Media Monitor

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A $1bn pledge from the pharma industry to fight drug-resistant superbugs & the formation of the AMR Action Fund

Twenty-three drug companies (including drug giants Pfizer Inc., Merck & Co., Eli Lilly & Co. and GlaxoSmithKline Plc) have joined forces to invest $1bn in a fund to develop new antibiotics, which are needed urgently to fight the worldwide rise in antimicrobial-resistant superbugs. The AMR Action Fund, launched on Thursday (09/07/20), aims to support clinical research that will bring two to four new antibiotics to market by 2030. They will target bacteria that cause the most life-threatening diseases and have the greatest resistance to existing drugs.

The fund will be invested into 15 to 20 novel antibiotics which have began medical trials, of which 20 per cent to 25 per cent could be anticipated to present enough security and efficacy to attain the market. The foundation will be based in Boston, with an additional hub in Europe. It will invest in biotech companies "focused on developing innovative anti-bacterial treatments that address the highest priority public health needs, make a significant difference in clinical practice and save lives," said Mr Hoyer, president of the European Investment Bank.

Source: Financial Times, 9 July 2020
AMR Action Fund

Glowing bacteria to combat AMR

A new technique developed by the University of Exeter (UK) could help reduce antibiotic prescribing by predicting within minutes which drugs may be effective against specific bacteria. The method developed identifies whether a bacterium is likely to respond to antibiotics. The approach can be used in clinics, reducing the number of different antibiotics prescribed to patients, and optimizing antibiotic treatment.

The procedure involves using a special microscope and a miniaturized device into which a sample of the bacteria is injected, along with the antibiotic. The technique examines whether the fluorescent qualities of the antibiotic is taken up by bacteria. If so, the bacteria glow brighter under the microscope, revealing that the antibiotic has infiltrated the membrane and could be effective. The research could contribute to efforts to reduce prescribing, and also enable the development of more effective antibiotics, to help fight the global threat of antibiotic resistance.

Source: Genetic Engineering & Biotechnology News, 6 July 2020
From the journal: Lab on a Chip, 16 June 2020

WHO experts urge antimicrobial stewardship during pandemic response

AMR experts from the WHO, are urging that antimicrobial stewardship activities be integrated into the COVID-19 pandemic response. During the current COVID-19 pandemic, there are potential threats that could affect antimicrobial stewardship activities and drive antimicrobial resistance. A review of studies published on hospitalized COVID-19 patients identified that while 72% of patients received antibiotics, only 8% demonstrated superimposed bacterial or fungal co-infections.

In an editorial published in the *Bulletin of the World Health Organization*, scientists with the WHO's Department of Global Coordination and Partnership on Antimicrobial Resistance note that while the WHO's interim guidance on COVID-19 treatment incorporates antibiotic stewardship principles with specific recommendations, a broader strategy to address antimicrobial use during the pandemic is needed. The proposed measures concentrate on increased training, improved testing, and the recognition of severe COVID-

19 patients. These proposals intend to eliminate unnecessary antibiotic use.
"These measures would stem the emergence of untreatable drug-resistant infections and diseases that could potentially lead to another public health emergency," the authors write.

Source: CIDRAP, 1 July 2020
From: WHO editorial, 7 July 2020

A software tool for predicting antimicrobial resistance in bacteria

Washington State University (WS, USA) researchers have developed an easy-to-use software program to identify drug-resistant genes in bacteria.

The WSU research team developed a machine-learning algorithm that uses features of AMR proteins rather than the similarity of gene sequences to identify AMR genes. The researchers used game theory, a tool that is used in several fields, especially economics, to model strategic interactions between game players, which in turn helps identify AMR genes. Using their machine learning algorithm and game theory approach, the researchers looked at the interactions of several features of the genetic material, including its structure and the physicochemical and composition properties of protein sequences rather than sequence similarity.

Source: Science Daily, 6 July 2020
From the journal: Scientific Reports, 3 July 2020

A new antibiotic that avoids antibiotic resistance

A team of scientists from Princeton University (NJ, USA) have identified a groundbreaking antibiotic compound capable of killing Gram-negative and Gram-positive bacteria – all while avoiding antibiotic resistance. The compound SCH-79797, can simultaneously puncture bacterial walls and destroy folate (a necessary nutrient that the bacterial cells need to build essential parts of life, DNA, amino acids, proteins. Without folate, the bacteria cell will never grow) within their cells – while being immune to antibiotic resistance. The greatest weakness of antibiotics is that bacteria evolve quickly to resist them. Still, the Princeton team found that even with extraordinary effort, they were unable to generate any resistance to this compound.

The holy grail of antibiotics research: an antibiotic that is effective against diseases and immune to resistance while being safe in humans (unlike rubbing alcohol or bleach, which are irresistibly fatal to human cells and bacterial cells alike). SCH-79797 fills a significant hole in antibiotics research, which seeks to overcome the two types of bacterial infections that endanger human health, known as Gram-positive and Gram-negative. Gram-negative bacteria feature a robust protective outer layer that repels the advances of most antibiotics. A new class of Gram-negative-killing drugs have not entered the market for 30 years.

Source: News Medical Life Sciences, 1 July 2020
From the journal: Cell, 3 June 2020

Biofilms including antibiotic-resistant bacteria adhere to sewer walls and may be a potential source of outbreaks

Researchers say disinfecting a sewer line may be a good idea before sewer maintenance is done, especially following events such as a disease outbreak. A new Rutgers study, published in the journal *Environmental Science: Water Research & Technology*, examined the microbe-laden "biofilms" that cling to sewer walls, and even built a simulated sewer to study the germs that survive within.

The research found that the microbe-laden "biofilms" that cling to sewer walls often contain harmful, antibiotic-resistant bacteria and can withstand standard treatment to disinfect sewers. Cleaning with bleach can reduce the density of biofilms but not entirely remove them, potentially leaving wastewater treatment workers and the public exposed to health risks, the study said.

Source: Science Daily, 6 July 2020
From the journal: Environmental Science: Water Research & Technology, 24 June 2020

EMA seeks feedback on their veterinary antimicrobial plan

A proposed strategy document from the European Medicines Agency (EMA) would require post-authorization trials of veterinary antimicrobials to ensure the benefit-risk balance of a product remains positive, among other requirements. Such studies could cut the risk of the continued use of products that are driving the evolution of antibiotic-resistant bacteria.

The proposal reflects EMA's decision to make mitigating the threat posed by antimicrobial resistance a key strategic goal. In the proposal, which covers EMA's plans for 2021 to 2025, the Committee for Medicinal Products for Veterinary Use (CVMP) commits to maintaining the effectiveness of existing antimicrobials and encouraging the development of new products.

Source: Regulatory Affairs Professionals Society, 2 July 2020
From: European Medicines Agency, 18 June 2020