



Stop AMR

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WSC Spotlight: Sepsis, Pandemics, and Antimicrobial Resistance – Global Health Threats of the 21st Century

On 9 September 2020, the World Health Organization and the Global Sepsis Alliance hosted an event that aimed to review achievements, challenges, and potential solutions to combat the threat of AMR and sepsis worldwide.

Sepsis is the common final pathway of all acute infections. It arises when the body's response to an infection injures its own tissues and organs. It may lead to shock, multiple organ failure, and death, especially if not recognized early and treated promptly. Most deaths from sepsis can be prevented by simple measures of infection prevention, vaccination, clean care, and early recognition, and that antimicrobial resistance (AMR) can jeopardize clinical management of sepsis.

This conference brought together highly ranked representatives of international and national healthcare authorities, NGOs, policymakers, patients, patient advocacy groups, clinical scientists, researchers, and pioneers in healthcare improvement with the unified goal of improving AMR and sepsis healthcare around the world.

Source: [WSC Spotlight](#) , 9 September 2020

Next generation of environmentally friendly antibiotics

During the conference held by the WHO, on "Sepsis, Pandemics, and Antimicrobial Resistance – Global Health Threats of the 21st Century" one speaker, Ms Ada Yonath, a crystallographer from Israel with a Nobel Prize in Chemistry 2009, spoke upon the next generation of antibiotics as environmentally friendly.

Ms Yonath explained that current non-digestible antibiotics are toxic compounds, non-bio-degradable, and contaminate the environment. They penetrate agricultural irrigation systems. Thus, they are increasingly being consumed by humans (grass, milk, etc...), thereby spreading antimicrobial resistance.

Moreover, antibiotics function during protein biosynthesis. They bind to the ribosome in the active site (where the decoding and bonding occurs). Recently, experts have identified 25 new potential unique sites in the ribosome and were able to block 16 of them by inhibiting protein biosynthesis. Considering these sites are not involved in the primary ribosomal activity (decoding and peptide bond formation), no pathogen contains genes for their modification. Therefore, the sites can be exploited for the design of advanced degradable antibiotics, hence environmentally friendly.

Resistance to antibiotics is one of the most severe problems in modern medicine, highlighted Ms Yonath. Even though in Europe (2010-2014), 33,000 deaths died annually due to AMR, causing 1.6 billion healthcare costs, the consumption of antibiotics *has doubled*. However, being optimistic, Ms Yonath called on pharmaceutical companies to design antibiotic drugs specific for each pathogen and consider the human aspects of innovation, not just the economic ones.

Source: Yonath, 9 September 2020
From: [WSC Spotlight](#) , 9 September 2020

Antimicrobial Stewardship

During the conference held by the WHO, on "Sepsis, Pandemics, and Antimicrobial Resistance – Global Health Threats of the 21st Century" one speaker, Dr Alsalman, a physician specializing in infectious diseases from Bahrain, spoke upon antimicrobial stewardship.

Studies show that Bahrain has had significant outcomes in decreasing antibiotic consumption and antimicrobial resistance. Starting at a small-scale level, they went to teaching hospitals to educate and collaborate with clinicians, and to improve surveillance. Furthermore, they developed software that collects all AMR data.

Two questions were asked at the end of the presentation. The first was, "how did you gain the government's support?" Dr Als Salman emphasized that you must "start at the smallest level and show hospital management, that you are able to decrease infection and the costs are much lower. Once you've proven that investing in antimicrobial stewardship works, only then can you gain political support".

The second question was, "How did you encourage clinicians to use less antibiotics?". Dr Als Salman stressed that we need education. One annual workshop on AMR does nothing. "You must be intentional in tailoring the message to get the cooperation you need." She highlighted that health departments need regular meetings, workshops, feedback and conversations, to educate health professionals on the risks of overuse.

Source: Dr Als Salman, 9 September 2020
From: [WSC Spotlight](#) , 9 September 2020

'Superbugs' a far greater risk than Covid in Pacific

Australia's national science agency, the CSIRO, along with Fiji's national antimicrobial resistance committee and universities across Australia and the Pacific, has begun a 3-year study in the archipelago to identify the emergence of superbugs in the area. By analysing data from hospital pathology labs, farms contaminated with pharmaceuticals, and in the general environment, they are hoping to identify AMR hotspots and emerging resistance trends.

Dr Paul De Barro, biosecurity research director at the CSIRO said of the issue: *"I don't think I'm exaggerating to say it's the biggest human health threat, bar none. Covid is not anywhere near the potential impact of AMR. [...] We would go back into the dark ages of health."* If the issue remains unaddressed, Dr De Barro says we *"will end of with massive pressure on the health system –*

exactly the sort of things you are seeing with Covid" except social distancing can't help with AMR, as bacteria exist all around us, in food, water, air and everyday surfaces.

Source: [The Guardian](#) , 10 September 2020

How managing data helps small biotechs fight AMR

Basel-based BioVersys, a small biotech firm working on antimicrobial drug development, recounts how effective data management tools allow data generated by teams in different countries have become essential in the modern international scientific environment. Especially as more large pharma companies leave the antimicrobial space, smaller biotechs are taking over the discovery and development of new antimicrobials. *"It would be almost impossible to develop a new product without the close interaction between the private and public sectors. In that respect, I think the future of antimicrobial development is collaborative"* said Andrej Trauner, Project Manager in Discovery Research, BioVersys.

Speaking further on the importance of data sharing, Trauner added: *"We aim to generate databases that span disciplines in order to make it easier to cross-reference data, find correlations, and draw conclusions that inform the direction of our projects. By doing so it is also easier to identify blind spots and address them before they become an issue."*

Source: [Labiotech.eu](#) , 9 September 2020