

# pharmadvances

THE OFFICIAL JOURNAL OF SOCIETÀ ITALIANA DI FARMACOLOGIA

**SPECIAL ISSUE**

**RECOMMENDATIONS FOR  
AN EFFECTIVE STRATEGY ON  
ANTIMICROBIAL RESISTANCE**

**From prevention by  
vaccination to the  
development and use  
of novel antibiotics**



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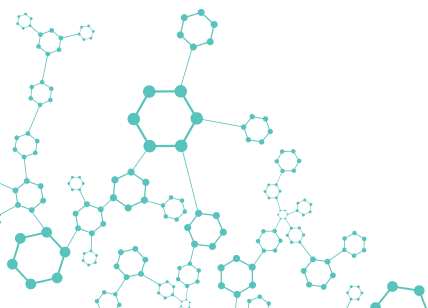
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# ANTIMICROBIAL RESISTANCE: PHARMACOLOGICAL LEVEES WILL PROTECT US FROM THE FLOOD

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A perfect storm of globalization (which increased the rate of International travels), inappropriate use of antibiotics by physicians, veterinarians, and farmers (including aquaculturists), and vaccination hesitancy is now posing a major threat to the health care system. According to some estimates, Italy is witnessing >11,000 deaths/year due to antibiotic-resistant infections (1). It is important to underscore that the lay public often conflates “anti-microbial” with “antibiotic” resistance. The latter only applies to bacteria and is rapidly increasing worldwide (2). We must admit that it took the pharmaceutical industry some time to realize the full dimension of this issue and to take appropriate counter-measures via implementation of targeted research.

Antimicrobial resistance is a paradigmatic case of Darwinian selective pressure for the development of resistance and – paradoxically – future drugs (antibiotics) will need to be used as little as possible to avoid falling in the trap we set up when penicillin was first introduced into the markets (early '40s).

The inappropriate and excessive use of antibiotics is also being indicted as one of the culprits of cardiometabolic diseases, through the modification of the microbiota (3, 4).

How can we meet this urgent need of finding new antibiotics and other anti-infection molecules? In addition to synthetic drugs, we are witnessing a resurgence of phage therapy (5), with promising albeit scant results being published worldwide (6).

**Farindustria** (the Italian pharmaceutical industry guild, a very active contributor to the country's economy) convened a panel of experts to tackle the issue of antimicrobial resistance from an R&D point of view. The Panel's recommendations can be read in *PharmAdvances* and have been organized around three major sections: a. The role of vaccination as a prevention tool against antimicrobial resistance; b. Value, access, and innovation of novel antibiotics against bacterial resistance, and c. Appropriate use of antibiotics.

Even though the lay public often does not perceive and realize the urgency to overcome antimicrobial resistance, this issue represents a major public health menace and needs to be rapidly solved by pharmacologists worldwide. Farindustria and the scientific societies that wrote the article should be commended, and readers of PharmAdvances will find interesting stimuli in it.

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