

Antibiotic Resistance: The Danger for the Children

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Abstract

The introduction of antibacterial agents led to a revolution in the management of bacterial infections. Unfortunately, today we are facing an emerging and increasing resistance to antibiotics that become a threat to public health in Europe and globally. Infections in children are an important topic because children are highly susceptible to infections and hard to treat. That is why it is very important to lower resistance.

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Introduction

The introduction of antibacterial agents (commonly referred to as antibiotics) led to a revolution in the management of bacterial infections. Antibiotics have revolutionized the treatment of common bacterial infections and play a crucial role in reducing child mortality in low- and middle-income countries. Since antibiotics were first introduced, their consumption has increased substantially and, in most low income countries, they now constitute the single largest group of drugs purchased [1,2].

Effective antibiotic treatment requires patient compliance and close supervision by medical professionals. However, this is rarely the case, and irrational use of drugs, in particular self-medication with antibiotics, has been widely reported [3 4].

Despite the enormous advances in health care in the last half-century, infectious diseases still account for 25% of deaths worldwide and 45% of deaths in low-income countries (World Health Organization (2000) Communicable diseases surveillance and response. <http://www.who.int/emc/amr>). Thus the continuous erosion of the health impact of antibiotics by the rapid spread of antibiotic resistance is a serious threat to public health [5]. This has led the World Health Organization to call attention to the dangers of self-medication as a cause of antibiotic resistance [6].

Today, emerging and increasing resistance to antibiotics has become a threat to public health in Europe and globally. Every year, nearly 700,000 people die in the world because antibiotics do not help them. The reason is that because of incorrect or excessive use they just stop acting. If the trend persists, by 2050, 10 million people will die of infections that are now being treated with antibiotics. Some types of drug-resistant bacteria cause the deaths of nearly 25,000 people every year [7].

According to American statistics, antibiotic resistance causes approximately 2 million infections in the USA and 23,000 deaths resulting in a direct cost of \$ 20 billion, and an extra cost of \$ 35 billion in productivity decline. The data for Europe show that 25,000 deaths per year have this cause, with a total cost of 1.5 billion Euros, including treatment and costs associated with the lack of productivity at work [8].

According to scientific literature, antibacterials are prescribed for common pediatric conditions that do not benefit from antibiotic

therapy. The link between antibiotic use and bacterial resistance is well known. Antibiotic overprescribing generates high social costs and severe consequences for children [9]. Antibiotics are among the most commonly prescribed medications in children with acute otitis media (AOM) and upper respiratory tract infections (URIs) There are now around 3.3 million prescriptions for liquid formulations of amoxicillin every year for children in the UK, representing around half of all antibacterial prescribing in children, as there are now around 6.6 million prescriptions each year [10].

Respiratory tract infections among children are a common reason for health care provider visits and the primary reason for antimicrobial prescribing in this population. The increased prevalence of resistance among *Streptococcus pneumoniae* and *Haemophilus influenzae* pathogens poses a serious challenge in the successful treatment of respiratory tract infections caused by these pathogens [11].

Antibiotic resistance is especially problematic when treating (young) children. Their immature immune system is over-burdened and various studies show that taking antibiotics can lead to all sorts of complications, both directly in the form of nausea, headaches, etc., but also later in life.

Bulgaria is at an average European level on antibiotic resistance. The largest resistance to broad-spectrum antibiotics on the Balkans is in Greece and Romania.

Keeping these facts in mind, antibiotic therapies should be considered only if necessary. Infections in children are an important topic because children are highly susceptible to infections and hard to treat. To lower resistance, the most important practice is to prevent infection. The easiest way could be information campaigns meant to teach all parents the basic sanitation principles, starting before they even leave the maternity ward.

Competing Interests

The authors declare that they have no competing interests.

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