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EDITORIAL

# Antibiotics prescribing in paediatric primary care: A shared responsibility☆

## Prescripción de antibióticos en pediatría de atención primaria: una responsabilidad compartida

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The current issue of ANALES DE PEDIATRÍA features an article that analyses the association between high frequency of health care use and the rate of antibiotic prescription.[1] It is a high-quality population-based study conducted from the network of paediatricians involved in research of the Asociación Española de Pediatría de Atención Primaria (Spanish Association of Primary Care Paediatrics), known as PAP.en.RED (http://www.aepap.org/grupos/papenred), and promoted by its Research Group. Based on data from 2,726 patients, the study found that the rate of antibiotic prescription was significantly higher in high-frequency users compared to infrequent users in every paediatric age group.

While the accessibility to paediatric care is one of the greatest strengths of our public health system, it may also be one of its greatest weaknesses when it comes to the adequate use of resources and the rational use of antibiotics. In the context of febrile disease, more than a few paediatric patients make repeated visits to health facilities (in both the public and the private systems) seeking care beyond the previously prescribed symptomatic treatment.

In comparison with neighbouring countries in central and northern Europe, antibiotic prescription in primary care (PC) paediatric services is noticeably higher in Spain, at least in younger children. A recent article on PC practices in 6 countries highlighted that antibiotic prescription in children aged less than 3 years in the Autonomous Community of Valencia was 3.5 times greater compared to Norwegian children and 1.5 times greater compared to German or North American children of the same age.[2] Furthermore, 35% of prescriptions were for amoxicillin combined with clavulanic acid, compared to 25% of prescriptions for amoxicillin, which revealed inappropriate prescription practices. Other articles published previously, including the study by Malo et al. in the entire paediatric population of Aragón (year 2010; 224,780 documented episodes of acute respiratory tract infection), have found that antibiotics are prescribed in up to 75% of cases of acute pharyngitis (theoretically, only 30% of these cases would be caused by streptococcus), 72% of cases of otitis, 27% of cases of bronchitis and 16% of upper respiratory tract infections of undetermined aetiology. Half the antibiotic prescriptions in this study were for amoxicillin, and 25% for amoxicillin-clavulanic acid.[3] The study by Balaguer et al. found improved rates of appropriate prescription: 0.45 prescriptions of penicillin/amoxicillin per patient per year, compared to 0.19 prescriptions of penicillin combined with clavulanic acid. In any case, all the available data suggest that there is ample room for improvement in antibiotic prescription practices.

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In addition to the excessive number of visits to health care facilities, we need to ponder the presence of additional factors that contribute to this frequent and inappropriate use of antibiotics in Spain. And this reflection, based on data and rigorous analyses, must result in the development of improvement measures.

We must remain aware that antimicrobial resistance is considered a threat of such magnitude that it was even addressed in the international G20 summit in Hamburg (July 7–8, 2017), where participating nations agreed on the implementation of national action plans to achieve a global European health strategy based on the ''one health'' approach by the end of 2018. Multidrug-resistant microorganisms are responsible for 700,000 deaths a year worldwide, and future projections, should there be no intervention, are not encouraging: in 2050, 10 million people could die due to antimicrobial resistance (compare this with the current rate of 8.2 million deaths/year caused by cancer), with the associated economic losses from now to that point estimated at 100 trillion dollars.

In Spain, the Agencia Española de Medicamentos y Productos Sanitarios (Spanish Agency of Medicines and Medical Devices) introduced the Plan Nacional frente a la Resistencia a los Antibióticos (National Plan against Antimicrobial Resistance [PRAN], http://www.resistenciaantibioticos.es/es) in 2014. The plan involves the participation of a multidisciplinary group of human and veterinary health professionals (including several paediatric scientific societies) working on different strategic lines.

In addition to the obvious responsibility of the prescriber, the specific document on the improvement goals that are a priority in primary care paediatrics developed within the PRAN (http://www.resistenciaantibioticos.es/es/system/files/content_images/objetivos_de_mejora_prioritarios_ap_pediatria.pdf) points out factors at play in antibiotic use that go beyond its competences. These include pharmacy dispensation without a prescription, administration by families without medical guidance, large caseloads that prevent adequate communication and health education, lack of control of excessive health care use, the low and random availability in PC clinics of rapid diagnostic tests, lack of access to continuing education and the absence in the electronic health records system of integrated tools to aid clinical decision-making.

The document establishes clear objectives for prescribers:

1. To reduce the overall frequency of prescription
2. To reduce prescription for non-bacterial illnesses
3. To improve the appropriateness of prescription in specific diseases

To achieve each objective, the authors propose a series of measures, some common to all three: smaller caseloads (to increase the time clinicians spend with each patient), availability of rapid diagnostic tests in primary care clinics, use of high-yield diagnostic tools (pneumatic otoscopy and/or tympanometry in cases of otitis), availability of updated data on the specific prevalence of microbes and antimicrobial resistance at the local level, development and integration of systems to guide decision-making in the electronic health records database, and continuing education, tied to productivity and professional development incentives.

Erroneous perceptions about the use and effectiveness of antibiotics still persist in Spain. According to the 2016 Eurobarometer, 48% of the Spanish population believes that antibiotics kill viruses and 45% believes they are effective against the common cold and the flu. These widespread misconceptions probably put pressure on prescribers, but reverting them involves health education, which is the responsibility of health administrations through educational campaigns and also of clinicians through doctor/patient communication (in our case, paediatrician/family) during medical visits.

There are multiple clinical practice guidelines, care protocols, clinical pathways and consensus documents from scientific societies to guide appropriate antibiotic prescription. We have available an electronic health records system that is generally effective and that could allow the integration of these recommendations or consensus guidelines in the health records, in the form of diagnostic or treatment algorithms and of automated alerts in case of inappropriate prescription.

Lastly, the specific goals dictated by the PRAN in relation to antibiotic prescription in the paediatric primary care setting are:

1. Reducing antibiotic prescription in nonbacterial illnesses (colds, laryngitis, non-streptococcal pharyngitis, bronchitis)
2. Reducing to a minimum antimicrobial treatment of viral pharyngitis, overall and particularly in children aged less than 3 years
3. Reducing the use of macrolides and amoxicillin-clavulanic acid for treatment of tonsillitis
4. Reducing the treatment of suspected urinary tract infections that have not been properly confirmed
5. Reducing the use of antibiotics in cases of acute otitis media, considering, in most cases, the approach of watchful waiting with analgesic and anti-inflammatory therapy and postponement of antibiotherapy based on patient progress and/or re-evaluation
6. Avoiding antibiotherapy for treatment of bronchitis/bronchiolitis in young children

Most of the prescriptions for antibiotherapy for children in Spain are made at the PC level, so we must be aware than in prescribing antibiotics, we may be contributing to the development of antimicrobial resistances or, conversely, that in not prescribing them we may be helping reduce the current rates of antimicrobial resistance. There is much at stake.

## References

1. Balaguer Martínez JV, del Castillo Aguas G, Gallego Iborra A, Grupo de Investigación de la AEPap y Red de pediatras Centinela PAP.en.Red. Prescripción de antibióticos y realización de pruebas complementarias en función de la frecuentación y de la fidelización en Atención Primaria. An Pediatr (Barc). 2018;89:197–204.
2. Youngster I, Avorn J, Belleudi V, Cantarutti A, Díez-Domingo J, Kirchmayer U, et al. Antibiotic use in children: a cross-national analysis of 6 countries. J Pediatr. 2017;182:239–44.
3. Malo S, Bjerrum L, Feja C, Lallana MJ, Poncel A, Rabanaque MK. Prescripción antibiótica en infecciones respiratorias agudas en atención pirmaria. An Pediatr (Barc). 2015;82:412–6.