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## **Editorial:**

# **RATIONAL USE OF ANTIBIOTICS.**

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It seems obvious that among the health advances of the last century have been the discoveries of different families and generations of antibiotics <sup>1</sup>. These drugs have helped to save millions of lives and their impact on infection control across the globe is undeniable <sup>2</sup>. At the same time, the threat of the progressive emergence of microorganisms resistant to them has become one of the most obvious challenges for those of us who work in the field of health<sup>3</sup>. It is precisely on the union of efforts in the fields of human, animal and food health that, according to the experts, the future success in tackling this health problem depends: antibiotic resistance<sup>4</sup>. There is an urgent need to increase our level of awareness on the subject, to invest in strong continuous education among professionals, in dissemination campaigns among the population, and to adopt

efficient measures for its control<sup>5</sup>. Since the beginning of the last decade, there are contributions that established that if no action is taken, antibiotic resistance will undermine the welfare state and will constitute a problem whose evolution may become an uncontrollable challenge<sup>6</sup>.

In our experience there are three lines of work that have allowed us to maintain an active stance in the rational use of antimicrobials. Firstly, the implementation of studies on variability in prescription and consumption, carried out in specific health areas in different Autonomous Communities, may periodically represent a valid instrument to identify areas for improvement<sup>7,8</sup>. Both in the paediatric area<sup>9</sup>, and in the adult area<sup>10-12</sup> inadequate practices have been observed that point to simple and easy corrective measures.

In the second place, and from the framework of the activity of the Microbiology Services, an active stance should be adopted that offers updated profiles and sensitivity, within the reach of prescribing clinicians, and which in the last decade has been integrated into the framework of activities of the commissions of the Rational Antimicrobial Optimization Programs (PROA)<sup>13</sup>. Of particular relevance is the usual role played by the field of microbiology in detecting outbreaks<sup>14</sup>, monitoring the appearance and spread of multi-resistant microorganisms<sup>15</sup> and transmitting a prescribing "culture" based on the native ecosystem.

Thirdly, we must make a firm commitment to incorporating technology into the healthcare and applied research environment that will make it possible to identify the molecular mechanisms that make it possible to identify and monitor the transmission of resistance, such as mass sequencing and the development of bioinformatics platforms to support it<sup>16,17</sup>. To this we should add the need to advance in the knowledge of the physiological environments of the microbiota and its role in the establishment of numerous clinical entities in which we have also been able to make a modest contribution<sup>18</sup>.

We cannot ignore our involvement in an interdisciplinary framework to align ourselves with international organizations and movements that are committed to "one health"<sup>19-20</sup>. Only from our capacity for dialogue, joint work and the sum of our experiences can we contribute to minimizing the negative impact that antimicrobial resistance has in our planet's ecosystem.

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