



A One Health – One World initiative to control antibiotic resistance: A Chile - Sweden collaboration

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ABSTRACT

Controlling antibiotic resistance is a global concern. The One Health initiative has provided a strategy to deal with this problem efficiently within a country. However, due to the global nature of the problem it is paramount not only to focus on specific countries, but to establish ways to avoid the development of antibiotic resistance in different geographical regions. In this letter, we propose a One Health - One World approach that would enable different countries to connect by sharing information about infections, outbreaks and surveillance. We believe such a strategy should be implemented worldwide in order to mitigate the development and dissemination of antibiotic resistance.

Letter

Worldwide, nearly 700,000 deaths per year are directly attributed to antibiotic-resistant bacterial infections [1], a number that has been suggested to rise to 10 million deaths per year by 2050, though the exact figures are controversial [2]. Controlling antibiotic resistance will require major global and multidisciplinary efforts; a good example of such endeavors is WHO's Global Antimicrobial Resistance Surveillance System (GLASS project) through which drug-resistant organisms are currently monitored worldwide. Bacteria know no territorial or species boundaries, and therefore, it is crucial to address antibiotic resistance in human and animal health as well as in the environment. Recently, the One Health initiative has provided a platform to unite different sectors and expertise to deal with this threat more efficiently [3]. In addition, due to current extensive travel and migration, infectious agents have the potential to spread readily and become pandemic. It is paramount to establish and maintain strategies to avoid the development and dissemination of antibiotic resistance in all geographic regions – *only*

one loose end could lead to a catastrophe. We argue that it is imperative not only to have a One Health, but also a One World approach. Here, we use Chile and Sweden to exemplify our proposal, but it is crucial to implement the approach on a global scale.

The Academic Collaboration Forum Chile – Sweden, held in Santiago, Chile, last year, provided the impetus for an important meeting to evaluate both countries' approaches to antibiotic resistance. Swedish strategies are aligned with One Health [4], including at their core strict surveillance, preventive measures, basic research and sensible use of antibiotics in human and animal medicine. Sweden has implemented several actions oriented to control antibiotic resistance, leading this country to develop high levels of expertise, taking the reins of leadership in this topic.

Chile has one of the fastest-growing economies in South America [5], and antibiotic resistance in priority bacterial pathogens (as defined by WHO) [6] increased by 4.6% between 2005 and 2015 [7]. This value, the lowest in South America, is still substantially above the OECD average (2.9%). On the other hand, Sweden reported an increment of

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0.6% during the same period, substantially lower than the OECD (2.9%) and EU average (7.5%), which reflects the efficacy of strategies to control antibiotic resistance. The numbers are clear – Chile seems to hold the leadership in controlling antibiotic resistance in South America, but is unfortunately still far from leading countries worldwide. In 2017, in line with a UN initiative, the Chilean government released an official One Health-based National Plan to tackle antibiotic resistance: *Plan Nacional Contra la Resistencia a los Antimicrobianos* [8]. Unfortunately, this plan has yet to be fully implemented. It is paramount that the Chilean government prioritizes according to the critical importance of the problem and fast-tracks implementation of control strategies. It is also crucial that Chilean healthcare and governmental entities share information with relevant organizations such as WHO since Chile's information has been absent in the *Global Database for Antimicrobial Resistance* since 2017 [9].

Certainly, global endeavors are needed to successfully control the problem of antibiotic resistance – *we need to institute a One World approach*. Fraternity between Chile and Sweden goes back many years, facilitating partnership and exchange. Establishing a fruitful collaboration between our countries focusing on the antibiotic resistance problem and including government agencies, academic institutions, and the private sector is a strong move in the right direction. Sharing surveillance and clinical data has the potential to help us improve our global response to outbreaks, therapeutic approach to infections, and basic and clinical research capabilities. Finally, we strongly believe these efforts will strengthen Sweden's leadership in fighting antibiotic resistance, facilitate Chile to play a major role in this field in South America and beyond, and help starting a global movement embracing a One Health – One World concept; where we not only tackle this major medical problem from different scientific traditions, but also approach it from a global perspective.

Declaration of Competing Interest

None.

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