

TOPIC: Chagas

APPROACH: N/A

Chagas: a comprehensive look for an effective approach

Keywords: Chagas, kaleidoscope, socio-environmental health problem, neonatal, diagnosis

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When we talk about Chagas in an academic field of biomedical sciences it is usually understood in terms of "Chagas disease", and we expect entomological, clinical, diagnostic aspects, or number/distribution of affected people, to be addressed, to name a few. On the other hand, if social, political, economic, productive, educational, communicational, ethical, inclusion, diversity and gender aspects were included, it would probably come as a surprise. Nevertheless, these topics are also part of the Chagas matrix and affect its comprehensive approach because Chagas is much more than a disease: it is a complex socio-environmental health problem.

To illustrate this idea, the Group "What do we talk about when we talk about Chagas?" (*¿De qué hablamos cuando hablamos de Chagas?*) uses the metaphor of a "kaleidoscopic puzzle" where, as in every puzzle, each *piece* is essential for completing the image and, as in every kaleidoscope, each *piece* contributes its own shape, colour, and size, dynamically interacting with the rest of the pieces to intervene and complete the image. This kaleidoscopic analogy helps us understand our scientific contribution as a *piece* of a more comprehensive cultural and collective construction, in which knowledge originates from many sources. Furthermore, when we analyse our scientific activity in a fractal way, we can see that this is also made up of *pieces* of different nature, such as our object of study, where we work (group, institute, infrastructure, funds, etc.), our motivation, our driving-values, and our ethical and epistemic position.

Even though in Argentina it is mandatory and a responsibility of the Health System to test and detect children born with Chagas, only 25% of the estimated cases are diagnosed annually. Because of this, our R&D Group (ICT Milstein) worked to improve the diagnosis of neonatal Chagas exercising a comprehensive view with gender perspective. We focused on developing and transferring a simplified and affordable molecular test, which could be carried out in any condition, reducing infrastructure, equipment, and HR requirements to a minimum. The result was the first Argentine molecular test approved by the National Health Authority (National Administration of Drugs, Food and Medical Technology, ANMAT). The test is based on a LAMP reaction, it does not require DNA extraction, and can be performed using the neonatal screening card (a mandatory neonatal sample taken to screen for congenital diseases). The benefits are manifold: not adding another intervention on the newborn, nor another sampling/extraction activity on the Health System, and reducing neonatal diagnosis times (which generally extend beyond 10 months of age) and follow-up failures (which are responsibility of the Health System, not of the mothers or families).

This is only one example of how reassessing our scientific activity with an integrative perspective can help us compose a more complete image of Chagas (or whichever topic we work on) to achieve a comprehensive, situated and effective approach.