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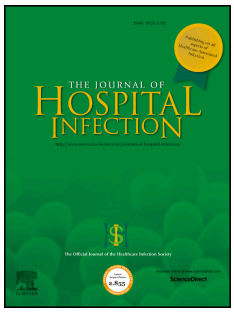

State of the art on *Mycobacterium chimaera* research: a bibliometric analysis

Yeimer Ortiz-Martínez, César Galindo-Regino, María R. González-Hurtado, Juan J. Vanegas-Pastrana, Félix Valdes-Villegas

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State of the art on *Mycobacterium chimaera* research: a bibliometric analysis

Sir,

A growing number of *Mycobacterium chimaera* infections after open cardiac bypass surgery have been reported by several countries, including the USA, Canada, Australia and Europe, turning now in a global outbreak[1]. *M. chimaera* is a novel nontuberculous mycobacterium identified in 2004 by Tortoli and colleagues. This pathogen is associated with poor prognosis and high case fatality rates (around 50%) despite treatment. These often fatal infections were traced back to contaminated heater-cooler devices (HCDs) via aerosol transmission[2]. Although no *M. chimaera* infections have yet been reported in many regions, the potential risk of this complication should be considered in everyday clinical practice, especially in cardiothoracic centres[3]. Due the increasing global importance of this entity, the analysis of the scientific production could provide important information for the better understanding of the current outbreak.

Therefore, a bibliometric analysis was done, with the aim of assessing the current status of *M. chimaera* research worldwide deposited in PubMed/MEDLINE, using the following search strategy: "Mycobacterium chimaera" from 2004 until 30th November 2017. Retrieved information was downloaded using PubMed's XML export function, targeted data was extracted from all article types, the XML file was processed using customized program (Automation of Internet Data Analysis), and all results were manually checked by the authors.

We found 105,090 *Mycobacterium* related articles indexed in MEDLINE up to November 30, 2017. *M. chimaera* represented just 0.14% (126 articles) of them, with an annual production of 9 documents. Almost half (42.3%) of them were published in the last 2 years (Fig. 1). The publications were from 25 countries. The countries with the highest number of publications were USA (36.5%), France (9.76%), Switzerland (7.69%), UK (7.05%) and Germany (5.12%). Thus it is clear that this pathogen is mainly being reported in developed countries, although the potential exists for it to be an important pathogen in low and middle-income countries[4]. Temporal analysis indicated an exponential growth in publications from 2015 to 2017. A scatter plot showed a linear relationship between number of retrieved documents and time with an $R2 = 0.576$ (Fig. 1).

To the best of our knowledge, this is the first bibliometric study on *M. chimaera*. The findings of our study indicated that there is a growing interest in this topic as seen by the linear increase in the number of publications with time, especially in the last year. Developed countries, particularly the USA and those in Western Europe, are leading the *M. chimaera* research, contributing to more than 81% of the world's total publications. As *M. chimaera* can be considered a recent emerged pathogen and a new research area, this study provides a 'snapshot' of this topic at an early stage in its development. A push for increased research is needed to improve the knowledge and awareness of its global epidemiology, clinical aspects, molecular aspects, treatment and prevention practices.

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Yeimer Ortiz-Martínez [*], **César Galindo-Regino, María R. González-Hurtado, Juan J. Vanegas-Pastrana, Félix Valdes-Villegas**

Faculty of Health Sciences. University of Sucre. Sincelejo, Colombia

*Corresponding author. Address: Calle 14A #15-75. Barrio Montecarlos. Magangué, Bolívar, Colombia. 132512.

Tel.: +57-3017124908.

E-mail address: yeimer10@hotmail.com (Y Ortiz-Martínez)

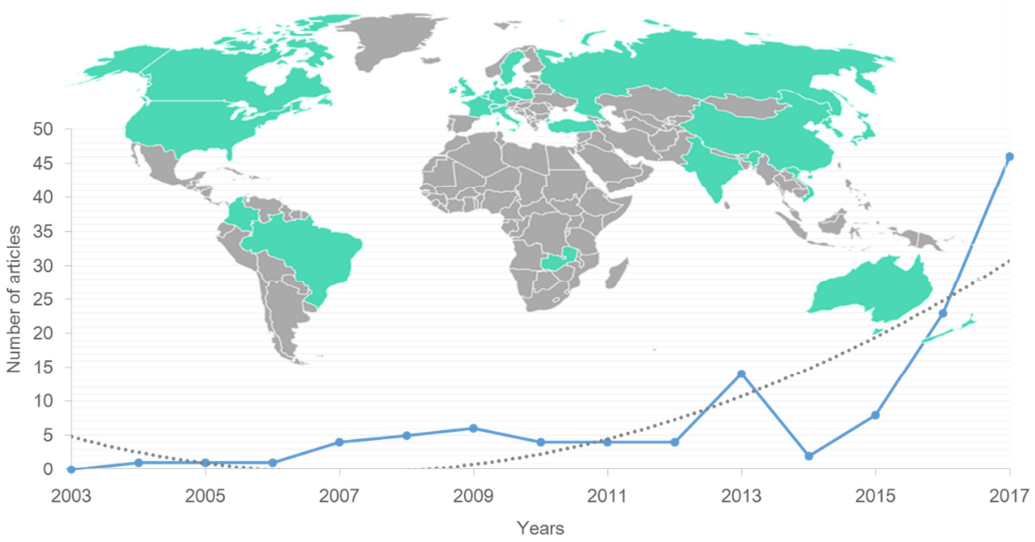

Fig 1. Research trends and its geographical origin, from 2004 to 2017, on *Mycobacterium chimaera* at MEDLINE. Countries coloured green are those from which publications originated.