

# Antibiotic Drugs Market Analysis

## 1.1. Overview

Methicillin-resistant Staphylococcus aureus (MRSA) is the leading cause of mortality per antibiotic-resistant infections in the United States and accounts for approximately 50% of all hospital-acquired/associated infections in the rest of North America, South America and Asia. On a global scale:<sup>1</sup>

- The global MRSA drug treatment market was valued at \$2.967 billion in 2016 and is projected to reach \$3.908.2 billion by 2025 at a CAGR of 3.2%.<sup>2</sup>
- North America accounts for 36% of the global MRSA drugs market share.<sup>3</sup>
- MSSA infections have slightly increased (3.9% per year,  $p < 0.0001$ ) from 2012 to 2017.<sup>4</sup>

MRSA prevalence in total S. aureus infection cases in contrast to MSSA globally is outlined by the following:

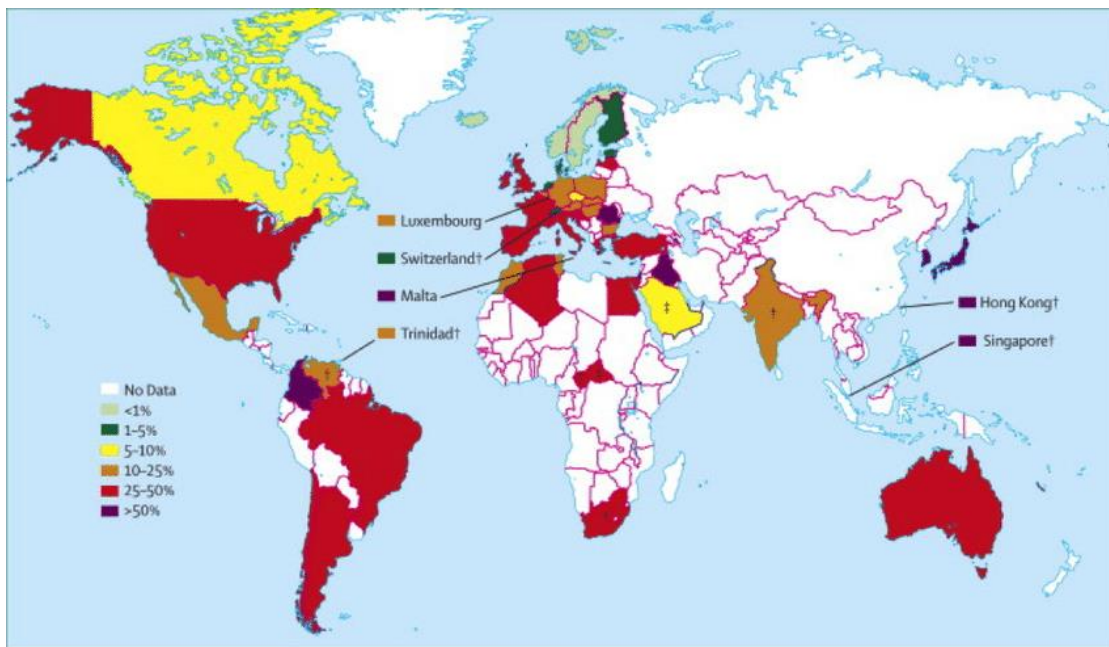


Figure 1: MRSA Prevalence Worldwide

The map above hints to policies of countries regarding frequency of prescriptions of conventional antibiotics to infected individuals with S. aureus, as ones with looser policies

<sup>1</sup> <https://www.cdc.gov/mmwr/volumes/68/wr/mm6809e1.htm>

<sup>2</sup> <https://www.transparencymarketresearch.com/mrsa-drugs-market.html>

<sup>3</sup> <https://www.transparencymarketresearch.com/mrsa-drugs-market.html>

<sup>4</sup> [https://www.cdc.gov/mmwr/volumes/68/wr/mm6809e1.htm?s\\_cid=mm6809e1\\_w](https://www.cdc.gov/mmwr/volumes/68/wr/mm6809e1.htm?s_cid=mm6809e1_w)

would have more numerous resistant strains of *S. aureus*. The relatively high prevalence of resistant *S. aureus* and consequently high death rates and associated costs point to the pressing need for development of an effective alternative to conventional drugs.

The prevalence of MRSA in patients that tested positive for *S. aureus* vary from region to region but were relatively comparable.

- In Asia prevalence rates varied between 7.3-74%
- In Western countries (i.e.; US, EU, Australia) prevalence rates ranging from 23.6-73.8%
- 7.2% of all hospital acquired/associated infections are SSTI-associated nosocomial infections, with 27% of these having *S. aureus* identified as its primary pathogen.<sup>5</sup>

## 1.2. Costs

In the US, the costs associated with treating multi-drug resistant infections nationally were as high as \$2.39 billion.<sup>6</sup> Measuring an exact treatment cost for MDROs is difficult and requires more research. This is evident due to the range of range of treating multi-drug resistant organisms can vary from \$331 to \$66,772.<sup>7</sup> While this is the case it is possible to have an idea what treatment costs are depending on the MDRO in question.

On average, the treatment costs per hospital stay for MRSA and other MDROs can be broken out in the following way:

- MRSA: \$1,700
- *C. difficile*: \$4,600
- Other classifications of MDRO: \$2,300
- Multiple MDRO: \$3,500

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<sup>5</sup> <https://www.dovepress.com/management-of-complicated-skin-and-soft-tissue-infections-with-a-speci-peer-reviewed-fulltext-article-IDR>

<sup>6</sup> <https://www.healthleadersmedia.com/clinical-care/multidrug-resistant-infections-can-cost-4600-hospital-stay>

<sup>7</sup> <https://www.healthleadersmedia.com/clinical-care/multidrug-resistant-infections-can-cost-4600-hospital-stay>

Costs for *S. aureus* treatment can also be subdivided by their drug sensitivity classification and any further complications associated with the infection; for example, pneumonia.

Currently, the costs associated with the treatment of MRSA are lower than the treatment costs for Methicillin Sensitive Staphylococcus aureus (MSSA). Treatment costs are also dependent on the severity of diagnosis of MRSA; whether or not the MRSA infection is associated with pneumonia. Pneumonia related treatment costs are markedly higher than those non-pneumonia-related hospitalizations. This is evident as per the table below<sup>8</sup>:

<b>S. aureus Classification</b>	<b>Pneumonia</b>	<b>Non-Pneumonia</b>
<b>MRSA</b>	\$38,561	\$14,792
<b>MSSA</b>	\$40,725	\$15,578

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<sup>8</sup> <https://academic.oup.com/cid/article/68/1/22/4995458>