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SPECIALTY SECTION  
This article was submitted to  
Antimicrobials, Resistance and  
Chemotherapy,  
a section of the journal  
Frontiers in Microbiology

RECEIVED 18 August 2022  
ACCEPTED 30 August 2022  
PUBLISHED 11 October 2022

CITATION  
Yang J-L, Sun H, Zhou X, Yang M and  
Zhan X-Y (2022) Corrigendum:  
Antimicrobial susceptibility profiles and  
tentative epidemiological cutoff values  
of *Legionella pneumophila* from  
environmental water and soil sources  
in China. *Front. Microbiol.* 13:1022197.  
doi: 10.3389/fmicb.2022.1022197

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# Corrigendum: Antimicrobial susceptibility profiles and tentative epidemiological cutoff values of *Legionella pneumophila* from environmental water and soil sources in China

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## KEYWORDS

*Legionella pneumophila*, antimicrobial susceptibility, epidemiological cut-off values, rifampin, clarithromycin, azithromycin, fluoroquinolones, *lpeAB*

## A corrigendum on

[Antimicrobial susceptibility profiles and tentative epidemiological cutoff values of \*Legionella pneumophila\* from environmental water and soil sources in China](#)

by Yang, J.-L., Sun, H., Zhou, X., Yang, M., and Zhan, X.-Y. (2022). *Front. Microbiol.* 13:924709. doi: 10.3389/fmicb.2022.924709

In the published article, there was a mistake in [Table 1](#) and [Table 3](#). In [Table 1](#), first, the subrow corresponding to “Sg2-15” is “Sg1” which is the abbreviation of Serogroup 1, not “Sg1 5” that is shown in the published article. Second, the columns of MIC<sub>50</sub>, MIC<sub>90</sub>, MIC range, and MIC diversities for the row RIF, subrow Sg2-15 should be as in this order: “0.0005, 0.0005, 0.0000625–0.002, and 0.57,” not the “0.0005, 0.000625–0.002, 0.57, and blank”. In [Table 3](#), in the column “Regions of isolates” all the regions in the cells named “Southern Italy 477 Italy” should be “Southern Italy”. The corrected [Tables 1, 3](#), and their captions appear below.

The authors apologize for this error and state that this does not change the scientific conclusions of the article in any way. The original article has been updated.

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TABLE 1 Minimum inhibitory concentration (MIC) data of eight antimicrobials for the 1464 *L. pneumophila* isolates.

| Antibiotics |        | No. of <i>L. pneumophila</i> isolates inhibited at indicated concentrations (mg/L) |          |         |        |       |       |       |       |       |       |       |       |      |     |      |     |   | MIC <sub>50</sub> | MIC <sub>90</sub> | MIC range | MIC diversities |                 |                 |      |
|-------------|--------|--|----------|---------|--------|-------|-------|-------|-------|-------|-------|-------|-------|------|-----|------|-----|---|-------------------|-------------------|-----------|-----------------|-----------------|-----------------|------|
|             |        | 0.0000625  | 0.000125 | 0.00025 | 0.0005 | 0.001 | 0.002 | 0.004 | 0.008 | 0.016 | 0.031 | 0.063 | 0.125 | 0.25 | 0.5 | 1    | 2   | 4 |                   |                   |           |                 | 8               | 16              | 32   |
| RIF         | All    | 18   | 77       | 580     | 749    | 37    | 3     |       |       |       |       |       |       |      |     |      |     |   |                   |                   | 0.0005    | 0.0005          | 0.0000625–0.002 | 0.58            |      |
|             | Sg1    | 1  | 20       | 183     | 119    | 5     | 1     |       |       |       |       |       |       |      |     |      |     |   |                   |                   |           | 0.00025         | 0.0005          | 0.0000625–0.002 | 0.56 |
|             | Sg2-15 | 17   | 57       | 397     | 630    | 32    | 2     |       |       |       |       |       |       |      |     |      |     |   |                   |                   |           | 0.0005          | 0.0005          | 0.0000625–0.002 | 0.57 |
| ERY         | All    |  |          |         |        |       |       |       | 3     | 117   | 552   | 494   | 298   |      |     |      |     |   |                   |                   | 0.25      | 0.5             | 0.031–0.5       | 0.70            |      |
|             | Sg1    |  |          |         |        |       |       |       |       | 63    | 182   | 74    | 10    |      |     |      |     |   |                   |                   | 0.125     | 0.25            | 0.063–0.5       | 0.61            |      |
|             | Sg2-15 |  |          |         |        |       |       |       | 3     | 54    | 370   | 420   | 288   |      |     |      |     |   |                   |                   | 0.25      | 0.5             | 0.031–0.5       | 0.69            |      |
| CLA         | All    |  |          |         |        | 1     | 3     | 46    | 748   | 661   | 5     |       |       |      |     |      |     |   |                   |                   | 0.031     | 0.063           | 0.004–0.125     | 0.53            |      |
|             | Sg1    |  |          |         |        |       |       | 13    | 233   | 82    | 1     |       |       |      |     |      |     |   |                   |                   | 0.031     | 0.063           | 0.008–0.125     | 0.44            |      |
|             | Sg2-15 |  |          |         |        | 1     | 3     | 33    | 515   | 579   | 4     |       |       |      |     |      |     |   |                   |                   | 0.063     | 0.063           | 0.004–0.125     | 0.53            |      |
| AZI         | All    |  |          |         |        |       | 1     | 0     | 2     | 264   | 1005  | 146   | 33    | 13   |     |      |     |   |                   |                   | 0.125     | 0.25            | 0.008–1         | 0.49            |      |
|             | Sg1    |  |          |         |        |       |       |       |       | 92    | 196   | 11    | 30    |      |     |      |     |   |                   |                   | 0.125     | 0.25            | 0.063–0.5       | 0.56            |      |
|             | Sg2-15 |  |          |         |        |       | 1     | 0     | 2     | 172   | 809   | 135   | 3     | 13   |     |      |     |   |                   |                   | 0.125     | 0.25            | 0.008–1         | 0.46            |      |
| CIP         | All    |  |          |         |        |       | 3     | 103   | 1160  | 195   | 1     | 0     | 2     |      |     |      |     |   |                   |                   | 0.031     | 0.063           | 0.008–0.5       | 0.35            |      |
|             | Sg1    |  |          |         |        |       | 1     | 12    | 276   | 37    | 1     | 0     | 2     |      |     |      |     |   |                   |                   | 0.031     | 0.063           | 0.008–0.5       | 0.28            |      |
|             | Sg2-15 |  |          |         |        |       | 2     | 91    | 884   | 158   |       |       |       |      |     |      |     |   |                   |                   | 0.031     | 0.063           | 0.008–0.063     | 0.37            |      |
| MOX         | All    |  |          |         |        |       |       | 20    | 1327  | 51    | 64    | 2     |       |      |     |      |     |   |                   |                   | 0.031     | 0.031           | 0.016–0.25      | 0.18            |      |
|             | Sg1    |  |          |         |        |       |       | 3     | 307   | 15    | 2     | 2     |       |      |     |      |     |   |                   |                   | 0.031     | 0.031           | 0.016–0.25      | 0.13            |      |
|             | Sg2-15 |  |          |         |        |       |       | 17    | 1020  | 36    | 62    |       |       |      |     |      |     |   |                   |                   | 0.031     | 0.031           | 0.016–0.125     | 0.19            |      |
| LEV         | All    |  |          |         |        |       |       | 965   | 451   | 46    | 0     | 2     |       |      |     |      |     |   |                   |                   | 0.016     | 0.031           | 0.016–0.25      | 0.47            |      |
|             | Sg1    |  |          |         |        |       |       | 182   | 140   | 5     | 0     | 2     |       |      |     |      |     |   |                   |                   | 0.016     | 0.031           | 0.016–0.25      | 0.51            |      |
|             | Sg2-15 |  |          |         |        |       |       | 783   | 311   | 1     |       |       |       |      |     |      |     |   |                   |                   | 0.016     | 0.031           | 0.016–0.063     | 0.41            |      |
| DOX         | All    |  |          |         |        |       |       |       |       |       |       |       |       | 1    | 58  | 1279 | 126 |   |                   |                   | 8         | 8               | 2–16            | 0.23            |      |
|             | Sg1    |  |          |         |        |       |       |       |       |       |       |       |       |      | 19  | 285  | 25  |   |                   |                   | 8         | 8               | 4–16            | 0.24            |      |
|             | Sg2-15 |  |          |         |        |       |       |       |       |       |       |       |       | 1    | 39  | 994  | 101 |   |                   |                   | 8         | 8               | 2–16            | 0.22            |      |

The first column of the tables shows names of the antibiotics. The antibiotics belonging to the same class are filled with same color, shown as light red for rifampicin, light blue for macrolides, light green for fluoroquinolones, and light orange for tetracyclines. Other cells filled with colors indicate the concentration ranges of the antibiotics that were used for MIC determination.

TABLE 3 Epidemiological cutoff values (ECOFFs) of antimicrobials for *L. pneumophila* that are described in other articles.

| Antibiotics | ECOFFs (WT ≤ X mg/L) | Methods | Number of isolates | Sg of isolates | Sources    | Regions of isolates | Ref.                         |
|-------------|----------------------|---------|--------------------|----------------|------------|---------------------|------------------------------|
| RIF         | 0.001                | BMD     | 109                | Sg1            | Clin.      | France              | Vandewalle-Capo et al., 2017 |
|             | 0.008                | BMD     | 50                 | Undefined      | Clin.+Env. | England and Wales   | Portal et al., 2021b *       |
|             | 0.008                | BMD     | 92                 | Undefined      | Clin.      | England and Wales   | Wilson et al., 2018*         |
|             | 0.032                | E-test  | 183                | Sg1            | Clin.      | Netherlands         | Bruin et al., 2012           |
|             | 0.032                | E-test  | 100                | Undefined      | Env.       | Southern Italy      | De Giglio et al., 2015*      |
|             | 0.032                | E-test  | 122                | Undefined      | Clin.+Env. | Norway              | Natas et al., 2019*          |
|             | 0.032                | E-test  | 149                | Sg1            | Clin.+Env. | China               | Jia et al., 2019             |
|             | 0.063                | E-test  | 105                | Undefined      | Clin.+Env. | Northern Israel     | Sharaby et al., 2019         |
| ERY         | 0.002                | BMD     | 1464               | Undefined      | Env.       | China               | This study                   |
|             | 1                    | BMD     | 109                | Sg1            | Clin.      | France              | Vandewalle-Capo et al., 2017 |
|             | 1                    | BMD     | 92                 | Undefined      | Clin.      | England and Wales   | Wilson et al., 2018*         |
|             | 1                    | E-test  | 183                | Sg1            | Clin.      | Netherlands         | Bruin et al., 2012           |
|             | 0.5                  | E-test  | 100                | Undefined      | Env.       | Southern Italy      | De Giglio et al., 2015*      |
|             | 0.5                  | E-test  | 122                | Undefined      | Clin.+Env. | Norway              | Natas et al., 2019*          |
|             | 1                    | E-test  | 149                | Sg1            | Clin.+Env. | China               | Jia et al., 2019             |
|             | 0.5                  | E-test  | 105                | Undefined      | Clin.+Env. | Northern Israel     | Sharaby et al., 2019         |
| CLA         | 0.5                  | BMD     | 1464               | undefined      | Env.       | China               | This study                   |
|             | 0.064                | BMD     | 109                | Sg1            | Clin.      | France              | Vandewalle-Capo et al., 2017 |
|             | 0.032                | BMD     | 92                 | Undefined      | Clin.      | England and Wales   | Wilson et al., 2018*         |
|             | 0.5                  | E-test  | 183                | Sg1            | Clin.      | Netherlands         | Bruin et al., 2012           |
|             | 0.5                  | E-test  | 100                | Undefined      | Env.       | Southern Italy      | De Giglio et al., 2015*      |
|             | 0.5                  | E-test  | 122                | Undefined      | Clin.+Env. | Norway              | Natas et al., 2019*          |
|             | 0.5                  | E-test  | 105                | Undefined      | Clin.+Env. | Northern Israel     | Sharaby et al., 2019         |
|             | 0.125                | BMD     | 1464               | Undefined      | Env.       | China               | This study                   |
| AZI         | 2                    | BMD     | 109                | Sg1            | Clin.      | France              | Vandewalle-Capo et al., 2017 |
|             | 0.25                 | BMD     | 50                 | Undefined      | Clin.+Env. | England and Wales   | Portal et al., 2021b*        |
|             | 1                    | E-test  | 183                | Sg1            | Clin.      | Netherlands         | Bruin et al., 2012           |
|             | 0.25                 | E-test  | 100                | Undefined      | Env.       | Southern Italy      | De Giglio et al., 2015*      |
|             | 0.25                 | E-test  | 122                | Undefined      | Clin.+Env. | Norway              | Natas et al., 2019*          |
|             | 1                    | E-test  | 149                | Sg1            | Clin.+Env. | China               | Jia et al., 2019             |
|             | 2                    | E-test  | 105                | Undefined      | Clin.+Env. | Northern Israel     | Sharaby et al., 2019         |
|             | 0.5                  | BMD     | 1464               | Undefined      | Env.       | China               | This study                   |
| CIP         | 0.064                | BMD     | 109                | Sg1            | Clin.      | France              | Vandewalle-Capo et al., 2017 |
|             | 0.032                | BMD     | 92                 | Undefined      | Clin.      | England and Wales   | Wilson et al., 2018*         |
|             | 1                    | E-test  | 183                | Sg1            | Clin.      | Netherlands         | Bruin et al., 2012           |
|             | 1                    | E-test  | 100                | Undefined      | Env.       | Southern Italy      | De Giglio et al., 2015*      |
|             | 1                    | E-test  | 122                | Undefined      | Clin.+Env. | Norway              | Natas et al., 2019*          |
|             | 4                    | E-test  | 105                | Undefined      | Clin.+Env. | Northern Israel     | Sharaby et al., 2019         |
|             | 0.125                | BMD     | 1464               | Undefined      | Env.       | China               | This study                   |
|             | 0.064                | BMD     | 109                | Sg1            | Clin.      | France              | Vandewalle-Capo et al., 2017 |
| MOX         | 0.125                | BMD     | 92                 | Undefined      | Clin.      | England and Wales   | Wilson et al., 2018*         |
|             | 1                    | E-test  | 183                | Sg1            | Clin.      | Netherlands         | Bruin et al., 2012           |
|             | 1                    | E-test  | 100                | Undefined      | Env.       | Southern Italy      | De Giglio et al., 2015*      |
|             | 1                    | E-test  | 122                | Undefined      | Clin.+Env. | Norway              | Natas et al., 2019*          |
|             | 1                    | E-test  | 149                | Sg1            | Clin.+Env. | China               | Jia et al., 2019             |
|             | 0.125                | BMD     | 1464               | Undefined      | Env.       | China               | This study                   |

(Continued)

TABLE 3 (Continued)

| Antibiotics | ECOFFs<br>(WT ≤ X mg/L) | Methods | Number of<br>isolates | Sg1<br>isolates | Sources    | Regions of<br>isolates | Ref.                         |
|-------------|-------------------------|---------|-----------------------|-----------------|------------|------------------------|------------------------------|
| LEV         | 0.032                   | BMD     | 109                   | Sg1             | Clin.      | France                 | Vandewalle-Capo et al., 2017 |
|             | 0.125                   | BMD     | 92                    | Undefined       | Clin.      | England and Wales      | Wilson et al., 2018*         |
|             | 0.125                   | BMD     | 50                    | Undefined       | Clin.&Env. | England and Wales      | Portal et al., 2021b*        |
|             | 0.5                     | E-test  | 183                   | Sg1             | Clin.      | Netherlands            | Bruin et al., 2012           |
|             | 0.25                    | E-test  | 100                   | Undefined       | Env.       | Southern Italy         | De Giglio et al., 2015*      |
|             | 0.25                    | E-test  | 122                   | Undefined       | Clin.+Env. | Norway                 | Natas et al., 2019*          |
|             | 0.5                     | E-test  | 149                   | Sg1             | Clin.+Env. | China                  | Jia et al., 2019             |
|             | 2                       | E-test  | 105                   | Undefined       | Clin.+Env. | Northern Israel        | Sharaby et al., 2019         |
|             | 0.063                   | BMD     | 1464                  | Undefined       | Env.       | China                  | This study                   |
| DOX         | 2                       | BMD     | 109                   | Sg1             | Clin.      | France                 | Vandewalle-Capo et al., 2017 |
|             | 32                      | BMD     | 50                    | Undefined       | Clin.&Env. | England and Wales      | Portal et al., 2021b*        |
|             | 8                       | E-test  | 183                   | Sg1             | Clin.      | Netherlands            | Bruin et al., 2012           |
|             | 8                       | E-test  | 100                   | Undefined       | Env.       | Southern Italy         | De Giglio et al., 2015*      |
|             | 8                       | E-test  | 122                   | Undefined       | Clin.+Env. | Norway                 | Natas et al., 2019*          |
|             | 0.5                     | E-test  | 105                   | Undefined       | Clin.+Env. | Northern Israel        | Sharaby et al., 2019         |
|             | 32                      | BMD     | 1464                  | Undefined       | Env.       | China                  | This study                   |

Env. indicates environmental sources, Clin. indicates clinical source. Cells filled with gray indicate similar results to those obtained by the present study (filled with light brown).

\*indicates that the ECOFFs were not directly shown in the original articles, and were based on the tentative highest MIC for wild-type organisms reported by the EUCAST—European Committee on Antimicrobial Susceptibility Testing—Guidance Document on Antimicrobial Susceptibility Testing of *Legionella pneumophila*. Available online: [https://www.eucast.org/fileadmin/src/media/PDFs/EUCAST\\_files/Guidance\\_documents/Legionella\\_guidance\\_note\\_-\\_20210528.pdf](https://www.eucast.org/fileadmin/src/media/PDFs/EUCAST_files/Guidance_documents/Legionella_guidance_note_-_20210528.pdf).