The following are supplemental materials and will be published online only

Supplementary materials

S1 Table. Zones of inhibition (mm) produced by Leptospira spp. isolates for 6 antimicrobials on LVW agar. Also included is the time to reach 4+ growth following subculturing and observation of faint growth. Time to reach 4+ growth is also given for 6 plates of different isolates where the isolate was re-subcultured and tested at a separate time. Basic statistical computations for each antimicrobial such as median and mode are located at the bottom of the table.

Isolates codes: UI = patient admitted at Mahosot Hospital, Vientiane; LNT = admitted at Luang Nam Tha Hospital; SV = admitted at Salavan Hospital; FS = admitted at Friendship Hospital, Vientiane.

+ Growth on the control without an antimicrobial disk;
* Surface plate contamination;
† Difficult to measure zones.

| Isolate number | Isolate code | Growth control | Azithromycin | Ceftriaxone | Ciprofloxacin | Doxycycline | Gentamicin | Penicillin G | Time to reach 4+ growth (days) | Additional observations |
|----------------|--------------|----------------|--------------|-------------|--------------|-------------|------------|--------------|-------------------------------|----------------------|
| 1              | UI8368       | +              | 85           | 85          | 85           | 40          | 35         | 58           | 6                             | Faint growth         |
| 2              | UI8414       | +              | 85           | 59          | 70           | 85*         | 33         | 85           | 6                             |                      |
| 3              | UI8434       | +              | 85           | 54          | 70*          | 51          | 30         | 65           | 5                             | Faint growth         |
| 4              | UI8440       | +              | 85           | 68          | 70           | 68          | 32         | 72           | 5                             |                      |
| 5              | UI8561       | +*             | 85           | 40          | 85           | 85          | 85         | 75           | 6                             |                      |
| 6              | UI8596       | +              | 85           | 75*         | 70           | 60          | 48         | 69           | 6                             | Faint growth         |
| 7              | UI8704       | +              | 85           | 60          | 70           | 55          | 36         | 60           | 6                             |                      |
| 8              | UI12344      | +              | 85           | 64          | 57*†         | 34          | 30*        | 65*          | 6                             |                      |
| 9              | UI12342      | +              | 85           | 85*         | 85           | 70          | 47         | 72           | 5                             | Faint growth         |
| Isolate number | Isolate code  | Growth control | Azithromycin | Ceftriaxone | Ciprofloxacin | Doxycycline | Gentamicin | Penicillin G | Time to reach 4+ growth (days) | Additional observations |
|----------------|---------------|----------------|--------------|-------------|---------------|-------------|------------|--------------|-------------------------------|------------------------|
| 10             | UI12621       | +              | 77           | 60^*        | 65^†         | 59          | 26         | 63           | 12                            |                         |
| 11             | UI12764       | +              | 85           | 70^*        | 85^*         | 70          | 43^*       | 80^*         | 8                             | Faint growth            |
| 12             | UI12758       | +^*            | 80           | 52          | 73           | 48          | 28         | 65           | 8                             |                         |
| 13             | UI12769       | +              | 85           | 80          | 85^*         | 70          | 35         | 71           | 3                             | Faint growth            |
| 14             | UI12830       | +^*            | 85           | 75          | 68           | 65          | 35         | 70           | 6                             |                         |
| 15             | UI13005       | +              | 75           | 52          | 68           | 53          | 27         | 73^†         | 12                            |                         |
| 16             | UI13016       | +              | 85           | 60          | 65           | 50          | 35         | 68           | 3                             |                         |
| 17             | UI12823       | +              | 85^*         | 65          | 85^*         | 50          | 40         | 80           | 6                             | Faint growth            |
| 18             | UI13087       | +^*            | 85           | 65^†        | 45^†         | 57^*        | 30         | 60^*         | 6                             |                         |
| 19             | UI13098       | +              | 75           | 70^†        | 55           | 45          | 43         | 70           | 5                             | Faint growth            |
| 20             | UI13372       | +              | 75           | 64          | 65           | 60          | 34         | 69           | 8                             |                         |
| 21             | UI14346       | +              | 85^*         | 70^*        | n/a          | n/a         | 33         | 70           | 5                             |                         |
| 22             | UI14469       | +              | 85           | 75^*        | 60           | 60          | 34         | 80           | 4                             | Faint growth            |
| 23             | UI14535       | +^*            | 85           | 60          | 60           | 50          | 32         | 70           | 4                             |                         |
| 24             | UI14631       | +              | 85           | 76          | 70           | 70          | 35         | 80           | 8                             | Faint growth            |
| 25             | UI14721       | +              | 85^*         | 49^*        | 64           | 45          | 31         | 70           | 9                             |                         |
| 26             | UI14851       | +              | 85           | 80          | 70           | 74          | 37         | 76           | 8                             | Faint growth            |
| 27             | UI15117       | +              | 60           | 54          | 60^*         | 50          | 40         | 70           | 4                             |                         |
| 28             | UI15191       | +^*            | 85           | 60          | 65           | 49          | 30         | 70           | 4                             |                         |
| 29             | UI15218       | +              | 85^*         | 70          |              |             |            |              | 8                             |                         |
| 30             | LNT1154       | +              | 85           | 64^*†        | 67^†         | 60          | 31         | 59^*         | 9                             |                         |
| 31             | SV387         | +              | 37^†         | 45          | 40^*         | 45^†        | 25         | 54           | 6                             |                         |
| 32             | UI15308       | +              | 80           | 65          | 70           | 64          | 33         | 68           | 4                             |                         |
| 33             | UI15357       | +              | 85           | 70          | 70           | 55          | 35         | 70           | 5                             |                         |
| 34             | UI17545       | +^*            | 85           | 70          | 79           | 51          | 39         | 64           | 4                             |                         |
| Isolate number | Isolate code | Growth control | Azithromycin | Ceftriaxone | Ciprofloxacin | Doxycycline | Gentamicin | Penicillin G | Time to reach 4+ growth (days) | Additional observations |
|----------------|--------------|----------------|--------------|-------------|---------------|--------------|------------|--------------|-------------------------------|-----------------------|
| 35             | UI17322      | +              | 85*          | 74          | 85            | 67           | 32         | 73           | 3                            |                       |
| 36             | LNT1600      | +*             | 85           | 59          | 65            | 45           | 32*        | 70           | 5                            |                       |
| 37             | LNT1612      | +              | 85*          | 65          | 75 (4 days)   | 60           | 35 (4 days) | 85           | 5                            |                       |
| 38             | LNT1671      | n/a            | 85           | 75†         | 85            | 63†          | 36         | 85†          | 4                            | Faint growth           |
| 39             | UI18681      | +              | 85*          | 70*†        | 69†           | 55           | 28*        | 74*†         | 9                            |                       |
| 40             | UI19245      | +              | 85           | 70          | 85            | 85*         | 35         | 85           | 5                            | Faint growth           |
| 41             | UI19893      | +              | 85*          | 70          | 70            | 70†         | 30         | 74           | 3                            |                       |
| 42             | UI20184      | +              | 68           | 63          | 69            | 59           | 35         | 68*          | 7                            |                       |
| 43             | LNT2340      | +              | 85           | 71†         | 65            | 64           | 38         | 73†          | 6                            |                       |
| 44             | UI20403      | +              | 85           | 72          | 85            | 60           | 35         | 72           | 3                            |                       |
| 45             | UI20802      | +              | 85           | 85*         | 85            | 70           | 35         | 85           | 3                            |                       |
| 46             | SV7365       | +              | 85           | 60 (4 days) | 60 (4 days)   | 47           | 35*        | 67           | 3                            |                       |
| 47             | UI11076      | +*             | 85*          | 85*†        | 85*           | 69*          | 39         | 85*†         | 6                            |                       |
| 48             | UI22068      | +*             | 60           | 85*         | 64            | 51           | 25         | 55           | 3                            |                       |
| 49             | LNT2714      | +              | 78†          | 40          | 55            | 49†         | 28         | 60           | 4                            |                       |
| 50             | LNT2714      | +              | 85           | 65          | 69            | 65           | 36         | 65           | 3                            |                       |
| 51             | UI22743      | +*             | 85           | 58          | 85*           | 65           | 32*        | 65           | 3                            |                       |
| 52             | SV1038       | +              | 85*          | 69          | 74*†          | 70*         | 36         | 75           | 4                            |                       |
| 53             | LNT2747      | +              | 40†          | 56*         | 64            | 44           | 30         | 63           | 6                            |                       |
| 54             | UI23056      | +              | 85*          | 56          | 66            | 50*         | 30         | 60           | 3                            |                       |
| 55             | UI23152      | +*             | 85           | 70          | 80*           | 45           | 46         | 60           | 5                            |                       |
| 56             | UI23159      | +*             | 85           | 85          | 73            | 62           | 36†        | 70           | 6                            |                       |
| 57             | LNT2825      | +*             | 85           | 85          | 85            | 70           | 45†        | 80           | 4                            |                       |
| 58             | LNT2859      | +              | 85           | 70†         | 85            | 42           | 30†        | 65           | 3                            |                       |
| 59             | UI25281      | +*             | 75           | 55          | 56            | 45           | 30         | 52           | 3                            |                       |
| 60             | UI26021      | +              | 85           | 82          | 78            | 75           | 42         | 71†          | 5                            |                       |
| Isolate number | Isolate code | Growth control | Azithromycin | Ceftriaxone | Ciprofloxacin | Doxycycline | Gentamicin | Penicillin G | Time to reach 4+ growth (days) | Additional observations |
|----------------|--------------|----------------|--------------|-------------|--------------|-------------|------------|-------------|--------------------------------|-----------------------|
| 60             | UI26702      | +              | 85           | 85          | 85           | 65          | 42         | 85          | 3                              | Faint growth          |
| 61             | UI27257      | +              | 85           | 85          | 85           | 65          | 46         | 30          | 6                              | Faint growth          |
| 62             | UI27365      | +              | 85           | 85          | 85           | 65          | 30         | 33          | 5                              | Faint growth          |
| 63             | UI27387      | +              | 85           | 85          | 85           | 65          | 30         | 33          | 5                              | Faint growth          |
| 64             | LNT2987      | +              | 42†          | 62          | 60           | 33          | 75†        | 6            | Faint growth                    |
| 65             | UI27739      | +              | 85           | 85          | 85           | 65          | 39         | 65          | 3                              | Faint growth          |
| 66             | UI27845      | +              | 85           | 85          | 85           | 65          | 30         | 65          | 3                              | Faint growth          |
| 67             | UI27877      | +              | 85           | 70†         | 80           | 55          | 35         | 63          | 3                              | Faint growth          |
| 68             | FS3849       | +              | 85†          | 58          | 55           | 31          | 62†        | 9            | Faint growth                    |
| 69             | LNT3077      | +              | 55           | 49          | 65           | 30          | 30         | 70          | 4                              | Faint growth          |
| 70             | LNT3086      | +              | 85           | 60†         | 53†          | 48†         | 30         | 61          | 4                              | Faint growth          |
| 71             | LNT3102      | +              | 75†          | 56          | 65†          | 30         | 31         | 54          | 6                              | Faint growth          |
| 72             | UI30454      | +              | 85           | 60          | 85           | 35         | 35         | 60          | 5                              | Faint growth          |
| 73             | LNT3110      | +              | 85           | 75          | 60†          | 61†         | 38         | 77          | 4                              | Faint growth          |
| 74             | UI30711      | +              | 85           | 85          | 65†          | 35†         | 65         | 6            | Faint growth                    |
| 75             | UI30881      | +              | 85           | 73          | 85           | 80          | 40         | 85          | 3                              | Faint growth          |
| 76             | UI32865      | +              | 74           | 40*         | 56           | 44*         | 27†        | 57          | 6                              | Faint growth          |
| 77             | UI33216      | +              | 85           | 70†         | 65           | 40         | 32         | 68          | 5                              | Faint growth          |
| 78             | SV547        | +              | 85           | 57†         | 54†          | 47†         | 28         | 58          | 6                              | Faint growth          |
| 79             | SV588        | +              | 40           | 75†         | 55           | 37         | 32         | 56          | 6                              | Faint growth          |
| 80             | UI36718      | +              | 75†          | 50          | 55           | 40†         | 29         | 57          | 6                              | Faint growth          |
| Isolate number | Isolate code  | Growth control | Azithromycin | Ceftriaxone | Ciprofloxacin | Doxycycline | Gentamicin | Penicillin G | Time to reach 4+ growth (days) | Additional observations |
|----------------|---------------|----------------|--------------|-------------|---------------|-------------|------------|-------------|----------------------------|------------------------|
| 81             | UI36788       | +*             | 85           | 70          | 75            | 60†         | 36         | 65†         | 4                         |                        |
| 82             | UI37443       | +              | 85*          | 85          | 85            | 70          | 35         | 70          | 4                         |                        |
| 83             | UI37640       | +              | 85           | 75          | 75            | 70          | 40         | 70          | 6                         | Faint growth           |
| Median         |               |                | 85           | 69          | 70            | 56          | 35         | 70          | 5                         |                        |
| IQR (1st to 3rd quartiles) |     |                | 85 to 85     | 59 to 75    | 64 to 85      | 47 to 65    | 30 to 37   | 63 to 85    | 4 to 8                    |                        |
| Mode           |               |                | 85           | 70          | 85            | 70          | 35         | 70          | 6                         |                        |
| Minimum        |               |                | 37           | 40          | 40            | 34          | 25         | 52          | 3                         |                        |
| Maximum        |               |                | 85           | 85          | 85            | 85          | 85         | 85          | 12                        |                        |
| Range          |               |                | 48           | 45          | 45            | 51          | 60         | 33          | 9                         |                        |

IQR = interquartile range; LVW = *Leptospira* Vanaporn Wuthiekanun; n/a = not available.