

**Supplementary Table 1. Reference strains used to create custom virulence factor database**

| <b>Virulence factors</b> | <b>Reference strain</b>                    | <b>Locus tag/accession</b> |
|--------------------------|--------------------------------------------|----------------------------|
| YLF                      | <i>B. pseudomallei</i> K96243 chromosome 2 | BPSS0120                   |
| YLF                      | <i>B. pseudomallei</i> K96243 chromosome 2 | BPSS0123                   |
| YLF                      | <i>B. pseudomallei</i> K96243 chromosome 2 | BPSS0122                   |
| YLF                      | <i>B. pseudomallei</i> K96243 chromosome 2 | BPSS0121                   |
| LPS_B                    | <i>B. pseudomallei</i> 579                 | NZ_ACCE01000003            |
| LPS_A                    | <i>B. pseudomallei</i> K96243 chromosome 1 | NC_006350                  |
| LPS_B2                   | <i>B. pseudomallei</i> MSHR840             | GU574442                   |
| bimA <sub>Bm</sub>       | <i>B. pseudomallei</i> 668                 | BURPS668_A2118             |
| BTFC_cluster             | <i>B. pseudomallei</i> 305                 | EF377328.1                 |
| fhaB3                    | <i>B. pseudomallei</i> K96243 chromosome 2 | BPSS2053                   |

**Supplementary Table 2. Clinical data and virulence factors of the most prevalent sequence types**

|                   |                          |     | Total, N | ST 252<br>N (%) | ST 283<br>N (%) | ST 276<br>N (%) | ST TSV-13<br>N (%) | Other STs<br>N (%) |
|-------------------|--------------------------|-----|----------|-----------------|-----------------|-----------------|--------------------|--------------------|
| Time period       | 1997-2004                |     | 50       | 16 (32)         | 8 (16)          | 2 (4)           | 0                  | 24 (48)            |
|                   | 2005-2012                |     | 30       | 7 (23)          | 2 (7)           | 5 (17)          | 1 (3)              | 15 (50)            |
|                   | 2013-2020                |     | 48       | 3 (6)           | 5 (10)          | 1 (2)           | 6 (13)             | 33 (69)            |
| Clinical data     | Age >50y                 | Yes | 91       | 20 (22)         | 12 (13)         | 7 (8)           | 7 (8)              | 45 (49)            |
|                   |                          | No  | 37       | 6 (16)          | 3 (8)           | 1 (3)           | 0                  | 27 (73)            |
|                   | Sex                      | Yes | 82       | 14 (17)         | 9 (11)          | 6 (7)           | 6 (7)              | 47 (57)            |
|                   |                          | No  | 46       | 12 (26)         | 6 (13)          | 2 (4)           | 1 (2)              | 25 (54)            |
|                   | First Nation             | Yes | 34       | 7 (21)          | 3 (9)           | 0               | 0                  | 24 (71)            |
|                   |                          | No  | 81       | 16 (20)         | 11 (14)         | 4 (5)           | 7 (9)              | 43 (53)            |
|                   | Alcohol excess           | Yes | 66       | 14 (21)         | 3 (5)           | 4 (6)           | 5 (8)              | 40 (61)            |
|                   |                          | No  | 53       | 9 (17)          | 11 (21)         | 2 (4)           | 2 (4)              | 29 (55)            |
|                   | Diabetes mellitus        | Yes | 59       | 11 (19)         | 7 (12)          | 4 (7)           | 2 (3)              | 35 (59)            |
|                   |                          | No  | 65       | 14 (22)         | 8 (12)          | 3 (5)           | 5 (8)              | 35 (54)            |
|                   | Chronic kidney disease   | Yes | 7        | 1 (14)          | 0               | 0               | 1 (14)             | 5 (71)             |
|                   |                          | No  | 107      | 21 (20)         | 15 (14)         | 6 (6)           | 6 (6)              | 59 (55)            |
|                   | Malignancy               | Yes | 16       | 2 (13)          | 3 (19)          | 3 (19)          | 1 (6)              | 7 (44)             |
|                   |                          | No  | 106      | 23 (22)         | 12 (11)         | 3 (3)           | 6 (6)              | 62 (59)            |
|                   | Lung disease             | Yes | 37       | 8 (22)          | 5 (14)          | 4 (11)          | 1 (3)              | 19 (51)            |
|                   |                          | No  | 87       | 18 (21)         | 10 (11)         | 3 (3)           | 6 (7)              | 50 (57)            |
|                   | No risk factors          | Yes | 13       | 5 (39)          | 3 (23)          | 0               | 1 (8)              | 4 (31)             |
|                   |                          | No  | 112      | 21 (19)         | 12 (11)         | 8 (7)           | 5 (4)              | 66 (59)            |
|                   | Bacteraemia              | Yes | 87       | 15 (17)         | 12 (14)         | 7 (8)           | 5 (6)              | 48 (55)            |
|                   |                          | No  | 37       | 10 (27)         | 3 (8)           | 1 (3)           | 2 (5)              | 21 (57)            |
|                   | Pneumonia                | Yes | 84       | 14 (17)         | 11 (13)         | 5 (6)           | 4 (5)              | 50 (60)            |
|                   |                          | No  | 37       | 11 (30)         | 3 (8)           | 1 (3)           | 3 (8)              | 19 (51)            |
|                   | Solid organ abscess      | Yes | 15       | 2 (13)          | 4 (27)          | 0               | 1 (7)              | 8 (53)             |
|                   |                          | No  | 104      | 22 (21)         | 10 (10)         | 6 (6)           | 5 (5)              | 61 (59)            |
|                   | Skin & soft tissue       | Yes | 17       | 4 (24)          | 3 (18)          | 0               | 1 (6)              | 9 (53)             |
|                   |                          | No  | 103      | 20 (19)         | 11 (11)         | 6 (6)           | 5 (5)              | 60 (58)            |
|                   | Genitourinary            | Yes | 19       | 4 (21)          | 3 (16)          | 1 (5)           | 2 (11)             | 9 (47)             |
|                   |                          | No  | 102      | 20 (20)         | 12 (12)         | 5 (5)           | 5 (5)              | 60 (59)            |
|                   | Septic Shock             | Yes | 24       | 3 (13)          | 5 (21)          | 1 (4)           | 2 (8)              | 13 (54)            |
|                   |                          | No  | 90       | 18 (20)         | 9 (10)          | 5 (6)           | 5 (6)              | 53 (59)            |
| Virulence factors | LPS A                    | Yes | 89       | 26 (29)         | 15 (17)         | 8 (9)           | 0                  | 40 (45)            |
|                   |                          | No  | 39       | 0               | 0               | 0               | 7 (18)             | 32 (82)            |
|                   | YLF                      | Yes | 88       | 26 (30)         | 15 (17)         | 8 (9)           | 7 (8)              | 32 (36)            |
|                   |                          | No  | 40       | 0               | 0               | 0               | 0                  | 40 (100)           |
|                   | <i>fhaB3</i>             | Yes | 105      | 26 (25)         | 15 (14)         | 8 (8)           | 7 (7)              | 49 (47)            |
|                   |                          | No  | 23       | 0               | 0               | 0               | 0                  | 23 (100)           |
|                   | <i>bimA<sub>Bm</sub></i> | Yes | 18       | 0               | 0               | 0               | 0                  | 18 (100)           |
|                   |                          | No  | 110      | 26 (24)         | 15 (14)         | 8 (7)           | 7 (6)              | 54 (49)            |

**Supplementary Table 3. Association between genomic factors and mortality**

|                                 |            | <b>Dead<br/>N (%)</b> | <b>Bivariate p-value</b> | <b>aOR (95% CI)</b> | <b>Multivariate p-value</b> |
|---------------------------------|------------|-----------------------|--------------------------|---------------------|-----------------------------|
| <b>Novel ST</b>                 | Yes        | 9/51 (18)             | 0.5                      | 0.7 (0.3 – 1.9)     | 0.5                         |
|                                 | No         | 18/77 (23)            |                          |                     |                             |
| <b>YLF/BTFC</b>                 | YLF        | 23/88 (26)            | 0.04                     | 3.2 (0.9 – 10.8)    | 0.06                        |
|                                 | BTFC       | 4/40 (10)             |                          |                     |                             |
| <b><i>FhaB3</i></b>             | Yes        | 24/105 (23)           | 0.4                      | 1.9 (0.5 – 7.8)     | 0.4                         |
|                                 | No         | 3/23 (13)             |                          |                     |                             |
| <b>LPS A</b>                    | Yes        | 21/89 (24)            | 0.4                      | 1.4 (0.5 – 4.0)     | 0.5                         |
|                                 | No         | 6/39 (15)             |                          |                     |                             |
| <b><i>BimA</i><sub>Bm</sub></b> | Yes        | 2/18 (11)             | 0.2                      | 0.5 (0.1 – 2.0)     | 0.3                         |
|                                 | No         | 25/110 (23)           |                          |                     |                             |
| <b>Sequence<br/>Types</b>       | ST252      | 8/26 (31)             | 0.02                     | 3.0 (1.2 – 7.9)     | 0.02                        |
|                                 | ST283      | 4/15 (27)             |                          |                     |                             |
|                                 | ST276      | 2/8 (25)              |                          |                     |                             |
|                                 | ST TSV13   | 4/7 (57)              |                          |                     |                             |
|                                 | Other STs* | 9/72 (13)             |                          |                     |                             |

\*All STs excluding 4 most common

**Supplementary Table 4. Bivariate and multivariate associations with *fhaB3***

|                               | <i>fhaB3</i> +ve | Bivariate p-value | aOR (95% CI)    | Multivariate p-value |
|-------------------------------|------------------|-------------------|-----------------|----------------------|
|                               | N (%)            |                   |                 |                      |
| <b>Age &gt;50</b>             |                  |                   |                 |                      |
| Yes                           | 82/91 (90%)      | <0.001            | 1.7 (0.3 – 8.9) | 0.5                  |
| No                            | 23/37 (62%)      |                   |                 |                      |
| <b>Sex</b>                    |                  |                   |                 |                      |
| Female                        | 38/46 (83%)      | 0.9               |                 |                      |
| Male                          | 67/82 (82%)      |                   |                 |                      |
| <b>First Nation</b>           |                  |                   |                 |                      |
| Yes                           | 20/34 (59%)      | <0.001            | 0.3 (0.1 – 1.3) | 0.1                  |
| No                            | 73/81 (90%)      |                   |                 |                      |
| <b>Alcohol excess</b>         |                  |                   |                 |                      |
| Yes                           | 47/66 (71%)      | 0.001             | 0.2 (0.1 – 0.7) | 0.01                 |
| No                            | 50/53 (94%)      |                   |                 |                      |
| <b>Diabetes mellitus</b>      |                  |                   |                 |                      |
| Yes                           | 47/59 (80%)      | 0.6               |                 |                      |
| No                            | 54/65 (83%)      |                   |                 |                      |
| <b>Chronic Kidney disease</b> |                  |                   |                 |                      |
| Yes                           | 6/7 (86%)        | 1                 |                 |                      |
| No                            | 88/107 (82%)     |                   |                 |                      |
| <b>Malignancy</b>             |                  |                   |                 |                      |
| Yes                           | 15/16 (94%)      | 0.3               |                 |                      |
| No                            | 84/106 (79%)     |                   |                 |                      |
| <b>Lung disease</b>           |                  |                   |                 |                      |
| Yes                           | 31/37 (84%)      | 0.8               |                 |                      |
| No                            | 70/87 (80%)      |                   |                 |                      |
| <b>No Risk Factors</b>        |                  |                   |                 |                      |
| Yes                           | 13/13 (100%)     | 0.1               |                 | -                    |
| No                            | 90/112 (80%)     |                   |                 |                      |
| <b>Pneumonia</b>              |                  |                   |                 |                      |
| Yes                           | 68/88 (77%)      | 0.05              | 0.4 (0.1 – 1.6) | 0.2                  |
| No                            | 34/37 (92%)      |                   |                 |                      |
| <b>Bacteraemia</b>            |                  |                   |                 |                      |
| Yes                           | 70/87 (80%)      | 0.4               |                 |                      |
| No                            | 32/37 (86%)      |                   |                 |                      |
| <b>Solid organ abscess</b>    |                  |                   |                 |                      |
| Yes                           | 14/15 (93%)      | 0.3               |                 |                      |
| No                            | 82/104 (79%)     |                   |                 |                      |
| <b>Skin &amp; Soft tissue</b> |                  |                   |                 |                      |
| Yes                           | 16/17 (94%)      | 0.2               |                 |                      |
| No                            | 81/103 (78%)     |                   |                 |                      |
| <b>Genitourinary</b>          |                  |                   |                 |                      |
| Yes                           | 15/19 (79%)      | 0.8               |                 |                      |
| No                            | 83/102 (81%)     |                   |                 |                      |
| <b>Septic Shock</b>           |                  |                   |                 |                      |
| Yes                           | 17/24 (71%)      | 0.2               |                 |                      |
| No                            | 76/90 (84%)      |                   |                 |                      |

**Supplementary Table 5. Bivariate and multivariate associations with YLF**

|                               | YLF          | Bivariate p-value | aOR (95% CI)    | Multivariate p-value |
|-------------------------------|--------------|-------------------|-----------------|----------------------|
|                               | N (%)        |                   |                 |                      |
| <b>Age &gt;50</b>             |              |                   |                 |                      |
| Yes                           | 70/91 (77%)  | 0.002             | 2.7 (0.7 – 9.9) | 0.1                  |
| No                            | 18/37 (49%)  |                   |                 |                      |
| <b>Sex</b>                    |              |                   |                 |                      |
| Female                        | 33/46 (72%)  | 0.6               |                 |                      |
| Male                          | 55/82 (67%)  |                   |                 |                      |
| <b>First Nation</b>           |              |                   |                 |                      |
| Yes                           | 17/34 (50%)  | 0.01              | 0.8 (0.2 – 3.2) | 0.8                  |
| No                            | 60/81 (74%)  |                   |                 |                      |
| <b>Alcohol excess</b>         |              |                   |                 |                      |
| Yes                           | 39/66 (59%)  | 0.02              | 0.4 (0.2 – 0.9) | 0.04                 |
| No                            | 42/53 (79%)  |                   |                 |                      |
| <b>Diabetes mellitus</b>      |              |                   |                 |                      |
| Yes                           | 40/59 (68%)  | 0.7               |                 |                      |
| No                            | 46/65 (71%)  |                   |                 |                      |
| <b>Chronic Kidney disease</b> |              |                   |                 |                      |
| Yes                           | 5/7 (71%)    | 1                 |                 |                      |
| No                            | 73/107 (68%) |                   |                 |                      |
| <b>Malignancy</b>             |              |                   |                 |                      |
| Yes                           | 12/16 (75%)  | 0.8               |                 |                      |
| No                            | 72/106 (68%) |                   |                 |                      |
| <b>Lung disease</b>           |              |                   |                 |                      |
| Yes                           | 28/37 (76%)  | 0.4               |                 |                      |
| No                            | 58/87 (67%)  |                   |                 |                      |
| <b>No Risk Factors</b>        |              |                   |                 |                      |
| Yes                           | 12/13 (92%)  | 0.1               |                 | -                    |
| No                            | 75/112 (67%) |                   |                 |                      |
| <b>Pneumonia</b>              |              |                   |                 |                      |
| Yes                           | 58/88 (66%)  | 0.3               |                 |                      |
| No                            | 28/37 (76%)  |                   |                 |                      |
| <b>Bacteraemia</b>            |              |                   |                 |                      |
| Yes                           | 62/87 (71%)  | 0.7               |                 |                      |
| No                            | 25/37 (68%)  |                   |                 |                      |
| <b>Solid organ abscess</b>    |              |                   |                 |                      |
| No                            | 72/104 (69%) | 0.6               |                 |                      |
| Yes                           | 9/15 (60%)   |                   |                 |                      |
| <b>Skin &amp; Soft tissue</b> |              |                   |                 |                      |
| Yes                           | 9/15 (60%)   | 0.3               |                 |                      |
| No                            | 68/103 (66%) |                   |                 |                      |
| <b>Genitourinary</b>          |              |                   |                 |                      |
| Yes                           | 14/19 (74%)  | 0.8               |                 |                      |
| No                            | 69/102 (68%) |                   |                 |                      |
| <b>Septic Shock</b>           |              |                   |                 |                      |
| Yes                           | 16/24 (67%)  | 1                 |                 |                      |
| No                            | 61/90 (68%)  |                   |                 |                      |

**Supplementary Table 6. Bivariate and multivariate associations with LPS A**

|                               | LPS A +ve    | Bivariate p-value | aOR (95% CI)    | Multivariate p-value |
|-------------------------------|--------------|-------------------|-----------------|----------------------|
|                               | N (%)        |                   |                 |                      |
| <b>Age &gt;50</b>             |              |                   |                 |                      |
| Yes                           | 67/91 (74%)  | 0.1               | 1.8 (0.8 – 4.3) | 0.2                  |
| No                            | 22/37 (59%)  |                   |                 |                      |
| <b>Sex</b>                    |              |                   |                 |                      |
| Female                        | 36/46 (78%)  | 0.1               | 0.5 (0.2 – 1.3) | 0.1                  |
| Male                          | 53/82 (65%)  |                   |                 |                      |
| <b>First Nation</b>           |              |                   |                 |                      |
| Yes                           | 22/34 (65%)  | 0.5               |                 |                      |
| No                            | 58/81 (72%)  |                   |                 |                      |
| <b>Alcohol excess</b>         |              |                   |                 |                      |
| Yes                           | 39/66 (59%)  | 0.02              | 0.5 (0.2 – 1.1) | 0.1                  |
| No                            | 42/53 (79%)  |                   |                 |                      |
| <b>Diabetes mellitus</b>      |              |                   |                 |                      |
| Yes                           | 39/59 (66%)  | 0.5               |                 |                      |
| No                            | 47/65 (72%)  |                   |                 |                      |
| <b>Chronic Kidney disease</b> |              |                   |                 |                      |
| Yes                           | 6/7 (86%)    | 0.7               |                 |                      |
| No                            | 74/107 (62%) |                   |                 |                      |
| <b>Malignancy</b>             |              |                   |                 |                      |
| Yes                           | 12/16 (75%)  | 0.8               |                 |                      |
| No                            | 73/106 (69%) |                   |                 |                      |
| <b>Lung disease</b>           |              |                   |                 |                      |
| Yes                           | 26/37 (70%)  | 1                 |                 |                      |
| No                            | 61/87 (70%)  |                   |                 |                      |
| <b>No Risk Factors</b>        |              |                   |                 |                      |
| Yes                           | 12/13 (92%)  | 0.1               |                 | -                    |
| No                            | 76/112 (68%) |                   |                 |                      |
| <b>Pneumonia</b>              |              |                   |                 |                      |
| Yes                           | 59/88 (67%)  | 0.3               |                 |                      |
| No                            | 28/37 (76%)  |                   |                 |                      |
| <b>Bacteraemia</b>            |              |                   |                 |                      |
| Yes                           | 58/87 (67%)  | 0.3               |                 |                      |
| No                            | 28/37 (76%)  |                   |                 |                      |
| <b>Solid organ abscess</b>    |              |                   |                 |                      |
| Yes                           | 58/87 (67%)  | 0.2               |                 |                      |
| No                            | 70/104 (67%) |                   |                 |                      |
| <b>Skin &amp; Soft tissue</b> |              |                   |                 |                      |
| Yes                           | 11/17 (65%)  | 0.8               |                 |                      |
| No                            | 72/103 (70%) |                   |                 |                      |
| <b>Genitourinary</b>          |              |                   |                 |                      |
| Yes                           | 13/19 (68%)  | 1                 |                 |                      |
| No                            | 71/102 (70%) |                   |                 |                      |
| <b>Septic Shock</b>           |              |                   |                 |                      |
| Yes                           | 14/24 (58%)  | 0.2               |                 |                      |
| No                            | 65/90 (72%)  |                   |                 |                      |

**Supplementary Table 7. Bivariate and multivariate associations with *bimA*<sub>Bm</sub>**

|                               | <i>bimA</i> <sub>Bm</sub><br>N (%) | Bivariate p-value | aOR (95% CI)    | Multivariate p-value |
|-------------------------------|------------------------------------|-------------------|-----------------|----------------------|
| <b>Age &gt;50</b>             |                                    |                   |                 |                      |
| Yes                           | 11/91 (12%)                        | <0.001            | 0.5 (0.1 – 2.7) | 0.4                  |
| No                            | 7/37 (19%)                         |                   |                 |                      |
| <b>Sex</b>                    |                                    |                   |                 |                      |
| Female                        | 11/46 (24%)                        | 0.9               |                 |                      |
| Male                          | 6/82 (7%)                          |                   |                 |                      |
| <b>First Nation</b>           |                                    |                   |                 |                      |
| Yes                           | 11/34 (32%)                        | <0.001            | 0.8 (0.2 – 4.6) | 0.8                  |
| No                            | 7/81 (9%)                          |                   |                 |                      |
| <b>Alcohol excess</b>         |                                    |                   |                 |                      |
| Yes                           | 8/66 (12%)                         | 0.001             | 0.5 (0.2 – 1.6) | 0.2                  |
| No                            | 9/53 (17%)                         |                   |                 |                      |
| <b>Diabetes mellitus</b>      |                                    |                   |                 |                      |
| Yes                           | 8/59 (14%)                         | 0.6               |                 |                      |
| No                            | 9/65 (14%)                         |                   |                 |                      |
| <b>Chronic Kidney disease</b> |                                    |                   |                 |                      |
| Yes                           | 2/7 (29%)                          | 1                 |                 |                      |
| No                            | 14/107 (13%)                       |                   |                 |                      |
| <b>Malignancy</b>             |                                    |                   |                 |                      |
| Yes                           | 2/16 (13%)                         | 0.3               |                 |                      |
| No                            | 15/106 (14%)                       |                   |                 |                      |
| <b>Lung disease</b>           |                                    |                   |                 |                      |
| Yes                           | 4/37 (11%)                         | 0.8               |                 |                      |
| No                            | 13/87 (15%)                        |                   |                 |                      |
| <b>No Risk Factors</b>        |                                    |                   |                 |                      |
| Yes                           | 0/13 (0%)                          | 0.1               |                 | -                    |
| No                            | 17/112 (15%)                       |                   |                 |                      |
| <b>Pneumonia</b>              |                                    |                   |                 |                      |
| Yes                           | 12/88 (14%)                        | 0.05              | 1.5 (0.4 – 5.8) | 0.6                  |
| No                            | 4/37 (11%)                         |                   |                 |                      |
| <b>Bacteraemia</b>            |                                    |                   |                 |                      |
| Yes                           | 13/87 (15%)                        | 0.4               |                 |                      |
| No                            | 4/37 (11%)                         |                   |                 |                      |
| <b>Solid organ abscess</b>    |                                    |                   |                 |                      |
| Yes                           | 1/15 (7%)                          | 0.3               |                 |                      |
| No                            | 16/104 (15%)                       |                   |                 |                      |
| <b>Skin &amp; Soft tissue</b> |                                    |                   |                 |                      |
| Yes                           | 1/17 (6%)                          | 0.2               |                 |                      |
| No                            | 16/103 (15%)                       |                   |                 |                      |
| <b>Genitourinary</b>          |                                    |                   |                 |                      |
| Yes                           | 3/19 (16%)                         | 0.8               |                 |                      |
| No                            | 14/102 (14%)                       |                   |                 |                      |
| <b>Septic Shock</b>           |                                    |                   |                 |                      |
| Yes                           | 4/24 (17%)                         | 0.2               |                 |                      |
| No                            | 13/90 (14%)                        |                   |                 |                      |