**Supplementary Table 1.** Demographic characteristics, clinical characteristics, underlying medical conditions, and measures of severity among patients hospitalized with parainfluenza-associated severe acute respiratory illness, by type—four sites, South Africa, 2009-2014

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic** | **Parainfluenza type** | | | | | | |
| **Type 1** | | | **Type 2** | | | **Type 3 (reference)** |
|  | **n/N (%)** | **Crude relative risk ratio (RRR) (95% confidence interval [CI])** | **Adjusted RRR (95% CI)** | **n/N (%)** | **Crude RRR (95% CI)** | **Adjusted RRR (95% CI)** | **n/N (%)** |
| **Demographic characteristics** |  |  |  |  |  |  |  |
| Age group |  |  |  |  |  |  |  |
| <1 year | 97/227 (42.7) | Reference | Reference | 67/170 (39.4) | Reference | Reference | 445/780 (57.1) |
| 1-4 years | 99/227 (43.6) | 2.3 (1.7-3.2) | 2.4 (1.7-3.3) | 59/170 (34.7) | 2.0 (1.4-2.9) | 2.0 (1.3-2.9) | 196/780 (25.1) |
| 5-24 years | 7/227 (3.1) | 1.2 (0.5-2.9) | 1.4 (0.6-3.4) | 13/170 (7.7) | 3.3 (1.6-6.8) | 4.5 (2.1-9.3) | 26/780 (3.3) |
| 25-44 years | 13/227 (5.7) | 0.8 (0.4-1.6) | 1.0 (0.5-1.8) | 25/170 (14.7) | 2.3 (1.4-3.9) | 3.2 (1.8-5.5) | 71/780 (9.1) |
| 45-64 years | 8/227 (3.5) | 1.2 (0.5-2.7) | 1.3 (0.6-3.0) | 6/170 (3.5) | 1.3 (0.5-3.2) | 1.8 (0.7-4.6) | 31/780 (4.0) |
| ≥65 years | 3/227 (1.3) | 1.3 (0.3-4.6) | 1.4 (0.4-5.1) | 0/170 (0) | Not calculable | Not calculable | 11/780 (1.4) |
| Male sex | 131/227 (57.7) | 0.8 (0.6-1.1) |  | 90/170 (52.9) | 1.0 (0.7-1.4) |  | 416/780 (53.3) |
| Black race | 223/226 (98.7) | 0.9 (0.2-3.1) |  | 167/169 (98.8) | 0.8 (0.2-3.4) |  | 764/776 (98.5) |
| Site |  |  |  |  |  |  |  |
| CHBAH | 143/230 (62,2) | Reference |  | 121/171 (70.8) | Reference |  | 530/787 (67.3) |
| Matikwane/Mapulaneng | 26/230 (11.3) | 0.9 (0.5-1.4) |  | 26/171 (15.2) | 1.0 (0.6-1.6) |  | 112/787 (14.2) |
| Edendale | 41/230 (17.8) | 1.7 (1.1-2.6) |  | 14/171 (8.2) | 0.7 (0.4-1.3) |  | 89/787 (11.3) |
| KTHC | 20/230 (8.7) | 1.3 (0.8-2.3) |  | 10/171 (5.9) | 0.8 (0.4-1.6) |  | 56/787 (7.1) |
| Year |  |  |  |  |  |  |  |
| 2009 | 47/230 (20.4) | Reference | Reference | 37/171 (21.6) | Reference | Reference | 214/787 (27.2) |
| 2010 | 36/230 (15.7) | 1.4 (0.8-2.2) | 1.5 (0.9-2.4) | 38/171 (22.2) | 1.8 (1.1-3.0) | 2.3 (1.3-3.8) | 121/787 (15.4) |
| 2011 | 62/230 (27.0) | 1.3 (0.9-2.0) | 1.4 (0.9-2.2) | 53/171 (31.0) | 1.4 (0.9-2.3) | 1.8 (1.1-2.9) | 214/787 (27.2) |
| 2012 | 32/230 (13.9) | 1.1 (0.7-1.8) | 1.3 (0.7-2.1) | 20/171 (11.7) | 0.9 (0.5-1.6) | 1.2 (0.7-2.2) | 130/787 (16.5) |
| 2013 | 32/230 (13.9) | 1.8 (1.0-2.9) | 1.9 (1.1-3.3) | 20/171 (11.7) | 1.4 (0.8-2.5) | 1.8 (1.0-3.4)d | 83/787 (10.6) |
| 2014 | 21/230 (9.1) | 3.8 (2.0-7.4) | 4.0 (2.0-8.0) | 3/171 (1.8) | 0.7 (0.2-2.4) | 1.0 (0.3-3.7) | 25/787 (3.2) |
| **Co-infections and underlying medical conditions** |  |  |  |  |  |  |  |
| HIV infection | 39/162 (24.1) | 1.0 (0.6-1.4) |  | 44/115 (38.3) | 1.9 (1.2-2.8) |  | 147/588 (25.0) |
| Underlying medical condition (excluding HIV and tuberculosis infection)a | 14/227 (6.2) | 1.0 (0.5-1.9) |  | 8/170 (4.7) | 0.8 (0.3-1.6) |  | 48/779 (6.2) |
| **Bacterial or viral respiratory co-infection** |  |  |  |  |  |  |  |
| Pneumococcal co-infection on PCR | 13/139 (9.4) | 0.9 (0.5-1.7) |  | 8/110 (7.3) | 0.7 (0.3-1.5) |  | 52/516 (10.1) |
| Any viral respiratory co-infectionb | 131/224 (58.5) | 1.1 (0.9-1.7) | c | 119/169 (70.4) | 2.1 (1.4-3.0) | c | 333/718 (53.6) |
| Respiratory syncytial virus (RSV) | 25/230 (10.9) | 1.9 (1.2-3.2) | 2.2 (1.3-3.7) | 27/171 (15.8) | 3.0 (1.8-4.9) | 3.3 (1.9-5.7) | 47/787 (6.0) |
| Influenza | 6/230 (2.6) | 0.5 (0.2-1.3) |  | 8/171 (4.7) | 1.0 (0.5-2.2) |  | 37/787 (4.7) |
| Adenovirus | 57/220 (25.9) | 1.4 (1.0-2.0)d |  | 43/164 (26.2) | 1.4 (1.0-2.2)d |  | 131/664 (19.7) |
| Rhinovirus | 73/230 (31.7) | 1.3 (0.9-1.7) | 1.1 (0.8-1.6) | 66/171 (38.6) | 1.7 (1.2-2.4) | 2.0 (1.3-2.8) | 213/787 (27.1) |
| Enterovirus | 16/230 (7.0) | 0.8 (0.5-1.5) | 0.8 (0.4-1.4) | 25/171 (14.6) | 1.9 (1.2-3.1) | 2.6 (1.5-4.4) | 65/787 (8.3) |
| Human metapneumovirus | 3/230 (1.3) | 0.5 (0.1-1.6) |  | 5/171 (2.9) | 1.1 (0.4-3.0) |  | 21/787 (2.7) |
| **Clinical presentation and course** |  |  |  |  |  |  |  |
| Symptoms ≥3 days prior to admission | 69/225 (30.7) | 0.8 (0.6-1.1) |  | 62/168 (36.9) | 1.0 (0.7-1.5) |  | 276/768 (35.9) |
| Fever (temperature ≥38°C) | 169/226 (74.8) | 1.0 (0.7-1.4) |  | 139/170 (81.8) | 1.5 (1.0-2.3)d |  | 580/774 (74.9) |
| Admission to intensive care | 4/221 (1.8) | 2.8 (0.8-10.7) |  | 2/169 (1.2) | 1.8 (0.4-9.6) |  | 5/777 (0.6) |
| Oxygen therapy | 84/221 (38.0) | 1.1 (0.8-1.5) |  | 54/169 (32.0) | 0.8 (0.6-1.2) |  | 277/777 (35.7) |
| Antibiotics prescribed on admission | 199/221 (90.1) | 0.7 (0.4-1.2) |  | 155 /166 (93.4) | 1.1 (0.5-2.1) |  | 708/762 (92.9) |
| **Outcome** |  |  |  |  |  |  |  |
| Prolonged hospitalization (≥3 days) | 115/223 (51.6) | 0.8 (0.6-1.1) |  | 89/168 (53.0) | 0.8 (0.6-1.2) |  | 442/768 (57.6) |
| In-hospital death (case-fatality ratio) | 6/226 (2.7) | 1.2 (0.5-3.1) |  | 6/171 (3.5) | 1.6 (0.6-4.2) |  | 17/774 (2.2) |

Note: Adjusted odds ratios are only shown if those variables were included in the final multivariable model.

aAsthma, other chronic lung disease, chronic heart disease (valvular heart disease, coronary artery disease, or heart failure excluding hypertension), liver disease (cirrhosis or liver failure), renal disease (nephrotic syndrome, chronic renal failure), diabetes mellitis, immunocompromising conditions excluding HIV infection (organ transplant, immunosuppressive therapy, immunoglobulin deficiency, malignancy), neurological disease (cerebrovascular accident, spinal cord injury, seizures, neuromuscular conditions) or pregnancy. Comorbidities were considered absent in cases for which the medical records stated that the patient had no underlying medical condition or when there was no direct reference to that condition.

bCo-infection with PIV and ≥1 of the following: adenovirus, enterovirus, influenza A and B viruses, respiratory syncytial virus (RSV), human metapneumovirus, and rhinovirus.

cAny viral respiratory infection was not included in the multivariable model because it could be explained by enterovirus and rhinovirus co-infection.

dp>0.05