**Supplementary Table 1. List of the 16 viruses evaluated in this study**

|  |  |
| --- | --- |
| **Virus** | **Reference number** |
| **Respiratory syncytial virus A, and B** | 27 |
| **Influenza virus A, and B** | 29, 30 |
| **Human metapneumovirus** | 32 |
| **Enterovirus** | 31, 35 |
| **Human rhinovirus** | 35 |
| **Parainfluenza viruses 1, 2, and 3** | 33, 34 |
| **Human coronaviruses (NL63, OC43, 229E, and HKU)** | 35 |
| **Adenovirus** | 36 |
| **Human bocavirus** | 28 |

**Supplementary Table 2. Clinical characteristics based on the detected number of viruses (n = 570)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Total N (%)** | **Detected number(s) of virus(es) (%)** | | | | |
|  |  | **No virus** | **1 virus** | **2 viruses** | **3 viruses** | **4-5 viruses** |
|  |  |
| **Total N (%)** | | **570** | **68 (12)** | **291 (51)** | **163 (29)** | **43 (8)** | **5 (1)** |
| **Characteristics** | Median Age [months] [IQR] | **8.0 [4.0-15.0]** | 8.0 [4.0-16.0] | 8.0 [4.0-14.0] | 8.0 [4.0-15.0] | 10.0 [3.0-18.0] | 7.0 [3.0-13.0] |
| Male | **322 (56)** | 38 (56) | 156 (54) | 101 (62) | 24 (56) | 3 (60) |
| Weight-for-age Z score |  |  |  |  |  |  |
| Severe (< -3) | **66 (12)** | 14 (21) | 31 (11) | 15 ( 9 ) | 5 (12) | 1 (20) |
| Moderate ( ≥ -3 to < -2) | **72 (13)** | 5 ( 7 ) | 34 (12) | 26 (16) | 6 (14) | 1 (20) |
| Normal (≥ -2) | **432 (76)** | 49 (72) | 226 (78) | 122 (75) | 32 (74) | 3 (60) |
| Underling Diseases | **73 (13)** | 15 (22) | 41 (14) | 15 ( 9 ) | 2 ( 5 ) | 0 ( 0 ) |
| Smoker in Family | **243 (43)** | 27 (40) | 128 (44) | 67 (41) | 20 (47) | 1 (20) |
| **Immunization** | DPT | **422 (74)** | 50 (74) | 228 (78) | 109 (67) | 31 (72) | 4 (80) |
| Hib | **374 (66)** | 47 (69) | 205 (70) | 91 (56) | 29 (67) | 2 (40) |
| BCG | **460 (81)** | 53 (78) | 241 (83) | 125 (77) | 37 (86) | 4 (80) |
| MR | **138 (24)** | 16 (24) | 73 (25) | 33 (20) | 16 (37) | 0 ( 0 ) |
| PCV | **264 (46)** | 28 (41) | 144 (49) | 68 (42) | 23 (53) | 1 (20) |
| None | **72 (13)** | 11 (16) | 32 (11) | 23 (14) | 6 (14) | 0 ( 0 ) |
| **History** | Sick contact | **65 (11)** | 4 ( 6 ) | 38 (13) | 20 (12) | 3 ( 7 ) | 0 ( 0 ) |
| Symptoms Onset [Days] [IQR] | **3.0 [1.5-4.0]** | 3.0 [2.0-4.0] | 3.0 [2.0-4.0] | 2.5 [1.0-3.3] | 2.0 [1.0-4.0] | 3.0 [2.0-3.0] |
| **Symptoms** | Cough | **534 (94)** | 64 (94) | 271 (93) | 156 (96) | 38 (88) | 5 (100) |
| Difficult Breathing | **415 (73)** | 43 (63) | 215 (74) | 123 (75) | 32 (74) | 2 (40) |
| Rhinorrhea | **247 (43)** | 28 (41) | 122 (42) | 73 (45) | 23 (53) | 1 (20) |

All categorical data are presented as numbers (percentage, %). Continuous data are presented as median (interquartile range).

Abbreviations: ALRI, acute lower respiratory infection; Total N, total number; IQR, interquartile range; DPT, a combination vaccine of diphtheria, pertussis, and tetanus; Hib: *Haemophilus influenzae* type b vaccine; BCG, Bacille Calmette-Guérin vaccine; MR, Measles vaccine; PCV, pneumococcal conjugate vaccines.

**Supplementary Table 3. Clinical signs, course, and outcomes based on the detected numbers of viruses (n = 570)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Total N (%)** | **Detected number(s) of virus(es)\* (%)** | | | | |
|  |  | **No virus** | **1 virus** | **2 viruses** | **3 viruses** | **4-5 viruses** |
|  |  |
| **Total N (%)** | | **570** | **68 (12)** | **291 (51)** | **163 (29)** | **43 (8)** | **5 (1)** |
| **Vital Signs** | Tachycardia | **208 (36)** | 24 (35) | 106 (36) | 61 (37) | 14 (33) | 3 (60) |
| Heart Rate [/m] [IQR] | **140 [122-152]** | 140 [128-150] | 140 [123-156] | 140 [126-151] | 128 [118-144] | 170 [140-195] |
| Tachypnoea | **443 (78)** | 54 (79) | 223 (77) | 127 (78) | 35 (81) | 4 (80) |
| Respiratory Rate [/m] [IQR] | **60 [48-64]** | 60 [50-62] | 60 [48-64] | 60 [48-66] | 60 [48-68] | 52 [48-55] |
| Fever ≥ 38℃ | **232 (41)** | 28 (41) | 123 (42) | 63 (39) | 16 (37) | 2 (40) |
| Body Temperature [℃] [IQR] | **37.8 [37.2-38.3]** | 37.8 [37.2-38.3] | 37.9 [37.2-38.5] | 37.8 [37.2-38.3] | 37.8 [37.2-38.3] | 38.0 [37.5-38.6] |
| Hypoxaemia ≤ 90% | **70 (12)** | 7 (10) | 41 (14) | 21 (13) | 1 ( 2 ) | 0 ( 0 ) |
| Oxgen Saturation [%] [IQR] | **96 [94-98]** | 97 [94-98] | 96 [94-98] | 96 [94-98] | 97 [96-98] | 94 [92-97] |
| **Clinical Signs** | Chest indrawing | **383 (67)** | 44 (65) | 196 (67) | 108 (66) | 32 (74) | 3 (60) |
| Coarse crackles | **291 (51)** | 38 (56) | 150 (52) | 81 (50) | 19 (44) | 3 (60) |
| Wheezing | **212 (37)** | 16 (24) | 104 (36) | 73 (45) | 17 (40) | 2 (40) |
| Rhonchi | **357 (63)** | 36 (53) | 194 (67) | 96 (59) | 30 (70) | 1 (20) |
| Asymmetry of lung sounds | **18 ( 3 )** | 5 ( 7 ) | 8 ( 3 ) | 3 ( 2 ) | 2 ( 5 ) | 0 ( 0 ) |
| Normal lung sounds | **29 ( 5 )** | 3 ( 4 ) | 17 ( 6 ) | 7 ( 4 ) | 2 ( 5 ) | 0 ( 0 ) |
| Grunting | **130 (23)** | 13 (19) | 66 (23) | 38 (23) | 12 (28) | 1 (20) |
| Cyanosis | **65 (11)** | 6 ( 9 ) | 37 (13) | 16 (10) | 5 (12) | 1 (20) |
| Capillary refill time ≥ 3 sec | **50 ( 9 )** | 6 ( 9 ) | 23 ( 8 ) | 14 ( 9 ) | 7 (16) | 0 ( 0 ) |
| **Treatment** | Antibiotics | **325 (57)** | 43 (63) | 164 (56) | 90 (55) | 25 (58) | 3 (60) |
| 2 or more than 2 drugs | **107 (19)** | 18 (26) | 53 (18) | 25 (15) | 10 (23) | 1 (20) |
| Anti-viral Treatment | **12 ( 2 )** | 1 ( 1 ) | 6 ( 2 ) | 3 ( 2 ) | 2 ( 5 ) | 0 ( 0 ) |
| ICU Management | **51 ( 9 )** | 5 ( 7 ) | 27 ( 9 ) | 12 ( 7 ) | 6 (14) | 1 (20) |
| O2 Supply | **328 (58)** | 40 (59) | 169 (58) | 101 (62) | 16 (37) | 2 (40) |
| Mechanical Ventilation | **39 ( 7 )** | 4 ( 6 ) | 22 ( 8 ) | 7 ( 4 ) | 5 (12) | 1 (20) |
| CPAP | **14 ( 2 )** | 3 ( 4 ) | 8 ( 3 ) | 3 ( 2 ) | 0 ( 0 ) | 0 ( 0 ) |
| Fluid infusion | **176 (31)** | 24 (35) | 84 (29) | 54 (33) | 12 (28) | 2 (40) |
| **Outcomes** | In-hospital mortality | **28 ( 5 )** | 3 ( 4 ) | 20 ( 7 ) | 2 ( 1 ) | 3 ( 7 ) | 0 ( 0 ) |
| Sequelae | **8 ( 1 )** | 3 ( 4 ) | 3 ( 1 ) | 2 ( 1 ) | 0 ( 0 ) | 0 ( 0 ) |
| Length of hospitalization [day][IQR] | **4.0 [3.0-7.0]** | 5.0 [3.0-7.5] | 4.0 [3.0-7.0] | 4.0 [3.0-6.0] | 5.0 [3.0-7.0] | 4.0 [3.0-5.0] |

All categorical data are presented as numbers (percentage, %). Continuous data are presented as median (interquartile range).

Abbreviations: Total N, total number; IQR, interquartile range; ICU, intensive care unit; CPAP, continuous positive airway pressure

**Supplementary Table 4. Laboratory and radiologic findings based on the number of viruses** **detected (n = 570)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Total N (%)** | **Detected number(s) of virus(es) (%)** | | | | |
|  |  | **No virus** | **1 virus** | **2 viruses** | **3 viruses** | **4-5 viruses** |
| **Total N (%)** | | **570** | **68 (12)** | **291 (51)** | **163 (29)** | **43 (8)** | **5 (1)** |
| **CBC** | **Numbers of tests performed (%)** | **361 (63)** | 48 (71) | 174 (60) | 108 (66) | 26 (60) | 5 (100) |
| WBC [x103/μL] [IQR] | **13.4 [9.7-18.6]** | 14.4 [9.3-19.2] | 13.6 [9.6-18.6] | 12.6 [9.6-17.1] | 15.1 [10.6-20.4] | 15.1 [10.6-18.2] |
| Neutrophil [%] | **50 [37-69]** | 51 [37-70] | 51 [37-69] | 50 [37-69] | 51 [38-70] | 56 [42-70] |
| Hemoglobin [g/dL] [IQR] | **10.4 [9.6-11.2]** | 10.7 [9.8-11.4] | 10.3 [9.5-11.0] | 10.3 [9.6-11.3] | 10.8 [10.2-12.1] | 10.7 [9.9-11.2] |
| Platelets [x103/µL] [IQR] | **393 [285-507]** | 400 [276-488] | 386 [285-498] | 414 [301-522] | 410 [354-500] | 443 [319-553] |
| **Chemistry** | **Numbers of tests performed (%)** | **231 (41)** | 33 (49) | 112 (38) | 69 (42) | 14 (33) | 3 (60) |
| C-reactive protein [mg/dL][IQR] | **1.6 [0.3-4.6]** | 1.5 [0.4-3.5] | 1.6 [0.4-4.5] | 1.5 [0.1-4.1] | 5.8 [0.3-8.1] | 0.1 [0.1-1.1] |
| **Chest X-ray** | **Numbers of tests performed (%)** | **336 (59)** | 48 (71) | 158 (54) | 95 (58) | 31 (72) | 4 (80) |
| Consolidation | **148 (44)** | 20 (42) | 71 (45) | 42 (44) | 13 (42) | 2 (50) |
| Overinflation | **144 (43)** | 14 (29) | 71 (45) | 43 (45) | 14 (45) | 2 (50) |
| Normal Finding | **36 (11)** | 8 (17) | 17 (11) | 7 ( 7 ) | 4 (13) | 0 ( 0 ) |

All categorical data are presented as numbers (percentage, %). Continuous data are presented as median (interquartile range).

Abbreviations: Total N, total number; IQR, interquartile range; CBC, complete blood count; WBC, white blood cells; RSV, respiratory syncytial virus; PCR, polymerase chain reaction.