**Supplementary Table 1**. Description of data collected of the five RSV-associated deaths in FluSurv-NET, December 2014–April 2015

|  |  |
| --- | --- |
|  | RSV-associated deaths in children 0 to 23 months of age |
| Age (months) | 6 | 3 | 2 | 11 | 1 |
| Insurance | Public | Private | Public | Public | Private |
| ICU Admission | Yes | Yes | Yes | Yes | Yes |
| Number of days in ICU | 70 | 5 | 120 | 3 | 1 |
| Mechanical Ventilation | Yes | No | Yes | No | Yes |
| Underlying conditions | Neuromuscular disorder | Cardiovascular disease | Neurologic disorder | No | No |
| Prematurity | Yes | Yes | Yes | No | No |
| Gestational Age at delivery (weeks) | 35 | 35 | 33 | - | - |
| Co-infection with other virus | No | No | No | Yes (Coronavirus) | No |
| Number of days between symptom onset and admission | 1 | 14 | NA | 1 | 2 |
| Discharge ICD9 codes include RSV | Yes | Yes | No | Yes | No |

**Supplementary Table 2.** Viral Pathogens tested among children <2 years with laboratory-confirmed RSV, FluSurv-NET, October 2014–April 2015

|  |  |
| --- | --- |
| Characteristics | n=1554 (%) |
|  |  |
| Tested for other viruses\* |  |
| Yes | 1388 (89) |
|  |  |
| Co-detection with other virus, confirmation from those tested | 144 (10) |
|  |  |
| Viruses identified  |  |
| Rhinovirus/Enterovirus | 69 (48) |
| Influenza A | 34 (24) |
| Coronavirus | 22 (15) |
| Adenovirus | 14 (10) |
| Influenza B | 11 (8) |
| Parainfluenza 4 | 3 (0) |
| Human metapneumovirus | 2 (0) |
| Parainfluenza 2 | 2 (0) |
| Parainfluenza 3 | 1 (0) |

\*Test type not known

**Supplementary Table 3.** Bacterial Pathogens from Blood Culture tests performed in children <2 years with laboratory-confirmed RSV, FluSurv-NET, October 2014–April 2015

|  |  |
| --- | --- |
| Characteristics | n=1554 (%) |
|  |  |
| Tested for Bacteria\* |  |
| Yes | 698 (45) |
|  |  |
| Bacteria confirmation from those tested |  |
| Yes | 43 (6) |
|  |  |
| Pathogens identified\*\* |  |
|  |  |
| *Haemophilus influenzae* | 10 (23) |
| *Streptococcus pneumoniae* | 5 (12) |
| *Pseudomonas aeruginosa* | 3 (7) |
| *Staphylococcus aureus* | 2 (5) |
| *Escherichia coli* | 2 (5) |
| Group A Streptococcus | 1 (2) |
| Other bacteria (Moraxella, *Staphylococcus hominis*, viridans group Streptococci, etc) | 20 (47) |

**\***Tested by any culture type. \*\* Does not exclude potential contaminants.

**Supplementary Table 4.** Frequency of children <2 years with no reported underlying condition with severe RSV-associated outcomes during hospitalization, FluSurv-NET, October 2014–April 2015

|  |  |  |  |
| --- | --- | --- | --- |
| **Age group** | **ICU admission, if hospitalized** | **Mechanical ventilation, if hospitalized** | **Death, if hospitalized** |
|  | % (95% CI\*) | n/n | % (95% CI\*) | n/n | % (95% CI\*) | n/n |
| 0 to 2 m | 31 (20-42) | (147/479) | 9 (4-13) | (41/479) | 0.2 (NA) | (1/479) |
| 3 to 5 m | 23 (12-38) | (42/182) | 2 (NA) | (4/182) | - | (0/182) |
| 6 to 11 m | 17 (4-31) | (32/190) | 2 (0-4) | (4/190) | 0.5 (NA) | (1/190) |
| 12 to 23 m | 18 (7-28) | (36/196) | 3 (0-6) | (6/196) |  | (0/196) |

\*95% Confidence intervals adjusted by site. NA: Non calculable.

**Supplementary Table 5.** Frequency of children <2 years with at least one underlying condition, including prematurity, with severe RSV-associated outcomes during hospitalization, FluSurv-NET, October 2014–April 2015

|  |  |  |  |
| --- | --- | --- | --- |
| **Age group** | **ICU admission, if hospitalized** | **Mechanical ventilation, if hospitalized** | **Death, if hospitalized** |
|  | % (95% CI\*) | n/n | % (95% CI\*) | n/n | % (95% CI\*) | n/n |
| 0 to 2 m | 50 (34-65) | (71/138) | 17 (NA) | (24/138) | 0.7 (NA) | (1/138) |
| 3 to 5 m | 29 (6-49) | (23/80) | 5 (0-10) | (4/80) | 1.0 (NA) | (1/80) |
| 6 to 11 m | 19 (7-30) | (21/111) | 5 (NA) | (5/111) | 0.9 (NA) | (1/111) |
| 12 to 23 m | 25 (13-34) | (81/184) | 3 (NA) | (11/184) |  | (0/184) |

\*95% Confidence intervals adjusted by site. NA: Non calculable.

**Supplementary Table 6.** Frequency of premature children <2 years with severe RSV-associated outcomes during hospitalization, FluSurv-NET, October 2014–April 2015

|  |  |  |  |
| --- | --- | --- | --- |
| **Age group** | **ICU admission, if hospitalized** | **Mechanical ventilation, if hospitalized** | **Death, if hospitalized** |
|  | % (95% CI\*) | n/n | % (95% CI\*) | n/n | % (95% CI\*) | n/n |
| 0 to 2 m | 62 (43-80) | (53/86) | 23 (NA) | (20/86) | 1.1 (NA) | (1/86) |
| 3 to 5 m | 27 (4-52) | (13/48) | 6 (NA) | (3/48) | 2.0 (NA) | (1/48) |
| 6 to 11 m | 18 (0-36) | (10/56) | 5 (NA) | (3/56) | 1.8 (NA) | (1/56) |
| 12 to 23 m | 34 (8-40) | (23/67) | 3 (NA) | (2/67) |  | (0/67) |

\*95% Confidence intervals adjusted by site. NA: Non calculable.

**Supplementary Table 7.** Frequency of RSV testing, test types used, and average sensitivity of RSV testing among hospitalized children <2 years in four participating sites, FluSurv-NET, December 2014–April 2015

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Age group** | **n** | **n (%) tested** | **95% CI** | **n (%) Rapid** | **n (%) RT-PCR** | **n (%) Other** | **Average Test Sensitivity** |
| 0 to 2 months |  |  |  |  |
| CA | 146 | 120 (82) | (76−88) | 7 (6) | 100 (83) | 13 (11) | 98% (117.04/120) |
| GA | 59 | 51 (86) | (77−95) | - | 51 (100) | - | 100% (51/51) |
| MN | 75 | 70 (93) | (87−99) | 15 (21) | 38 (54) | 17 (24) | 93% (64.96/70) |
| OR | 67 | 51 (76) | (66−86) | 25 (49) | 26 (51) | - | 90% (46/51) |
| Combined | 347 | 292 (84) | (80−88) | 47 (16) | 215 (74) | 30 (10) | 96% (279/292) |
| 3 to 5 months |  |  |  |  |
| CA | 73 | 59 (81) | (72−90) | 3 (5) | 50 (85) | 6 (10) | 98% (57.68/59) |
| GA | 80 | 60 (75) | (66−84) | - | 60 (100) | - | 100% (60/60) |
| MN | 76 | 72 (95) | (90−100) | 19 (26) | 34 (47) | 19 (26) | 92% (65.92/72) |
| OR | 71 | 47 (66) | (55−77) | 20 (43) | 27 (57) | - | 91% (43/47) |
| Combined | 300 | 238 (79) | (74−84) | 42 (18) | 171 (72) | 25 (10) | 95% (226.6/238) |
| 6 to 11 months |  |  |  |  |
| CA | 116 | 91 (78) | (70−86) | 5 (5) | 79 (87) | 7 (8) | 98% (89.16/91) |
| GA | 102 | 80 (78) | (70−86) | - | 80 (100) | - | 100% (80/80) |
| MN | 99 | 89 (90) | (84−96) | 14 (16) | 54 (61) | 21 (23) | 94% (83.68/89) |
| OR | 101 | 59 (58) | (48−68) | 30 (51) | 29 (49) | - | 90% (53/59) |
| Combined | 418 | 319 (76) | (72−80) | 49 (15) | 242 (76) | 28 (9) | 96% (305.84/319) |
| 12 to 23 months |  |  |  |  |
| CA | 192 | 127 (66) | (59−73) | 7 (5) | 113 (89) | 7 (5%) | 98% (124.76/127) |
| GA | 159 | 124 (78) | (72−84) | - | 124 (100) | - | 100% (124/124) |
| MN | 150 | 116 (77) | (70−84) | 25 (22%) | 58 (50) | 33 (28) | 92% (107.04/116) |
| OR | 118 | 75 (64) | (55−73) | 32 (43%) | 42 (56) | 1 (1) | 91% (68.48/75) |
| Combined | 619 | 442 (71) | (67−75) | 64 (14%) | 337 (76) | 41 (9) | 95% (424.28/442) |

\*Other category includes culture (59%; 73/124) and fluorescent antibody (27%; 33/124).

**Supplementary Table 8.** Estimated multipliers for under-detection of RSV among hospitalized children in FluSurv-NET, December 2014–April 2015

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **0 to 2 m** | **3 to 5 m** | **6 to 11 m** | **12 to 23 m** |
| Estimated multiplier (95%CI) | 1.2 (1.2−1.3) | 1.3 (1.1−1.6) | 1.4 (1.2−1.6) | 1.5 (1.3−1.6) |
| Multiplier by site\*, range | 1.2−1.5 | 1.1−1.7 | 1.2−1.9 | 1.3−1.7 |
| Multiplier by month\*, range | 1.2−1.3 | 1.2−1.4 | 1.2−1.5 | 1.3−1.7 |

Note: Multipliers take into account frequency of RSV testing and sensitivity of the tests used. Multipliers represent the expected number of true RSV-associated hospitalizations per reported hospitalization.

\*Range of multipliers show variability by site (California, Georgia, Oregon and Minnesota) and month (December 2014 ̶ April 2015).

**Supplementary Table 9.** Percentage of testing by ICU admission status, FluSurv-NET, December 2014–April 2015

|  |  |
| --- | --- |
|  | % testing |
|  | ICU admitted (n=374) | Not admitted into ICU (n=1109) |
| ALL | 335/374 = 90% | 835/1109 = 75% |
| By age group |  |  |
| 0-2 m | 81/93=87% | 171/193=89% |
| 3-5 m | 72/76=95% | 150/199=75% |
| 6-11 m | 76/85=89% | 218/290=75% |
| 12-23 m | 106/120=88% | 296/427=69% |
| By site |  |  |
| CA | 42/44=95% | 234/282=83% |
| GA | 154/162=95% | 161/238=68% |
| MN | 42/53=79% | 305/347=88% |
| OR | 97/115=84% | 135/242=56% |