**S1 Appendix. Summary of published articles included in the analyses, with reference list**

| **Location** | **Years** | **Case Definition** | **Age Range** | **% Influenza Positive <6 m** | **% Influenza Positive <1y** | **% Influenza Positive <2y** | **% Influenza Positive <5y** | **% Influenza Positive 5-17y** | **% Influenza Positive <18y** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Multiple sites, Argentina[1](#_ENREF_1) | 1993-1994 | Acute Lower Respiratory Infection | 0-4 years | – | – | – | 2.4 | – | – |
| Buenos Aires, Argentina[2](#_ENREF_2) | 2006-2006 | Reactive Airway Disease (Children with recurrent wheeze) | 0-3 years | – | – | – | 7.6 | – | – |
| Buenos Aires, Argentina[3](#_ENREF_3) | 1998-2002 | Acute Lower Respiratory Infection | 0-4 years | – | – | – | 2.8 | – | – |
| Vienna, Austria[4](#_ENREF_4) | 2000-2004 | Acute Lower Respiratory Tract Illness | 2-62 weeks | – | – | 3.4 | – | – | – |
| Mirzapur, Bangladesh[5](#_ENREF_5) | 1993-1996 | Pneumonia | 0-1 years | – | – | 1.7 | – | – | – |
| Salvador, Brazil[6](#_ENREF_6) | 2003-2005 | Community-acquired Pneumonia | 0-4 years | – | – | – | 9.2 | – | – |
| Sao Paulo, Brazil[7](#_ENREF_7) | 2005-2006 | Lower Respiratory Tract Illness | 0-4 years | – | – | – | 3.3 | – | – |
| Porto Alegre, Brazil[8](#_ENREF_8) | 2009-2010 | Acute Viral Bronchiolitis (suspected viral cause) | 0-12 months | – | 16.9 | – | – | – | – |
| Porto Alegre, Brazil[9](#_ENREF_9) | 1990-1992 | Acute Respiratory Infection | 0-4 years | – | – | – | 0.3 | – | – |
| Sao Paulo, Brazil[10](#_ENREF_10) | 2003-2003 | Lower Respiratory Tract Infection | 0-4 years | – | – | – | 5.1 | – | – |
| Sao Paulo, Brazil[11](#_ENREF_11) | 1999-2001 | Lower Respiratory Tract Infection (ICU patients only) | Newborns (Not further specified) | 22.2 | – | – | – | – | – |
| Sao Paulo, Brazil[12](#_ENREF_12) | 1995-1996 | Lower Respiratory Tract Disease | 0-14 years | – | – | – | – | – | 1.8 |
| Toronto, Canada[13](#_ENREF_13) | 1991-1992 | Pneumonia, Pneumonitis, Bronchiolitis, or Lower Respiratory Tract Infection | 0-5 months | 4.7 | – | – | – | – | – |
| Baffin Island, Canada[14](#_ENREF_14) | 2002-2003 | Lower Respiratory Tract Infection | 0-1 years | – | – | 9.1 | – | – | – |
| Conception, Chile[15](#_ENREF_15) | 1995-1998 | Acute Lower Respiratory Infection | 0-4 weeks | 0.0 | – | – | – | – | – |
| Qinghai, China[16](#_ENREF_16) | 2003-2005 | Bronchitis, Pneumonia | 0-12 years | – | – | – | – | – | 7.7 |
| Chongqing, China[17](#_ENREF_17) | 2006-2008 | Severe Pneumonia (ICU patients only) | 0-3 years | – | – | – | 8.4 | – | – |
| Lanzhou, China[18](#_ENREF_18) | 2004-2005 | Community-acquired Pneumonia | 0-14 years | – | 8.4 | – | 8.4 | 12.8 | 9.1 |
| Harbin, China[19](#_ENREF_19) | 2008-2008 | Acute Lower Respiratory Tract Infection | 0-15 years | – | – | – | – | – | 19.4 |
| Beijing, China[20](#_ENREF_20) | 2001-2005 | Acute Respiratory Infection | Children (Mostly under 5) | – | – | – | – | – | 2.3\* |
| Wenzhou, China[21](#_ENREF_21) | 2007-2008 | Acute Respiratory Infection | 0-13 years | 0.7 | 1.0 | – | 1.5 | – | 1.5 |
| Wenzhou, China[22](#_ENREF_22) | 2004-2005 | Acute Lower Respiratory Tract Infection | 0-10 years | 1.3 | – | 1.1 | 1.6 | – | 1.5 |
| Jiaxing, China[23](#_ENREF_23) | 2007-2008 | Acute Respiratory Illness | 0-6 years | – | – | – | – | – | 0.6 |
| Suzhou, China[24](#_ENREF_24) | 2005-2007 | Acute Respiratory Infection | 0-14 years | 1.8 | 2.8 | – | – | – | 3.5 |
| Suzhou, China[25](#_ENREF_25) | 2006-2009 | Acute Respiratory Tract Infection | 0-10 years | – | – | – | – | – | 2.8 |
| Lanzhou, China[26](#_ENREF_26) | 2006-2009 | Acute Lower Respiratory Tract Infection | 0-14 years | 7.9 | 7.7 | – | 8.2 | 7.5 | 8.1 |
| Zhaoqing, China[27](#_ENREF_27) | 2003-2004 | Acute Lower Respiratory Infection | 0-12 years | – | – | 7.5 | 8.8 | 11.5 | 9.7 |
| Shuang Yashan, China[28](#_ENREF_28) | 2007-2009 | Acute Respiratory Illness | 0-14 years | – | 2.3 | – | 2.5 | – | 2.2 |
| Taiwan, China[29](#_ENREF_29) | 2001-2002 | Community-acquired Pneumonia | 0-18 years | – | – | – | – | – | 5.2 |
| Beijing, China[30](#_ENREF_30) | 2007-2008 | Acute Lower Respiratory Tract Infection | 0-15 years | – | 3.2 | – | 4.6 | 13.5 | 6.8 |
| Xian, China[31](#_ENREF_31) | 2003-2004 | Non-bacterial Pneumonia | 0-10 years | – | – | – | – | – | 12.9 |
| Shantou, China[32](#_ENREF_32) | 2007-2007 | Acute Lower Respiratory Tract Infection | 0-5 years | – | – | – | – | – | 11.9 |
| Wuhan, China[33](#_ENREF_33) | 2008-2009 | Acute Respiratory Tract Infection | 0-14 years | – | – | – | – | – | 34.8 |
| Hangzhou, China[34](#_ENREF_34) | 2001-2006 | Acute Lower Respiratory Tract Infection | 0-13 years | – | 1.9 | – | 2.2 | – | 2.2 |
| Taiwan, China[35](#_ENREF_35) | 1997-1999 | Respiratory Tract Infection | 0-12 years | – | – | – | – | – | 3.6 |
| Beijing, China[36](#_ENREF_36) | 2000-2006 | Acute Respiratory Infection | 0-14 years | – | – | – | – | – | 0.4 |
| Wenzhou, China[37](#_ENREF_37) | 2000-2003 | Acute Lower Respiratory Infection | 0-15 years | – | 1.4 | – | 1.8 | – | 1.5 |
| Changsha, China[38](#_ENREF_38) | 2007-2008 | Acute Lower Respiratory Tract Infection | 0-14 years | 4.8 | 5.5 | – | 5.6 | – | 5.6 |
| Aarhus, Denmark[39](#_ENREF_39) | 2001-2002 | Febrile episodes (Children with cancer) | 0-17 years | – | – | – | – | – | 0.5\*\* |
| Newcastle, England[40](#_ENREF_40) | 1996-1998 | Community-acquired Pneumonia | 0-16 years | – | – | – | – | – | 5.2 |
| Turku, Finland[41](#_ENREF_41) | 2006-2007 | Community-acquired Pneumonia | 0-15 years | – | – | – | – | – | 5.3 |
| Turku, Finland[42](#_ENREF_42) | 2000-2002 | Acute Expiratory wheezing (Children with asthma) | 0-16 years | – | – | – | – | – | 2.4 |
| Tampere, Finland[43](#_ENREF_43) | 2001-2004 | Bronchiolitis | 0-5 months | 5.6 | – | – | – | – | – |
| Turku, Finland[44](#_ENREF_44) | 1993-1995 | Community-acquired Pneumonia | 0-15 years | – | – | – | – | – | 2.0 |
| Paris, France[45](#_ENREF_45) | 2002-2004 | Acute Respiratory Illness or Acute Fever | 0-16 years | – | – | – | 3.8 | – | 4.5 |
| Montpellier, France[46](#_ENREF_46) | 2003-2004 | Respiratory Tract Disease | 0-4 years | – | – | – | 3.1 | – | – |
| Caen, France[47](#_ENREF_47) | 1993-1997 | Acute exacerbations of asthma (Children with asthma) | 0-14 years | – | – | 5.6 | – | – | 5.3 |
| Tblisi, Georgia[48](#_ENREF_48) | 1997-2003 | Upper or Lower Respiratory Tract Infection | 0-15 years | – | – | – | – | – | 7.3 |
| Multiple sites, Germany[49](#_ENREF_49) | 1999-2001 | Lower Respiratory Tract Infection | 0-2 years | – | – | – | 4.2 | – | – |
| Kiel, Germany[50](#_ENREF_50) | 1995-1999 | Acute Respiratory Tract Infection | 0-16 years | 3.7 | 6.3 | 6.8 | 8.1 | 9.3 | 8.4 |
| Kumasi, Ghana[51](#_ENREF_51) | 2008-2008 | Severe Pneumonia | 0-60 months | † | – | 1.1 | 0.8 | – | – |
| Athens, Greece[52](#_ENREF_52) | 1999-2000 | Bronchiolitis | 0-17 months | – | – | 2.5 | – | – | – |
| Athens, Greece[53](#_ENREF_53) | 1999-2000 | Community-acquired Pneumonia | 5-14 years | – | – | – | – | 6.7 | – |
| Hong Kong SAR, China[54](#_ENREF_54) | 2003-2006 | Febrile Acute Respiratory Infection | 0-17 years | – | – | – | – | – | 14.3 |
| Hong Kong SAR, China[55](#_ENREF_55) | 2005-2007 | Upper Respiratory Tract Infection and/or fever, or Acute Respiratory Infection | 0-4 years | – | – | – | 11.3 | – | – |
| New Delhi, India[56](#_ENREF_56) | 2007-2007 | Bronchiolitis | 0-1 years | – | – | 1.2 | – | – | – |
| New Delhi, India[57](#_ENREF_57) | 1995-1997 | Acute Lower Respiratory Tract Illness | 0-60 months | – | – | – | 14.5 | – | – |
| Pune, India[58](#_ENREF_58) | 2002-2004 | Respiratory Tract Infection | Children (No range specified) | 2.0 | 2.2 | – | 1.8 | – | 1.6 |
| Beer-Sheva, Israel[59](#_ENREF_59) | 2001-2002 | Lower Respiratory Tract Infection | 0-4 years | – | – | – | 15.1 | – | – |
| Milan, Italy[60](#_ENREF_60) | 2008-2009 | Acute Respiratory Tract Infection | 0-14 years | – | – | – | – | – | 9.6 |
| Pisa, Italy[61](#_ENREF_61) | 2000-2006 | Acute Respiratory Disease | Infants (Not further specified) | – | – | 3.7 | – | – | – |
| Pordenone, Italy[62](#_ENREF_62) | 2008-2010 | Acute Respiratory Infection | Children (87% <5 years) | – | – | – | – | – | 11.8 |
| Rome, Italy[63](#_ENREF_63) | 2004-2007 | Acute Respiratory Infections | 0-13 years | – | – | – | – | – | 3.4 |
| Sicily, Italy[64](#_ENREF_64) | 2009-2010 | Hospitalized Influenza-like Illness | 0-14 years | – | – | – | 46.4\* | 61.3\* | 54.4\* |
| Tokyo, Japan[65](#_ENREF_65) | 2004-2005 | Community-acquired Pneumonia | Children (89% <6 years) | – | – | – | – | – | 15.4 |
| Hokkaido, Japan[66](#_ENREF_66) | 2000-2001 | Community-acquired Pneumonia or Bronchitis | 0-14 years | – | – | – | – | – | 10.0\* |
| Tokyo, Japan[67](#_ENREF_67) | 1986-1992 | Lower Respiratory Tract Illness | Children (90% <7 years) | – | – | – | – | – | 5.8 |
| Bondo, Kenya[68](#_ENREF_68) | 2007-2009 | Sever Acute Respiratory Illness | 0-4 years | – | – | – | 6.8 | – | – |
| Kilifi, Kenya[69](#_ENREF_69) | 2010-2010 | Pneumonia | 0-4 years | – | – | – | 1.5 | – | – |
| Kilifi, Kenya[70](#_ENREF_70) | 2007-2007 | Severe Pneumonia | 0-12 years | – | – | – | – | – | 5.9 |
| Seoul, Korea, Rep.[71](#_ENREF_71) | 1996-1998 | Acute Lower Respiratory Tract Infection | 0-15 years | – | – | – | – | – | 7.8 |
| Seoul, Korea, Rep.[72](#_ENREF_72) | 2003-2008 | Acute Respiratory Tract Infection | 0-17 years | – | – | – | – | – | 4.8 |
| Hallym, Korea, Rep.[73](#_ENREF_73) | 1996-1998 | Acute Respiratory Tract Infection | 0-10 years | – | – | – | – | – | 6.1 |
| Kuala Lumpur, Malaysia[74](#_ENREF_74) | 1999-2000 | Acute Respiratory Infection (suspected viral cause) | 0-10 years | – | – | – | – | – | 13.1 |
| Kuala Lumpur, Malaysia[75](#_ENREF_75) | 1982-1998 | Lower Respiratory Tract Infection | 0-24 months | 0.6 | 1.1 | 1.4 | – | – | – |
| Maputo, Mozambique[76](#_ENREF_76) | 2006-2007 | Severe Pneumonia | 0-4 years | – | – | – | 4.8 | – | – |
| Kathmandu, Nepal[77](#_ENREF_77) | 2006-2008 | Severe Pneumonia | 2-35 months | – | – | – | 7.2 | – | – |
| Ibadan, Nigeria[78](#_ENREF_78) | 1985-1987 | Acute Lower Respiratory Infection | 0-4 years | – | – | – | 15.6 | – | – |
| Abha, Saudi Arabia[79](#_ENREF_79) | 1997-2001 | Bronchiolitis | 0-5 years | – | † | † | – | – | 15.7 |
| Riyadh, Saudi Arabia[80](#_ENREF_80) | 1993-1996 | Acute Respiratory Tract Infection | 0-4 years | – | – | – | 3.2 | – | – |
| Singapore[81](#_ENREF_81) | 1998-1999 | Lower Respiratory Tract Infection | 0-14 years | – | – | – | – | – | 4.4 |
| Singapore[82](#_ENREF_82) | 1994-1995 | Lower Respiratory Tract Infection | 0-11 years | – | – | – | – | – | 4.5 |
| Ljubljana, Slovenia[83](#_ENREF_83) | 2007-2009 | Respiratory Tract Infection | 0-17 years | – | – | – | – | – | 0.9 |
| Cape Town, South Africa[84](#_ENREF_84) | 1995-1996 | Acute Lower Respiratory Tract Infection | 0-1 years | – | – | 0.6 | – | – | – |
| Soweto, South Africa[85](#_ENREF_85) | 1997-1998 | Severe lower Respiratory Tract Illness (Half of participants HIV+) | 2-60 months | – | – | – | 8.6 | – | – |
| Cape Town, South Africa[86](#_ENREF_86) | 2003-2004 | Respiratory Tract Infection | 0-5 years | – | – | – | – | – | 0.9 |
| Pretoria, South Africa[87](#_ENREF_87) | 2006-2007 | Acute Respiratory Tract Infection | 0-4 years | – | – | – | 1.7 | – | – |
| Gipuzkoa Province, Spain[88](#_ENREF_88) | 2004-2007 | Acute Respiratory Infection | 0-2 years | 3.6 | 4.1 | 4.9 | 4.5 | – | – |
| Barcelona, Spain[89](#_ENREF_89) | 2006-2007 | Acute Wheezing | 0-4 years | – | – | – | 7.4 | – | – |
| Madrid, Spain[90](#_ENREF_90) | 2000-2005 | Acute Respiratory Infection | 0-1 years | – | – | 5.0 | – | – | – |
| Almeira, Spain[91](#_ENREF_91) | 2008-2009 | Lower Respiratory Tract Infection | 0-13 years | – | – | – | – | – | 6.5 |
| Madrid, Spain[92](#_ENREF_92) | 2008-2010 | Respiratory Tract Disease, including asthma and wheezing | 0-13 years | – | – | – | – | – | 7.2 |
| Stockholm, Sweden[93](#_ENREF_93) | 2000-2004 | Acute Encephalitis | 0-18 years | – | – | – | – | – | 5.4 |
| Geneva, Switzerland[94](#_ENREF_94) | 2003-2005 | Community-acquired Pneumonia | 2 months-5 years | – | – | – | – | – | 14.1 |
| Bern, Switzerland[95](#_ENREF_95) | 1998-2010 | Respiratory Illness | 0-17 years | – | – | – | – | – | 4.6 |
| Khon Kaen, Thailand[96](#_ENREF_96) | 1992-1994 | Acute Lower Respiratory Infection | 0-4 years | – | 0.0 | 0.0 | 0.0 | – | – |
| Khon Kaen, Thailand[97](#_ENREF_97) | 2002-2004 | Acute Bronchiolitis | 1-24 months | – | – | 17.1 | – | – | – |
| Chantaburi, Thailand[98](#_ENREF_98) | 2005-2007 | Acute Respiratory Tract Infection | 0-14 years | – | – | – | – | – | 24.3 |
| Bangkok, Thailand[99](#_ENREF_99) | 2006-2007 | Community-acquired Pneumonia | 0-15 years | – | – | – | 11.3 | † | 12.5 |
| Bangkok, Thailand[100](#_ENREF_100) | 2004-2005 | Lower Respiratory Tract Infection or Influenza-like Illness | 0-4 years | – | – | – | 8.6 | – | – |
| Bangkok, Thailand[101](#_ENREF_101) | 2007-2009 | Acute Lower Respiratory Tract Infection | 1-12 months | – | 7.3 | – | – | – | – |
| Houston, United States[102](#_ENREF_102) | 2001-2009 | Staphylococcus aureus Pneumonia | 0-20 years | – | – | – | – | – | 7.4 |
| Houston, United States[103](#_ENREF_103) | 1993-1995 | Acute Respiratory Illness | 0-17 years | – | 0.0 | – | 5.4 | 4.0 | 4.9 |
| Dallas, United States[104](#_ENREF_104) | 1999-2000 | Lower Respiratory Infections | 0-17 years | – | – | – | – | – | 23.1 |
| Multiple sites, United States[105](#_ENREF_105) | 2000-2004 | Acute Respiratory Tract Infection or Fever | 0-4 years | – | – | – | 5.7 | – | – |
| Yukon Delta, United States[106](#_ENREF_106) | 2005-2007 | Lower Respiratory Tract Infection | 0-2 years | – | – | – | 4.9 | – | – |
| Nha Trang, Vietnam[107](#_ENREF_107) | 2007-2008 | Acute Respiratory Tract Infection | 0-15 | – | 19.1 | 13.6 | 15.1 | 20.8 | 15.5 |
| Ho Chi Minh City, Vietnam[108](#_ENREF_108) | 2004-2008 | Acute Respiratory Illness | 0-14 years | – | 10.7 | – | – | † | 16.5 |

\*Estimates for Influenza A only, not included in analysis

\*\* Estimates for Influenza B only, not included in analysis

† Less than 50 tested, data not presented or included in analysis

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