

THE LANCET

Global Health

Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

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Supplementary material for “Global, regional and national estimates of trends in child pneumonia morbidity and mortality for 2000–2015: a systematic analysis”

CLINICAL PNEUMONIA

SEARCH TERMS (Medline)

#	Searches
1	clinical pneumonia.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]
2	severe pneumonia.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]
3	exp Respiratory Tract Infections/ep [Epidemiology]
4	pneumonia/ or bronchopneumonia/ or pleuropneumonia/ or pneumonia, bacterial/ or chlamydial pneumonia/ or pneumonia, mycoplasma/ or pneumonia, pneumococcal/ or pneumonia, rickettsial/ or pneumonia, staphylococcal/ or pneumonia, pneumocystis/ or pneumonia, viral/
5	("acute lower respiratory infection" or "alri").mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]
6	morbidity/ or incidence/ or prevalence/ or mortality/ or epidemiological monitoring/ or geographic mapping/
7	1 or 2 or 3 or 4 or 5
8	6 and 7
9	limit 8 to (yr="1980 -Current" and "all child (0 to 18 years)")

SEARCH TERMS (EMBASE & Global Health)

#	Searches
1	clinical pneumonia.mp. [mp=abstract, title, original title, broad terms, heading words, identifiers, cabicodes]
2	severe pneumonia.mp. [mp=abstract, title, original title, broad terms, heading words, identifiers, cabicodes]
3	[exp Respiratory Tract Infections/ep [Epidemiology]]
4	("acute lower respiratory infection" or "alri").mp. [mp=abstract, title, original title, broad terms, heading words, identifiers, cabicodes]
5	exp pneumonia/
6	1 or 2 or 3 or 4 or 5
7	(incidence or morbidity).mp. [mp=abstract, title, original title, broad terms, heading words, identifiers, cabicodes]
8	6 and 7
9	limit 8 to (yr="1980 -Current" and (child <unspecified age> or preschool child <1 to 6 years> or school child <7 to 12 years>))

HOSPITALISED PNEUMONIA

MEDLINE

1. exp Pneumonia/
2. exp Respiratory Tract Infections/ or acute lower respiratory infections.mp.
3. acute respiratory infection\$.mp.
4. lower respiratory infection\$.mp.
5. exp Bronchiolitis/ or Bronchiolitis, Viral/
6. Pneumococcal Vaccines/ or Haemophilus Vaccines/
7. *Zinc/
8. Vitamin A/
9. exp Incidence/
10. disease burden.mp.
11. exp Morbidity/
12. 1 or 2 or 3 or 4 or 5
13. 6 or 7 or 8
14. 1 and 13
15. 9 or 10 or 11
16. 12 or 14
17. 15 and 16
18. limit 17 to (yr="1 April 2012 -Current" and ("all infant (birth to 23 months)" or "preschool child (2 to 5 years)") and humans)

EMBASE

1. exp respiratory tract infection/ or exp lower respiratory tract infection/ or acute lower respiratory tract infection\$.mp. or exp pneumonia/
2. lower respiratory infection\$.mp.
3. acute lower respiratory infection\$.mp.
4. exp BRONCHIOLITIS/ or VIRAL BRONCHIOLITIS/
5. exp Pneumococcus vaccine/
6. exp Haemophilus influenzae type b vaccine/
7. *ZINC/
8. *alpha tocopherol/ or Vitamin A.mp.
9. exp INCIDENCE/
10. disease burden.mp.
11. exp MORBIDITY/
12. 1 or 2 or 3 or 4
13. 5 or 6 or 7 or 8

14. 1 and 13
15. 9 or 10 or 11
16. 12 or 14
17. 15 and 16
18. limit 17 to (human and yr="1990 -Current" and (infant or preschool child <1 to 6 years>))

GLOBAL HEALTH

1. (pneumonia or lower respiratory tract infections).sh.
2. acute respiratory infection\$.mp.
3. exp bronchiolitis/
4. vaccines.sh.
5. (retinol or zinc).sh.
6. exp incidence/
7. disease burden.mp. or morbidity.sh.
8. exp children/
9. 1 or 2 or 3
10. 4 or 5
11. 9 and 10
12. 6 or 7
13. 9 or 11
14. 12 and 13
15. 8 and 14
16. limit 15 to yr="1 April 2012 -Current"

CINAHL

TI Pneumonia

OR

TI Community Acquired Pneumonia

OR

TI Pneumonia Virus\$

OR

TI Pneumonia bacteria\$

OR

TI bronchiolitis

OR

TI Acute Lower Respiratory Infection.

AND

TI Children

Limiters: 2012-2016; infants: 1 to 23 months & Child, Preschool 2-5 years

Methods for estimating incidence and episodes of clinical pneumonia in young children at country level

- Step 1 We conducted a systematic literature review to identify the risk factors for pneumonia in children aged 0-4 years. We selected risk factors which in meta-analyses had strong statistically significant associations with pneumonia. These were:
- Malnutrition (weight for age <-2SD)– odds ratio (OR) 4.5 (2.1-9.5)
 - Low birth weight (<2500g) – OR 3.6 (0.8-16.3)
 - Non-exclusive breastfeeding (4 months) – OR 2.7 (1.7-4.4)
 - Indoor air pollution – OR 1.6 (1.1-2.3)
 - HIV – OR 6.51 (5.86-7.24)
 - Crowding (more than 5 persons per household) – OR 1.9 (1.5-2.5)
 - Incomplete immunisation (No measles immunisation at 12 months of age) – OR 1.8 (1.3-2.5)
- Step 2 We obtained data on the prevalence of all risk factors other than HIV from nationally representative household surveys with large sample sizes - the demographic and health surveys (DHS). DHS surveys are generally carried out every 2 to 5 years and provide data on demography and health indicators. The data for China were obtained from the Chinese National Bureau of Statistics. The HIV data were obtained from the United Nations programme on HIV/AIDS (UNAIDS) estimates for 2013 (http://www.unaids.org/en/media/unaids/contentassets/documents/epidemiology/2013/gr2013/20131118_Methodology.pdf). We ensured that the definitions of risk factors were the same in the studies estimating the risk ratios as in the surveys that measured prevalence of exposure to these risk factors.
- Specifically, we defined each risk factor using one or more DHS variables. Then, using individual patient data from the standard DHS survey (excluding special surveys) for each country at the survey version closest to 2000 and 2015 respectively, we calculated the proportion of participants with each combination of risk factors.
- Step 3 We categorised the developing countries into different subgroups based on the six WHO regions and child and adult mortality strata: A, very low child and very low adult mortality; B, low child and low adult mortality; C, low child and high adult mortality; D, high child and high adult mortality; E, high child and very high adult mortality. Where available, we decided to use the latest data for the prevalence of the seven risk factors. If the prevalence data were not available for any risk factor in a particular country, we imputed the median prevalence for the subgroup to which the country belonged.
- Step 4 The overall incidence (of clinical pneumonia in community) and hospitalisation rate (for physician diagnosed pneumonia) in developing countries were obtained from the Poisson regression models as described in the main methods section.

10,000 samples for each prediction were obtained. For the proportion of cases which were severe (i.e. with lower chest wall indrawing), the estimate from random effects meta-analysis (using Stata 11.1) was represented as a beta distribution, from which 10,000 samples were obtained using R. The incidence of severe pneumonia was calculated as the incidence of clinical pneumonia in the community times the proportion with severe pneumonia.

The overall incidence (of clinical and hospitalised pneumonia respectively) in a population is the sum of each stratum specific rate, weighted by the proportion in each stratum where there are j mutually exclusive strata:-

$$Total\ rate = \frac{\sum x_j}{\sum n_j} = \sum_j \left(\frac{x_j}{n_j} \cdot \frac{n_0}{x_0} \cdot \frac{x_0}{n_0} \cdot \frac{n_j}{\sum n_j} \right)$$

where x is the number of cases in a stratum, n is the total population in a stratum and where $j=0$ indicates the stratum which has no exposures (i.e. the unexposed) and $j=1$ to $j=127$ indicate the strata for each unique combination of risk factors. This equation can be re-written as:-

$$Total\ rate = \frac{x_0}{n_0} \times \sum_j \left(\frac{x_j}{n_j} \cdot \frac{n_0}{x_0} \cdot \frac{n_j}{\sum n_j} \right)$$

where $\frac{x_0}{n_0}$ is the rate in the unexposed, $\frac{x_j}{n_j} \cdot \frac{n_0}{x_0}$ is the rate ratio, and $\frac{n_j}{\sum n_j}$ is the proportion in each stratum.

Therefore, using the regional estimates (for developing countries) of the total rate, the combined rate ratio for each stratum, and the proportion in each stratum we can calculate the incidence in unexposed people for the region (all developing countries). If we then assume that the rate in the unexposed is consistent across the region we can then calculate the incidence rate for each country:-

$$Country\ specific\ rate = \frac{\sum x_j^c}{\sum n_j^c} = \frac{\sum x_j^r}{\sum n_j^r} \cdot \frac{\sum_j \left(\frac{x_j}{n_j} \cdot \frac{n_0}{x_0} \cdot \frac{n_j^r}{\sum n_j^r} \right)}{\sum_j \left(\frac{x_j}{n_j} \cdot \frac{n_0}{x_0} \cdot \frac{n_j^c}{\sum n_j^c} \right)}$$

where c indicates a country specific value and r indicates a regional value.

Step 5

Assumptions:

- As with attributable fraction calculations, we assume that the pooled risk ratios obtained from a range of case-control/cohort studies in the developing region were applicable across each developing country. As described in Step 6 we added additional uncertainty to our estimates to relax this assumption somewhat.
- As in our previous analysis for HIV and pneumonia[1] we assumed that there was an n-way interaction between each risk factor (1.25 fold reduction) such that rate ratios combined sub-multiplicatively (e.g. for the group with malnutrition and low birth weight, $RR_{\text{malnutrition}} = 4.5$, and $RR_{\text{low birth weight}} = 3.6$, $RR_{\text{both}} = 4.5 \times 3.6 / 1.25 = 12.96$ rather than $4.5 \times 3.6 = 16.2$). None of the primary studies included in the meta-analysis reported interaction/heterogeneity of effect measure estimates on a multiplicative scale. However, although we noted that the majority of studies did not report testing for interaction (presumably because of an actual or perceived lack of statistical power) it seemed unlikely to us that all risks combined fully multiplicatively. Therefore, we added a weak interaction term to shrink the combined rate ratios towards the null. This would have the effect of causing the country specific estimates to be attenuated towards the overall estimate for the developing region.
- In order to calculate the proportion of the population in each country within each of the j strata we first aggregated the survey data to obtain a marginal (overall) estimate for each risk factor, then assumed independence to estimate the proportion of individuals with each combination of risk factors (i.e. the proportion in each of the j strata). This assumption was made so that the uncertainty around the proportion for each combination of risk factors could be obtained by sampling from 7 beta distributions (with shape parameters determined by the number of participants in the survey with and without each of the 7 risk factors), then multiplying together each of the 7 sampling distributions. We could instead have used the actual number of participants with each combination of risk factors, and sampled instead from a Dirichlet distribution (a multivariate extension of the beta distribution). However, our chosen approach had a number of advantages. Firstly, it allowed us to use data from more than one source (as maternal HIV is not well recorded in the DHS surveys). Secondly, data processing was more straightforward. Thirdly, it meant that we could make the data used in the analyses publicly available, which would not have been possible had we used the actual joint proportions, which are potentially disclosive. We examined the extent to which our assumption of independence over or underestimated each joint proportion across 102 DHS surveys (See Table below). For the purpose of this tabulation alone, self-reported maternal sexually transmitted infection was used as a surrogate for HIV infection.

- In 97% of the 127 strata (in 102 DHS surveys) where people had one or more of the seven risk factors, the estimated proportion was within 5% of the true proportion. The independence assumption meant that we tended to overestimate the true proportion of participants with no risk factors or few risk factors, as expected given that these risk factors are in fact correlated. This means that the model will tend to underestimate differences between countries on average, although it may overestimate or underestimate the incidence rate depending on the actual correlation of risk factors in particular countries.
- Finally we assumed that the rate among the unexposed (i.e. the risk in the absence of these seven risk factors) came from the same distribution for all countries. This is the same as assuming that there was no residual confounding.

Step 6 Using a simulation based approach, we performed the calculation described in Step 4 to estimate the country specific rates along with uncertainty estimates as uncertainty ranges (UR).

This was done by performing this calculation for each of the 10,000 samples from the distributions representing the incidence rates, disease severity proportion, odds ratios and risk factor proportions (methods used to obtain each of these were obtained as described above) within R. Full analysis code and data are available from the authors on request.

Step 7 In a similar manner to equation 3 within step 4, we calculated the incidence of pneumonia in HIV-uninfected children by summing those strata where children were HIV negative regardless of the presence/absence of other risk factors. Similarly, we calculated the incidence of pneumonia in HIV-infected children.

Step 8 Having obtained estimates of the total rate and rate in HIV-uninfected children in each country, we used the standard formula for attributable fraction.¹

$$\text{Attributable fraction} = \frac{I_e - I_0}{I_e}$$

$$\text{or, equivalently, attributable fraction} = \frac{RR - 1}{RR}$$

where I_e is the incidence in HIV-infected and I_0 is the incidence in HIV-uninfected in each country; and RR is the risk ratio for pneumonia in HIV-infected (compared to -uninfected). We then applied the attributable fraction to the rate among the HIV-infected (and the UR) in order to obtain the rate attributable to HIV with the UR. As we had already incorporated uncertainty in the HIV risk factor estimates in calculating the total country rates, we did not add additional uncertainty at this stage.

Supplementary table 1: Impact of obtaining joint proportions from marginal proportions, using assumption of independence

Risk factors	Independence assumption leads to overestimation (> 5%)	Independence assumption correct within 5% of true value	Independence assumption leads to underestimation (> 5%)
0	77(75.5)	14(13.7)	11(10.8)
1	238(33.3)	466(65.3)	10(1.4)
2	258(12.0)	1879(87.7)	5(0.2)
3	97(2.7)	3469(97.2)	4(0.1)
4	1(0.0)	3566(99.9)	3(0.1)
5	0(0.0)	2142(100.0)	0(0.0)
6	0(0.0)	714(100.0)	0(0.0)
7	0(0.0)	102(100.0)	0(0.0)

Cells contain the number and (%) of strata in which proportions are overestimated, underestimated and correctly estimated, for 102 DHS surveys.

Supplementary table 2: Details of studies reporting incidence of clinical pneumonia in children younger than 5 years

S.No	Location (study period)	Region	Duration of study (months)	Age group under study (months)	Case definition		Status of Hib vaccine implementation at time of study	Status of PCV implementation at time of study (indicate valency of the vaccine)	Assessor	Surveillance intervals	Site of diagnosis	Denominator (cohort size)	Incidence 0-4 years (episodes/child-year)	Proportion of cases with severe pneumonia
					Clinical pneumonia	Severe pneumonia								
1	Ibadan, Nigeria; urban (Oct 1984 - Oct 1987) ²	AFR	36	0-59	IC, W-, CR+		No	No	FW (and Physician)	Weekly	Clinic and home	610	1.38	
2	Maragua, Kenya; rural (Feb 1985 - Jan 1988) ³	Africa	36	0-59	IC, W-, CR+		No	No	FW (and Physician)	Weekly	Clinic and home	470	0.16	
3	Basse, The Gambia; rural (Mar 1987 - Mar 1988) ⁴	Africa	12	0-59	IB, W-, CR-		No	No	TFW (and Physician)	Weekly	Home and hospital	491	0.45	
4	Accra, Ghana; rural (Jan 1987 - Dec 1989) ⁵	Africa	36	0-59	IB, W-, CR-		No	No	Nurses (and Physician)	Weekly	Clinic and home	1350	0.06	
5	Ilorin, Nigeria; suburban (Jul 1988 - Jun 1989) ⁶	Africa	12	0-59	IA, W+, CR-	IA, W+, CR+	No	No	TFW	3x/week	Home	481	1.65	0.11
6	Ibadan, Nigeria; urban and rural (Jun 1999 - May 2001) ⁷	Africa	24	0-59	IB, W-, CR-		No	No	Nurses (TFW)	Weekly	Home and hospital	1579	0.27	

S.No	Location (study period)	Region	Duration of study (months)	Age group under study (months)	Case definition		Status of Hib vaccine implementation at time of study	Status of PCV implementation at time of study (indicate valency of the vaccine)	Assessor	Surveillance intervals	Site of diagnosis	Denominator (cohort size)	Incidence 0-4 years (episodes/child-year)	Proportion of cases with severe pneumonia
					Clinical pneumonia	Severe pneumonia								
7	Upper and Central River Division, The Gambia; rural (Aug 2000 - Apr 2004) ⁸	Africa	45	3-29	IB, W-, CR-	II	No	No	Nurses (and Physician)	Weekly	Hospital	8151	0.2	0.07
8	Paarl, South Africa; periurban (May 2012 - May 2014) ⁹	Africa	24	0-11	IA, W-, CR-	IA, W-, CR+	Yes	Yes	TFW (and Physician)	Not known	Clinic and hospital	697	0.22	0.23
9	Monte-video, Uruguay; urban (May 1985 - Dec 1987) ¹⁰	Americas	32	0-35	II		No	No	Pediatrician	10 days	Home	166	2.26	
10	Guatemala city, Guatemala; suburban (Jan 1985 - Dec 1986) ¹¹	Americas	24	0-59	IC, W-, CR+		No	No	TFW (and Physician)	Fortnightly	Clinic	521	0.31	
11	Cali, Colombia; urban (Jan 1987 - Dec 1989) ¹²	Americas	36	0-17	IC, W-, CR+		No	No	TFW	Weekly	Clinic	340	1.26	
12	San Marcos, Guatemala; rural (Oct 2002 - Dec 2004) ¹³	Americas	15	0-59	II	II	No	No	Physician	Weekly	Home	253	0.28	0.34

S.No	Location (study period)	Region	Duration of study (months)	Age group under study (months)	Case definition		Status of Hib vaccine implementation at time of study	Status of PCV implementation at time of study (indicate valency of the vaccine)	Assessor	Surveillance intervals	Site of diagnosis	Denominator (cohort size)	Incidence 0-4 years (episodes/child-year)	Proportion of cases with severe pneumonia
					Clinical pneumonia	Severe pneumonia								
13	Canto Grande, Peru; suburban (Jul 1987 - Oct 1989) ¹⁴	Americas	27	0-41	II		No	No	Physician (and TFW)	2x/week	Home and clinic	1500	0.26	
14	Ghizer, Pakistan; rural (Nov 2001 - Dec 2002) ¹⁵	Eastern Mediterranean	14	2-35	IC, W-, CR-	IC, W-, CR+	No	No	TFW	Fortnightly	Home and hospital	5204	0.23	0.27
15	Karachi, Pakistan; urban (Apr 2002 - Apr 2003) ¹⁶	Eastern Mediterranean	12	0-59	IA, W-, CR-		No	No	TFW	Weekly	Home	1634	0.9	
16	Haryana, India; rural (Jan 1982 - Sep 1983) ¹⁷	South East Asia	21	0-23	IB, W+, CR-		No	No	TFW	Weekly	Home	347	0.24	
17	Kathmandu, Nepal; rural (Feb 1984 - Jan 1987) ¹⁸	South East Asia	36	0-59	IB, W+, CR+		No	No	TFW	Fortnightly	Home	1019	0.22	
18	Bangkok, Thailand; urban (Jan 1986 - Dec 1987) ¹⁹	South East Asia	24	0-59	IC, W-, CR+		No	No	TFW (and Physician)	2x/week	Home	674	0.07	
19	Haryana, India; rural (Jan 1986 - Dec 1986) ²⁰	South East Asia	12	0-59	IB, W-, CR+		No	No	TFW	Fortnightly	Home	5078	0.54	

S.No	Location (study period)	Region	Duration of study (months)	Age group under study (months)	Case definition		Status of Hib vaccine implementation at time of study	Status of PCV implementation at time of study (indicate valency of the vaccine)	Assessor	Surveillance intervals	Site of diagnosis	Denominator (cohort size)	Incidence 0-4 years (episodes/child-year)	Proportion of cases with severe pneumonia
					Clinical pneumonia	Severe pneumonia								
20	Yumla, Nepal; rural (Jun 1986 - Jun 1989) ²¹	South East Asia	36	0-59	IA, W+, CR-		No	No	TFW	Fortnightly	Home	13404	0.7	
21	Matlab, Bangladesh; rural (May 1988 - Apr 1989) ²²	South East Asia	12	0-59	IB, W-, CR-		No	No	TFW	2x/week	Home	696	0.23	
22	Wardha, India; rural (Sep 1990 - Aug 1991) ²³	South East Asia	12	0-59	IA, W+, CR-		No	No	Not reported (probably TFW)	Fortnightly	Home	384	0.08	
23	Mirzapur, Bangladesh; rural (Oct 1993 - Sep 1996) ²⁴	South East Asia	36	0-23	IB, W+, CR-	IB, W+, CR+	No	No	TFW (and pediatrician)	2x/week	Home and hospital	288	0.38	0.26
24	Bandung, Indonesia; suburban and rural (Feb 1999 - Jan 2001) ⁷	South East Asia	24	0-59	IC, W+, CR-	IC, W+, CR+	No	No	TFW	Weekly	Home and clinic	1420	0.19	0.12

S.No	Location (study period)	Region	Duration of study (months)	Age group under study (months)	Case definition		Status of Hib vaccine implementation at time of study	Status of PCV implementation at time of study (indicate valency of the vaccine)	Assessor	Surveillance intervals	Site of diagnosis	Denominator (cohort size)	Incidence 0-4 years (episodes/child-year)	Proportion of cases with severe pneumonia
					Clinical pneumonia	Severe pneumonia								
25	Ballabgarh, Haryana, India; rural (Oct 2001 - Mar 2005) ²⁵	South East Asia	42	0-35	IC, W-, CR-	IC, W-, CR+	No	No	TFW (and Physician)	Weekly	Home and hospital	281	0.24	0.17
26	Dhaka, Bangladesh; urban (Apr 2004 - Dec 2007) ²⁶	South East Asia	45	0-59	IC, W-, CR-	IC, W+, CR+	No	No	TFW (and Physician)	Weekly	Home and hospital	12062	0.47	0.070
27	Mirzapur, Bangladesh; rural (Jul 2004 - Jun 2007) ²⁷	South East Asia	36	0-59	IC, W+, CR-	IC, W+, CR+	No	No	TFW (and Physician)	Weekly	Home and hospital	22378	0.31	0.53
28	Delhi, India; periurban (Jan 2011 - Jan 2012) ²⁸	South East Asia	12	0-59	IA, W-, CR-	IA, W-, CR+	No	No	TFW (and Physician)	Fortnightly	Home and hospital	106	0.37	0.06
29	Tari & Asaro, Papua New Guinea; rural (Jan 1979 - Jan 1983) ²⁹	Western Pacific	48	0-59	IB, W-, CR-	IB, W-, CR+	No	No	TFW (and Physician)	Fortnightly	Home and hospital	1595	0.41	0.7
30	Changping county, China; semirural (Jun 1981 - Jun 1983) ³⁰	Western Pacific	24	0-143	II		No	No	Physician	Weekly	Home and primary school	526	0.07	

S.No	Location (study period)	Region	Duration of study (months)	Age group under study (months)	Case definition		Status of Hib vaccine implementation at time of study	Status of PCV implementation at time of study (indicate valency of the vaccine)	Assessor	Surveillance intervals	Site of diagnosis	Denominator (cohort size)	Incidence 0-4 years (episodes/child-year)	Proportion of cases with severe pneumonia
					Clinical pneumonia	Severe pneumonia								
31	Albang Manila, Phillipines; urban (Apr 1985 - Mar 1987) ³¹	Western Pacific	24	0-59	IC, W-, CR+		No	No	Nurse (and Physician)	Weekly	Home and clinic	1978	0.53	
32	Asaro valley, Papua New Guinea; rural (Jan 1985 - Dec 1987) ³²	Western Pacific	36	0-59	IB, W+, CR-		No	No	Lay reporters	2x/week	Home	156	1.32	
33	Zhejiang Province, China; rural (Apr 1990 - Mar 1991) ³³	Western Pacific	12	0-59	IA, W-, CR-		No	No	TFW (and Physician)	Fortnightly	Home and clinic	1215	0.10	
34	Zhejiang Province, China; rural (Apr 1990 - Mar 1991) ³⁴	Western Pacific	12	0-59	IA, W-, CR-		No	No	TFW (and Physician)	Monthly	Home and clinic	7472	0.13	
35	Rudong County, Jiangsu Province, China; rural (Feb 1991 - Jan 1993) ³⁵	Western Pacific	12	0-59	IA, W-, CR-		No	No	TFW (and Physician)	Not known	Home, clinic and hospital	10541	0.28	
36	Liyang City, China; rural (1991 - 1994) ³⁶	Western Pacific	36	0-59	IA, W-, CR-		No	No	TFW (and Physician)	Not known	Clinic and hospital	20867	0.12	

S.No	Location (study period)	Region	Duration of study (months)	Age group under study (months)	Case definition		Status of Hib vaccine implementation at time of study	Status of PCV implementation at time of study (indicate valency of the vaccine)	Assessor	Surveillance intervals	Site of diagnosis	Denominator (cohort size)	Incidence 0-4 years (episodes/child-year)	Proportion of cases with severe pneumonia
					Clinical pneumonia	Severe pneumonia								
37	Changshou County, China; rural (Feb 1992 - Jan 1993) ³⁷	Western Pacific	12	0-59	IA, W-, CR-		No	No	TFW	Not known	Clinic	2246	0.19	
38	Huanan and Keshan County, Heilongjiang Province; rural (Jan 1993 - Dec 1993) ³⁸	Western Pacific	12	0-59	IA, W-, CR-		No	No	TFW	Not known	Clinic	5812	0.16	
39	Guangzhou, China; urban (Oct 1993 - Sep 1998) ³⁹	Western Pacific	60	0-59	IC, III		No	No	TFW	Not known	Clinic	120970	0.32	
40	Liyang City, China; rural (Feb 1994 - Jan 1995) ⁴⁰	Western Pacific	12	0-59	IA, W-, CR-		No	No	TFW (and Physician)	Not known	Clinic and hospital	11729	0.12	
41	Henan Province, China; rural and urban (Jan 1994 - Dec 1994) ⁴¹	Western Pacific	12	0-59	IA, W-, CR-		No	No	TFW (and Physician)	Not known	Clinic and hospital	7917	0.11	
42	Licheng District, Quanzhou City, China; rural (Oct 1994 - Sept 1995) ⁴²	Western Pacific	12	0-59	IA, W-, CR-		No	No	TFW (and Physician)	Not known	Clinic and hospital	4665	0.13	

S.No	Location (study period)	Region	Duration of study (months)	Age group under study (months)	Case definition		Status of Hib vaccine implementation at time of study	Status of PCV implementation at time of study (indicate valency of the vaccine)	Assessor	Surveillance intervals	Site of diagnosis	Denominator (cohort size)	Incidence 0-4 years (episodes/child-year)	Proportion of cases with severe pneumonia
					Clinical pneumonia	Severe pneumonia								
43	Huaning County, Yunnan Province, China (Jan 1995 - Dec 1997) ⁴³	Western Pacific	24	0-59	IA, W-, CR-		No	No	TFW (and Physician)	Not known	Clinic and hospital	6966	0.66	
44	Hubei Province, China; rural (Jul 1996- Jun 1999) ⁴⁴	Western Pacific	36	0-59	IA, W-, CR-		No	No	TFW	Not known	Clinic	75337	0.64	
45	Jinan City, China; urban (Jan 1995- Dec 2001) ⁴⁵	Western Pacific	84	0-59	II		No	No	TFW	Not known	Clinic	321249	0.22	
46	Haryana, India; rural (Aug 2012- Aug 2013) ⁴⁶	South East Asia	12	0-119	IB, W-, CR-		No	No	TFW	Weekly	Home and hospital	1782	0.37	

Supplementary table 3: Incidence of clinical pneumonia in young children in developing countries (2000-2015)

Year	Incidence rate per 1000 children per year	Number of episodes of clinical pneumonia (millions)
2000	329 (201-537)	178 (110-289)
2005	292 (179-477)	162 (100-263)
2010	259 (159-424)	150 (92-244)
2015	231 (141-377)	138 (86-226)

Supplementary table 4: Incidence and episodes of clinical pneumonia in children younger than 5 years in 2000

Country	Incidence of clinical pneumonia (per 1000 children per year) in children younger than 5 years	Episodes of clinical pneumonia in children younger than 5 years	Incidence of clinical pneumonia in HIV infected children (per 1000 children per year)	Episode of clinical pneumonia in HIV infected children	Episodes of clinical pneumonia attributable to HIV
Afghanistan	598 (325-1122)	2551075 (1383857-4783262)	3106 (1662-5850)	13240 (7084-24940)	10703 (5687-20272)
Algeria	282 (170-472)	877260 (528817-1467580)	1467 (876-2493)	4590 (2732-8033)	3706 (2191-6511)
Angola	327 (198-538)	892424 (540837-1468768)	1684 (1011-2810)	14149 (5974-30437)	11427 (4808-24620)
Antigua and Barbuda	191 (106-338)	1479 (824-2621)	1000 (551-1796)	8 (4-14)	6 (3-12)
Argentina	191 (106-337)	657436 (365513-1162540)	999 (551-1789)	3481 (1914-6511)	2819 (1542-5293)
Bahamas	191 (106-339)	5377 (2986-9541)	998 (551-1795)	43 (19-108)	35 (16-88)
Bahrain	302 (160-590)	21901 (11599-42773)	1579 (824-3114)	115 (60-232)	93 (48-188)
Bangladesh	361 (218-601)	6041515 (3655788-10059442)	1875 (1116-3153)	31396 (18674-52847)	25369 (14992-42892)
Barbados	191 (106-338)	3523 (1955-6236)	999 (551-1795)	19 (10-35)	15 (8-29)
Belize	266 (153-459)	9138 (5273-15782)	1375 (786-2403)	103 (46-217)	83 (37-176)
Benin	520 (301-892)	647464 (374548-1111086)	2675 (1530-4633)	10717 (4464-23843)	8660 (3597-19332)
Bhutan	216 (121-387)	16262 (9112-29089)	1134 (633-2045)	85 (48-154)	69 (38-126)
Bolivia	277 (154-495)	337941 (187863-603328)	1444 (794-2591)	1845 (999-3751)	1491 (803-3051)
Botswana	437 (263-729)	99258 (59597-165451)	1936 (1150-3252)	18501 (10799-31635)	14960 (8709-25745)
Brazil	244 (130-448)	4256325 (2271522-7820093)	1269 (670-2367)	22998 (11948-47240)	18586 (9602-38436)
Burkina Faso	349 (205-590)	757451 (446236-1280901)	1762 (1030-3001)	28310 (14915-52310)	22857 (12029-42352)
Burundi	380 (228-632)	455332 (273225-756144)	1937 (1146-3256)	12826 (6746-24414)	10367 (5414-19818)
Cambodia	462 (248-801)	686893 (368951-1191233)	2386 (1278-4189)	6749 (2988-14503)	5451 (2405-11793)
Cameroon	241 (144-407)	665451 (397146-1121198)	1197 (706-2041)	42650 (20601-85216)	34477 (16573-69189)
Cape Verde	325 (197-537)	20141 (12234-33279)	1684 (1013-2823)	138 (72-358)	112 (58-291)
Central African Republic	534 (306-923)	315982 (180965-546095)	2589 (1467-4510)	26995 (14341-50351)	21806 (11505-40696)

Country	Incidence of clinical pneumonia (per 1000 children per year) in children younger than 5 years	Episodes of clinical pneumonia in children younger than 5 years	Incidence of clinical pneumonia in HIV infected children (per 1000 children per year)	Episode of clinical pneumonia in HIV infected children	Episodes of clinical pneumonia attributable to HIV
Chad	528 (279-947)	889337 (469358-1594283)	2673 (1401-4856)	30044 (13177-63028)	24260 (10571-51284)
Chile	191 (106-338)	253993 (141123-451107)	999 (552-1792)	1341 (737-2488)	1086 (594-2017)
China	259 (146-460)	21664371 (12245213-38478707)	1355 (753-2429)	123010 (66254-368509)	99749 (53155-299137)
Colombia	199 (109-359)	886715 (487441-1599359)	1042 (565-1905)	5032 (2644-11565)	4076 (2129-9387)
Comoros	466 (267-800)	39824 (22834-68374)	2418 (1373-4228)	228 (124-754)	184 (100-611)
Congo	210 (116-382)	108072 (59727-196704)	1049 (572-1929)	7323 (3758-14298)	5935 (3031-11624)
Cook Islands	259 (146-461)	565 (318-1006)	1355 (755-2434)	4 (2-12)	3 (1-10)
Costa Rica	190 (106-338)	75133 (41738-133190)	999 (550-1793)	398 (218-740)	322 (176-603)
Cote d'Ivoire	315 (184-546)	831445 (484438-1440515)	1527 (882-2672)	73607 (38051-139556)	59479 (30609-113495)
Dem. Peoples's Rep. of Korea	341 (203-575)	676397 (401937-1139705)	1770 (1042-3014)	3511 (2066-5977)	2837 (1664-4851)
Dem. Rep. of the Congo	413 (248-685)	3650795 (2197093-6059257)	2122 (1265-3565)	60481 (30828-115511)	48864 (24850-93872)
Djibouti	193 (105-351)	19012 (10360-34615)	995 (540-1824)	375 (180-751)	303 (145-608)
Dominica	190 (106-338)	1324 (738-2351)	999 (552-1792)	7 (4-13)	6 (3-11)
Dominican Republic	187 (103-334)	191800 (105433-343156)	969 (526-1746)	3106 (751-12577)	2519 (607-10197)
Ecuador	191 (106-338)	286484 (158824-508053)	999 (551-1795)	1537 (839-3056)	1245 (675-2485)
Egypt	151 (78-287)	1177828 (607352-2238003)	798 (408-1526)	6229 (3185-11916)	5057 (2575-9728)
El Salvador	265 (153-456)	205855 (118928-354492)	1376 (788-2393)	1128 (624-2290)	912 (503-1855)
Equatorial Guinea	287 (172-481)	24450 (14649-40939)	1468 (873-2493)	624 (313-1208)	504 (252-981)
Eritrea	376 (225-626)	252602 (151360-420420)	1935 (1148-3256)	3819 (1767-7705)	3083 (1425-6238)
Ethiopia	349 (192-602)	4315381 (2372433-7441136)	1734 (946-2999)	249513 (132475-444146)	201532 (106512-360140)

Country	Incidence of clinical pneumonia (per 1000 children per year) in children younger than 5 years	Episodes of clinical pneumonia in children younger than 5 years	Incidence of clinical pneumonia in HIV infected children (per 1000 children per year)	Episode of clinical pneumonia in HIV infected children	Episodes of clinical pneumonia attributable to HIV
Fiji	259 (146-461)	25507 (14382-45446)	1356 (754-2431)	146 (78-436)	118 (63-354)
Gabon	323 (184-570)	59423 (33903-104862)	1629 (917-2895)	2394 (1206-4723)	1933 (973-3834)
Gambia	374 (224-622)	86442 (51801-143743)	1937 (1149-3259)	702 (333-1595)	567 (268-1291)
Ghana	286 (161-483)	816597 (459248-1380859)	1454 (814-2498)	25458 (11905-51720)	20554 (9586-41929)
Grenada	191 (106-338)	1993 (1112-3532)	999 (551-1786)	11 (6-19)	9 (5-16)
Guatemala	388 (233-649)	721079 (432287-1207098)	2014 (1188-3409)	3817 (2246-7170)	3082 (1805-5817)
Guinea	313 (187-524)	472902 (282938-792242)	1611 (953-2724)	6397 (2921-13360)	5160 (2344-10844)
Guinea-Bissau	384 (230-643)	82753 (49494-138394)	1937 (1147-3256)	3368 (1833-6129)	2723 (1475-4983)
Guyana	265 (153-459)	23147 (13409-40094)	1376 (787-2411)	144 (76-330)	116 (61-267)
Haiti	317 (169-558)	387837 (207366-682802)	1597 (848-2842)	15817 (7937-29997)	12780 (6378-24403)
Honduras	201 (118-347)	189792 (110776-327403)	1044 (603-1820)	2177 (1063-4383)	1760 (858-3569)
India	366 (219-613)	45046369 (26965775-75354251)	1902 (1125-3197)	233949 (138393-393122)	189006 (110999-319705)
Indonesia	487 (288-815)	10234904 (6048250-17145028)	2526 (1465-4288)	53117 (30817-90179)	42901 (24758-73130)
Iran (Islamic Republic of)	302 (160-593)	1909614 (1010586-3748381)	1581 (827-3124)	10062 (5241-20226)	8134 (4227-16400)
Iraq	191 (104-347)	736872 (402841-1341896)	996 (538-1821)	3850 (2081-7037)	3111 (1673-5724)
Jamaica	191 (107-340)	54224 (30190-96254)	999 (551-1798)	557 (227-1333)	452 (183-1083)
Jordan	283 (136-586)	196313 (94252-406342)	1470 (703-3079)	1021 (489-2141)	825 (394-1739)
Kenya	402 (230-694)	2052821 (1174951-3545949)	1892 (1076-3320)	243421 (133266-441954)	196827 (107284-359187)
Kiribati	259 (146-460)	2568 (1447-4567)	1355 (757-2425)	15 (8-46)	12 (6-37)
Kuwait	302 (159-592)	56363 (29726-110517)	1579 (825-3113)	296 (155-598)	240 (125-486)

Country	Incidence of clinical pneumonia (per 1000 children per year) in children younger than 5 years	Episodes of clinical pneumonia in children younger than 5 years	Incidence of clinical pneumonia in HIV infected children (per 1000 children per year)	Episode of clinical pneumonia in HIV infected children	Episodes of clinical pneumonia attributable to HIV
Lao People's Dem. Republic	460 (248-799)	374893 (202336-651223)	2386 (1276-4188)	1945 (1040-3413)	1571 (838-2771)
Lebanon	302 (160-592)	92236 (48850-180689)	1580 (828-3108)	485 (253-979)	393 (204-794)
Lesotho	380 (227-641)	102662 (61166-172908)	1627 (958-2773)	23007 (13242-40055)	18598 (10655-32523)
Liberia	240 (128-434)	119385 (63357-215525)	1231 (647-2234)	3517 (1696-7050)	2847 (1366-5725)
Libyan Arab Jamahiriya	302 (160-593)	165612 (87544-325316)	1579 (827-3115)	871 (455-1731)	705 (367-1402)
Madagascar	456 (274-755)	1296879 (777902-2144110)	2357 (1402-3949)	9540 (4726-24034)	7705 (3797-19558)
Malawi	396 (235-669)	811482 (481185-1370637)	1758 (1028-3006)	149884 (86737-257893)	121128 (69795-209479)
Malaysia	460 (247-801)	1252567 (672604-2180834)	2385 (1276-4201)	6490 (3471-11430)	5245 (2794-9263)
Maldives	207 (116-372)	7140 (4021-12830)	1095 (607-1977)	38 (21-68)	31 (17-56)
Mali	362 (214-607)	694702 (411142-1165704)	1855 (1089-3136)	13650 (6707-26332)	11023 (5403-21371)
Marshall Islands	259 (146-461)	1620 (912-2884)	1356 (755-2427)	9 (5-30)	8 (4-25)
Mauritania	325 (197-534)	143839 (86991-236454)	1685 (1010-2820)	906 (493-2321)	733 (397-1887)
Mauritius	283 (169-471)	27851 (16707-46445)	1468 (873-2485)	146 (87-263)	118 (70-214)
Mexico	191 (106-338)	2343698 (1305052-4157848)	999 (553-1792)	12343 (6805-22718)	9997 (5480-18403)
Micronesia (Fed. States of)	259 (146-460)	3879 (2194-6895)	1355 (755-2427)	22 (12-69)	18 (10-56)
Mongolia	259 (146-458)	60535 (34233-107205)	1355 (753-2426)	343 (183-1015)	278 (147-826)
Morocco	263 (148-464)	821577 (461136-1447938)	1368 (760-2438)	4272 (2374-7628)	3453 (1907-6206)
Mozambique	405 (243-677)	1287681 (771694-2151012)	2003 (1189-3368)	82950 (46307-147298)	67018 (37264-119272)
Myanmar	353 (195-635)	1715988 (945637-3081256)	1836 (1001-3325)	9168 (4930-17672)	7407 (3972-14306)
Namibia	372 (224-622)	102839 (61903-171772)	1712 (1020-2890)	15194 (8706-26572)	12283 (6991-21557)
Nauru	259 (146-461)	312 (176-555)	1355 (757-2429)	2 (1-8)	2 (1-7)

Country	Incidence of clinical pneumonia (per 1000 children per year) in children younger than 5 years	Episodes of clinical pneumonia in children younger than 5 years	Incidence of clinical pneumonia in HIV infected children (per 1000 children per year)	Episode of clinical pneumonia in HIV infected children	Episodes of clinical pneumonia attributable to HIV
Nepal	336 (195-579)	1164550 (677745-2008253)	1747 (1011-3042)	6069 (3511-10624)	4909 (2813-8646)
Nicaragua	236 (135-411)	166240 (94929-289477)	1227 (694-2163)	866 (489-1538)	701 (393-1246)
Niger	519 (295-889)	1173726 (666126-2009603)	2686 (1506-4642)	10130 (4465-23403)	8178 (3600-18953)
Nigeria	401 (220-694)	8459265 (4643080-14631547)	2039 (1111-3569)	254032 (124773-489847)	204837 (100444-397171)
Niue	467 (251-812)	109 (58-189)	2386 (1277-4182)	2 (1-5)	2 (1-4)
Oman	302 (160-594)	81486 (43251-160364)	1580 (828-3126)	431 (224-876)	349 (181-711)
Pakistan	195 (104-358)	4099287 (2188254-7533266)	1012 (535-1870)	21309 (11257-39354)	17200 (9075-32022)
Palau	460 (248-799)	1058 (569-1838)	2384 (1279-4184)	6 (3-10)	4 (2-8)
Panama	191 (106-338)	66520 (37104-117916)	999 (552-1794)	366 (197-785)	296 (159-638)
Papua New Guinea	259 (146-461)	217962 (122918-387468)	1356 (757-2426)	1830 (758-6413)	1483 (611-5190)
Paraguay	265 (153-456)	188106 (108930-324473)	1375 (789-2402)	978 (562-1709)	791 (451-1391)
Peru	197 (112-348)	593405 (336178-1044596)	1030 (580-1838)	3123 (1758-5624)	2527 (1414-4568)
Philippines	521 (306-885)	5569601 (3263920-9457115)	2705 (1564-4640)	28893 (16715-49616)	23351 (13433-40141)
Qatar	302 (160-595)	16773 (8877-33019)	1580 (826-3121)	88 (46-177)	71 (37-143)
Republic of Korea	259 (146-460)	809678 (455843-1440605)	1355 (758-2428)	4591 (2456-13273)	3725 (1973-10831)
Rwanda	237 (137-404)	397823 (228977-677865)	1189 (680-2049)	19478 (10612-35151)	15725 (8541-28588)
Saint Kitts and Nevis	191 (106-338)	867 (481-1537)	999 (553-1789)	5 (3-9)	4 (2-7)
Saint Lucia	191 (106-339)	3020 (1686-5363)	999 (553-1797)	16 (9-29)	13 (7-24)
Saint Vincent and Grenadines	191 (106-338)	2085 (1158-3696)	999 (552-1791)	11 (6-20)	9 (5-16)
Samoa	258 (145-460)	6615 (3724-11778)	1353 (758-2431)	38 (20-114)	31 (16-93)
Sao Tome and Principe	331 (200-544)	7162 (4339-11775)	1685 (1014-2812)	204 (101-395)	165 (82-320)

Country	Incidence of clinical pneumonia (per 1000 children per year) in children younger than 5 years	Episodes of clinical pneumonia in children younger than 5 years	Incidence of clinical pneumonia in HIV infected children (per 1000 children per year)	Episode of clinical pneumonia in HIV infected children	Episodes of clinical pneumonia attributable to HIV
Saudi Arabia	302 (160-592)	846478 (447812-1658882)	1578 (827-3109)	4451 (2327-8919)	3598 (1874-7245)
Senegal	278 (167-469)	467974 (282049-790009)	1440 (857-2448)	3053 (1628-6775)	2466 (1311-5493)
Seychelles	282 (170-471)	2054 (1235-3426)	1468 (874-2481)	11 (6-19)	9 (5-15)
Sierra Leone	385 (228-649)	270598 (160436-456733)	1996 (1173-3396)	1821 (943-4337)	1472 (756-3513)
Solomon Islands	259 (146-460)	16733 (9415-29777)	1355 (753-2426)	95 (51-278)	77 (41-227)
Somalia	576 (313-1037)	845515 (460326-1522995)	2980 (1611-5414)	5839 (2831-12872)	4715 (2278-10478)
South Africa	473 (275-817)	2287592 (1327850-3950583)	2212 (1263-3861)	293956 (163330-521477)	237464 (131595-423254)
Sri Lanka	237 (133-431)	393835 (221526-715052)	1237 (689-2256)	2054 (1144-3746)	1662 (920-3035)
Sudan	191 (104-347)	902948 (491641-1643377)	995 (539-1821)	4711 (2549-8636)	3810 (2054-7030)
Suriname	191 (106-338)	9634 (5353-17033)	1000 (549-1792)	88 (37-214)	71 (30-173)
Swaziland	441 (263-735)	69222 (41325-115306)	1937 (1149-3249)	13442 (7829-22820)	10856 (6301-18547)
Syrian Arab Republic	191 (104-346)	457405 (249915-830569)	995 (537-1823)	2387 (1289-4372)	1929 (1039-3557)
Thailand	207 (104-406)	967387 (487365-1892866)	1079 (538-2132)	5706 (2746-11858)	4612 (2216-9640)
Timor-Leste	328 (179-580)	57165 (31217-101160)	1701 (918-3038)	297 (160-530)	239 (129-430)
Togo	513 (287-894)	414104 (231712-721224)	2554 (1420-4517)	22939 (11807-43200)	18520 (9520-35137)
Tonga	259 (146-459)	3443 (1941-6108)	1355 (753-2423)	20 (11-61)	16 (8-50)
Trinidad and Tobago	191 (107-338)	17113 (9553-30309)	999 (550-1790)	124 (57-320)	101 (46-260)
Tunisia	271 (140-555)	225313 (116572-461328)	1423 (730-2916)	1296 (634-3868)	1049 (511-3135)
Tuvalu	259 (146-462)	299 (168-533)	1354 (756-2436)	2 (1-8)	2 (1-6)
Uganda	287 (170-482)	1384676 (822972-2328519)	1388 (821-2360)	119754 (69045-210786)	96713 (55411-170809)
United Arab Emirates	302 (160-593)	78282 (41430-153692)	1581 (824-3115)	413 (214-822)	334 (174-668)

Country	Incidence of clinical pneumonia (per 1000 children per year) in children younger than 5 years	Episodes of clinical pneumonia in children younger than 5 years	Incidence of clinical pneumonia in HIV infected children (per 1000 children per year)	Episode of clinical pneumonia in HIV infected children	Episodes of clinical pneumonia attributable to HIV
United Republic of Tanzania	281 (170-465)	1655983 (1003583-2747126)	1328 (798-2235)	194405 (110677-342126)	157023 (89146-277747)
Uruguay	190 (106-337)	51639 (28699-91377)	1000 (551-1793)	274 (150-510)	222 (121-415)
Vanuatu	259 (146-458)	7326 (4136-12986)	1353 (758-2425)	42 (22-126)	34 (18-102)
Venezuela	191 (106-339)	530593 (295687-942111)	1000 (551-1791)	2954 (1593-6553)	2394 (1281-5333)
Viet Nam	259 (147-460)	1844250 (1046715-3278031)	1353 (756-2419)	10797 (5688-34320)	8747 (4590-27785)
Yemen	191 (104-347)	593564 (325017-1079034)	996 (537-1824)	3100 (1671-5679)	2505 (1347-4615)
Zambia	438 (257-747)	817804 (478902-1393559)	1980 (1150-3414)	134456 (76937-233500)	108548 (61775-189297)
Zimbabwe	339 (198-579)	613876 (358127-1047587)	1405 (813-2434)	156959 (89530-276565)	126760 (72075-224531)

Supplementary table 5: Incidence and episodes of severe pneumonia in children younger than 5 years in 2000

Country	Incidence of severe pneumonia (per 1000 children per year) in children younger than 5 years	Episodes of severe pneumonia in children younger than 5 years	Incidence of severe pneumonia in HIV infected children (per 1000 children per year)	Episode of severe pneumonia in HIV infected children	Episodes of severe pneumonia attributable to HIV
Afghanistan	95 (35-233)	407117 (148652-992565)	497 (181-1213)	2118 (773-5171)	1711 (624-4195)
Algeria	45 (17-101)	140737 (54214-313443)	236 (91-528)	740 (284-1678)	598 (229-1360)
Angola	53 (20-116)	143488 (55826-315880)	271 (105-603)	2244 (716-6148)	1817 (577-4979)
Antigua and Barbuda	30 (11-72)	236 (88-555)	159 (59-377)	1 (0-3)	1 (0-2)
Argentina	30 (11-71)	105073 (38910-246476)	160 (59-377)	557 (207-1336)	451 (167-1083)
Bahamas	31 (11-72)	858 (317-2013)	159 (59-377)	7 (2-21)	6 (2-17)
Bahrain	49 (17-121)	3516 (1259-8752)	253 (91-632)	18 (7-47)	15 (5-38)
Bangladesh	58 (23-128)	970148 (378020-2149954)	301 (116-669)	5036 (1949-11205)	4071 (1567-9077)
Barbados	30 (11-72)	563 (208-1324)	159 (59-377)	3 (1-7)	2 (1-6)
Belize	43 (16-97)	1463 (559-3339)	220 (83-506)	16 (5-44)	13 (4-36)
Benin	83 (32-189)	103760 (39250-235194)	430 (163-980)	1707 (532-4711)	1376 (428-3802)
Bhutan	35 (13-82)	2600 (959-6155)	182 (67-432)	14 (5-33)	11 (4-26)
Bolivia	44 (17-103)	54060 (20115-126020)	231 (86-543)	297 (109-753)	240 (88-611)
Botswana	70 (27-156)	15936 (6133-35350)	311 (119-696)	2970 (1138-6717)	2398 (917-5461)
Brazil	39 (14-94)	678996 (245811-1638881)	203 (73-493)	3676 (1316-9516)	2969 (1064-7732)
Burkina Faso	56 (21-125)	121027 (46372-272093)	282 (108-640)	4514 (1650-10948)	3646 (1329-8857)
Burundi	61 (23-135)	72867 (28042-161192)	311 (120-694)	2047 (743-5045)	1653 (597-4097)
Cambodia	73 (27-171)	109120 (40440-253904)	379 (140-888)	1074 (346-2900)	868 (278-2349)
Cameroon	39 (15-87)	106900 (40982-239230)	192 (74-434)	6797 (2353-17506)	5494 (1902-14244)
Cape Verde	52 (20-115)	3238 (1255-7110)	271 (104-604)	23 (8-71)	18 (6-58)
Central African Republic	86 (32-195)	50667 (19195-115462)	415 (157-951)	4322 (1604-10467)	3491 (1294-8457)

Country	Incidence of severe pneumonia (per 1000 children per year) in children younger than 5 years	Episodes of severe pneumonia in children younger than 5 years	Incidence of severe pneumonia in HIV infected children (per 1000 children per year)	Episode of severe pneumonia in HIV infected children	Episodes of severe pneumonia attributable to HIV
Chad	84 (31-200)	141824 (51626-336983)	426 (156-1024)	4771 (1579-12801)	3854 (1273-10372)
Chile	30 (11-72)	40565 (15081-95442)	159 (59-378)	214 (80-515)	173 (65-419)
China	42 (16-98)	3479385 (1302888-8200548)	217 (82-516)	20105 (7275-66755)	16292 (5876-54079)
Colombia	32 (12-76)	141751 (51964-338603)	167 (61-397)	812 (287-2245)	659 (233-1820)
Comoros	75 (28-169)	6391 (2396-14478)	388 (146-888)	38 (13-132)	30 (11-106)
Congo	34 (12-81)	17391 (6397-41409)	169 (62-403)	1182 (417-2919)	957 (337-2377)
Cook Islands	42 (16-98)	91 (34-215)	218 (82-516)	1 (0-2)	0 (0-2)
Costa Rica	30 (11-71)	12007 (4464-28160)	159 (59-377)	64 (24-152)	51 (19-124)
Cote d'Ivoire	51 (19-115)	133774 (50949-302183)	246 (93-560)	11791 (4255-28418)	9522 (3441-23087)
Dem. Peoples's Rep. of Korea	55 (21-122)	108473 (42180-242819)	284 (109-637)	563 (217-1264)	455 (174-1029)
Dem. Rep. of the Congo	66 (25-145)	585545 (224676-1286089)	341 (132-757)	9671 (3462-23971)	7806 (2796-19342)
Djibouti	31 (11-74)	3039 (1117-7281)	159 (58-383)	60 (20-155)	48 (16-126)
Dominica	30 (11-72)	212 (79-498)	159 (59-377)	1 (0-3)	1 (0-2)
Dominican Republic	30 (11-70)	30690 (11207-72350)	155 (57-367)	479 (96-2354)	388 (77-1913)
Ecuador	30 (11-71)	45739 (16954-107112)	159 (59-376)	247 (91-618)	200 (73-502)
Egypt	24 (8-60)	187682 (66308-467353)	127 (45-319)	994 (350-2489)	806 (283-2029)
El Salvador	42 (16-97)	32954 (12536-75067)	220 (83-507)	182 (68-457)	147 (54-371)
Equatorial Guinea	46 (18-103)	3926 (1517-8740)	236 (91-527)	99 (36-247)	80 (29-201)
Eritrea	60 (23-133)	40521 (15540-89563)	311 (120-696)	609 (207-1578)	492 (167-1283)
Ethiopia	55 (21-128)	684397 (254500-1578045)	275 (102-639)	39752 (14434-93770)	32094 (11694-76032)
Fiji	42 (16-99)	4093 (1534-9716)	218 (82-515)	24 (9-80)	19 (7-65)
Gabon	52 (20-120)	9535 (3609-21998)	262 (98-605)	385 (136-974)	312 (109-790)

Country	Incidence of severe pneumonia (per 1000 children per year) in children younger than 5 years	Episodes of severe pneumonia in children younger than 5 years	Incidence of severe pneumonia in HIV infected children (per 1000 children per year)	Episode of severe pneumonia in HIV infected children	Episodes of severe pneumonia attributable to HIV
Gambia	60 (23-133)	13868 (5346-30643)	312 (120-694)	112 (37-324)	91 (30-262)
Ghana	45 (17-103)	130056 (48700-295604)	232 (87-532)	4044 (1372-10508)	3266 (1105-8527)
Grenada	30 (11-72)	318 (118-748)	159 (59-375)	2 (1-4)	1 (1-3)
Guatemala	62 (24-138)	115625 (44268-256059)	323 (124-725)	616 (234-1446)	498 (187-1172)
Guinea	50 (19-111)	75504 (29397-167949)	259 (100-581)	1016 (341-2724)	821 (275-2214)
Guinea-Bissau	62 (24-137)	13261 (5093-29388)	311 (120-695)	540 (198-1297)	437 (160-1054)
Guyana	42 (16-97)	3710 (1414-8475)	221 (83-506)	23 (8-64)	19 (7-52)
Haiti	51 (18-118)	61833 (22539-143948)	255 (94-598)	2522 (888-6175)	2035 (714-5007)
Honduras	32 (12-74)	30479 (11692-69425)	168 (64-387)	350 (120-891)	283 (97-724)
India	59 (23-130)	7233149 (2813037-15998283)	305 (117-682)	37560 (14391-83832)	30312 (11615-67752)
Indonesia	78 (30-175)	1646114 (631674-3682083)	406 (155-916)	8541 (3261-19269)	6901 (2633-15675)
Iran (Islamic Republic of)	48 (17-121)	306182 (109807-763377)	253 (91-632)	1617 (574-4104)	1308 (462-3318)
Iraq	30 (11-73)	117867 (43210-281592)	159 (58-383)	614 (224-1481)	496 (181-1200)
Jamaica	31 (11-72)	8658 (3199-20308)	159 (59-377)	88 (27-264)	71 (22-215)
Jordan	45 (15-119)	31354 (10634-82751)	236 (80-621)	164 (55-432)	132 (45-349)
Kenya	64 (24-147)	329125 (123806-751818)	304 (114-700)	39024 (14282-92540)	31493 (11553-75008)
Kiribati	42 (16-98)	412 (154-975)	217 (82-513)	2 (1-9)	2 (1-7)
Kuwait	48 (17-121)	9034 (3238-22573)	254 (90-633)	48 (17-120)	39 (14-97)
Lao People's Dem. Republic	73 (27-170)	59599 (22027-138464)	379 (140-890)	310 (114-725)	250 (92-587)
Lebanon	48 (17-121)	14765 (5284-36933)	254 (90-633)	78 (28-197)	63 (23-160)
Lesotho	61 (23-137)	16537 (6286-37001)	261 (100-588)	3701 (1379-8472)	2989 (1117-6876)
Liberia	38 (14-92)	19038 (6899-45595)	196 (71-473)	561 (194-1456)	454 (157-1181)

Country	Incidence of severe pneumonia (per 1000 children per year) in children younger than 5 years	Episodes of severe pneumonia in children younger than 5 years	Incidence of severe pneumonia in HIV infected children (per 1000 children per year)	Episode of severe pneumonia in HIV infected children	Episodes of severe pneumonia attributable to HIV
Libyan Arab Jamahiriya	48 (17-121)	26549 (9525-66344)	254 (90-633)	140 (50-351)	113 (40-287)
Madagascar	73 (28-162)	208148 (79931-459199)	379 (146-844)	1550 (522-4691)	1252 (421-3798)
Malawi	64 (24-142)	130332 (49622-290099)	282 (107-635)	24023 (9121-54348)	19408 (7326-43970)
Malaysia	73 (27-170)	198915 (73544-462068)	379 (139-889)	1033 (379-2423)	834 (306-1963)
Maldives	33 (12-78)	1146 (429-2686)	176 (65-418)	6 (2-14)	5 (2-12)
Mali	58 (22-130)	111066 (42610-249128)	297 (114-670)	2172 (768-5469)	1754 (619-4431)
Marshall Islands	42 (16-99)	260 (97-616)	217 (81-518)	2 (1-6)	1 (0-5)
Mauritania	52 (20-115)	23108 (8967-50825)	271 (105-604)	150 (53-458)	121 (43-370)
Mauritius	45 (17-101)	4470 (1722-9954)	236 (90-528)	24 (9-54)	19 (7-44)
Mexico	30 (11-72)	374438 (139179-880680)	159 (59-377)	1969 (730-4693)	1595 (592-3814)
Micronesia (Fed. States of)	42 (16-98)	625 (234-1475)	218 (82-513)	4 (1-12)	3 (1-10)
Mongolia	42 (16-98)	9719 (3638-22952)	218 (82-515)	56 (20-184)	45 (16-150)
Morocco	42 (16-98)	131698 (49231-305515)	219 (82-513)	683 (254-1605)	552 (206-1303)
Mozambique	65 (25-143)	206782 (79284-455242)	322 (124-715)	13291 (4972-31162)	10737 (4014-25293)
Myanmar	57 (21-133)	274575 (102487-645791)	294 (109-693)	1472 (539-3583)	1187 (432-2903)
Namibia	60 (23-133)	16533 (6377-36608)	275 (106-612)	2442 (925-5570)	1974 (743-4520)
Nauru	42 (16-99)	50 (19-119)	217 (82-516)	0 (0-2)	0 (0-1)
Nepal	54 (20-124)	186708 (70958-429340)	280 (107-646)	974 (372-2251)	787 (302-1825)
Nicaragua	38 (14-87)	26628 (10083-61163)	196 (74-457)	139 (52-323)	112 (42-261)
Niger	83 (31-190)	187718 (71111-428909)	430 (162-990)	1614 (514-4711)	1304 (414-3813)
Nigeria	64 (24-148)	1345997 (501176-3125966)	325 (121-759)	40425 (14096-102675)	32663 (11367-83031)
Niue	74 (27-172)	17 (6-40)	380 (139-891)	0 (0-1)	0 (0-1)

Country	Incidence of severe pneumonia (per 1000 children per year) in children younger than 5 years	Episodes of severe pneumonia in children younger than 5 years	Incidence of severe pneumonia in HIV infected children (per 1000 children per year)	Episode of severe pneumonia in HIV infected children	Episodes of severe pneumonia attributable to HIV
Oman	48 (17-121)	13082 (4691-32610)	254 (90-635)	69 (25-176)	56 (20-143)
Pakistan	31 (11-74)	656533 (239498-1563404)	162 (59-391)	3409 (1238-8229)	2757 (997-6671)
Palau	73 (27-170)	168 (62-391)	380 (139-891)	1 (0-2)	1 (0-2)
Panama	30 (11-71)	10597 (3934-24870)	160 (59-377)	59 (21-155)	48 (17-125)
Papua New Guinea	42 (16-99)	35040 (13159-82973)	218 (82-516)	299 (87-1214)	242 (70-985)
Paraguay	42 (16-97)	30115 (11473-68722)	220 (83-509)	157 (59-362)	127 (48-294)
Peru	32 (12-73)	95220 (35890-220421)	165 (62-385)	501 (188-1179)	405 (152-960)
Philippines	84 (32-188)	894417 (342176-2010519)	435 (166-985)	4644 (1775-10539)	3748 (1429-8541)
Qatar	48 (17-121)	2687 (962-6733)	254 (90-635)	14 (5-36)	11 (4-29)
Republic of Korea	42 (16-98)	130133 (48651-307925)	218 (82-518)	753 (269-2517)	610 (218-2044)
Rwanda	38 (14-86)	63638 (23937-144541)	191 (72-435)	3121 (1138-7446)	2522 (920-6039)
Saint Kitts and Nevis	30 (11-71)	139 (51-325)	159 (59-376)	1 (0-2)	1 (0-1)
Saint Lucia	30 (11-71)	482 (179-1130)	160 (59-376)	3 (1-6)	2 (1-5)
Saint Vincent and Grenadines	30 (11-71)	334 (124-782)	159 (59-376)	2 (1-4)	1 (1-3)
Samoa	42 (16-98)	1064 (398-2510)	218 (82-516)	6 (2-21)	5 (2-17)
Sao Tome and Principe	53 (21-117)	1151 (445-2526)	271 (105-605)	32 (11-82)	26 (9-67)
Saudi Arabia	48 (17-121)	135676 (48634-340249)	254 (90-634)	716 (254-1810)	579 (205-1466)
Senegal	45 (17-99)	75203 (29188-167521)	231 (90-521)	497 (177-1388)	401 (142-1124)
Seychelles	45 (18-101)	329 (127-732)	236 (90-526)	2 (1-4)	1 (1-3)
Sierra Leone	62 (23-138)	43404 (16453-96736)	320 (122-722)	297 (105-858)	240 (84-692)
Solomon Islands	41 (16-98)	2684 (1005-6347)	217 (82-515)	16 (6-51)	13 (5-41)
Somalia	92 (34-216)	135230 (50096-317982)	477 (176-1134)	936 (320-2556)	756 (257-2074)

Country	Incidence of severe pneumonia (per 1000 children per year) in children younger than 5 years	Episodes of severe pneumonia in children younger than 5 years	Incidence of severe pneumonia in HIV infected children (per 1000 children per year)	Episode of severe pneumonia in HIV infected children	Episodes of severe pneumonia attributable to HIV
South Africa	76 (29-173)	365956 (139159-837157)	354 (134-814)	47044 (17592-110752)	37959 (14142-89811)
Sri Lanka	38 (14-91)	63237 (23527-151041)	199 (73-476)	330 (122-791)	267 (99-642)
Sudan	30 (11-73)	144352 (52859-345775)	159 (58-382)	753 (274-1816)	608 (222-1474)
Suriname	31 (11-72)	1536 (572-3616)	159 (59-375)	14 (4-43)	11 (4-35)
Swaziland	71 (27-157)	11100 (4267-24572)	311 (120-695)	2150 (816-4848)	1735 (657-3932)
Syrian Arab Republic	30 (11-73)	73157 (26740-174955)	159 (58-383)	381 (139-919)	308 (112-745)
Thailand	33 (12-84)	154295 (53731-392566)	172 (60-441)	914 (312-2395)	738 (252-1939)
Timor-Leste	52 (19-122)	9126 (3367-21332)	271 (100-638)	47 (17-111)	38 (14-90)
Togo	82 (31-190)	66210 (24740-152858)	409 (153-956)	3650 (1325-8930)	2951 (1070-7214)
Tonga	42 (16-98)	552 (208-1306)	217 (82-516)	3 (1-11)	3 (1-9)
Trinidad and Tobago	30 (11-72)	2732 (1014-6431)	159 (59-377)	20 (7-62)	16 (5-50)
Tunisia	44 (15-113)	36298 (12834-93728)	229 (81-594)	210 (72-726)	170 (58-589)
Tuvalu	42 (16-98)	48 (18-113)	218 (82-513)	0 (0-2)	0 (0-1)
Uganda	46 (18-102)	221571 (85327-494800)	223 (85-499)	19158 (7250-44480)	15474 (5822-36205)
United Arab Emirates	48 (17-121)	12549 (4494-31321)	254 (91-632)	66 (24-169)	54 (19-137)
United Republic of Tanzania	45 (18-100)	266222 (103940-590127)	213 (83-474)	31257 (11764-72110)	25280 (9445-58483)
Uruguay	30 (11-71)	8243 (3055-19361)	159 (59-376)	44 (16-105)	35 (13-85)
Vanuatu	42 (16-98)	1176 (441-2783)	218 (82-516)	7 (2-23)	6 (2-19)
Venezuela	30 (11-72)	84760 (31395-199655)	160 (59-376)	479 (173-1280)	388 (140-1044)
Viet Nam	42 (16-98)	295965 (111304-701490)	218 (82-514)	1767 (628-6283)	1432 (510-5087)
Yemen	30 (11-73)	94880 (34734-227396)	159 (58-382)	495 (180-1190)	400 (146-965)
Zambia	70 (27-159)	131366 (49971-296836)	319 (121-722)	21565 (8160-49867)	17407 (6567-40326)

Country	Incidence of severe pneumonia (per 1000 children per year) in children younger than 5 years	Episodes of severe pneumonia in children younger than 5 years	Incidence of severe pneumonia in HIV infected children (per 1000 children per year)	Episode of severe pneumonia in HIV infected children	Episodes of severe pneumonia attributable to HIV
Zimbabwe	54 (21-124)	98414 (37284-223784)	225 (86-512)	25084 (9485-58220)	20268 (7639-47294)

Supplementary table 6: Incidence and episodes of clinical pneumonia in children younger than 5 years in 2015

Country	Incidence of clinical pneumonia (per 1000 children per year) in children younger than 5 years	Episodes of clinical pneumonia in children younger than 5 years	Incidence of clinical pneumonia in HIV infected children (per 1000 children per year)	Episode of clinical pneumonia in HIV infected children	Episodes of clinical pneumonia attributable to HIV
Afghanistan	484 (268-895)	2395405 (1324586-4432668)	2511 (1381-4691)	12433 (6837-23222)	10057 (5479-18792)
Algeria	226 (136-380)	1039118 (623158-1742396)	1174 (698-1983)	5397 (3206-9149)	4364 (2582-7433)
Angola	158 (91-268)	743818 (429795-1263384)	817 (465-1400)	13166 (3832-36205)	10679 (3099-29498)
Antigua and Barbuda	127 (72-222)	923 (521-1613)	674 (373-1184)	5 (3-9)	4 (2-7)
Argentina	127 (72-221)	471297 (266785-823452)	673 (375-1180)	2503 (1394-4388)	2034 (1121-3590)
Bahamas	127 (72-221)	3695 (2090-6448)	673 (375-1183)	25 (13-55)	20 (10-45)
Bahrain	148 (74-293)	16058 (8047-31892)	782 (389-1559)	85 (42-170)	69 (34-139)
Bangladesh	277 (163-470)	4241015 (2498910-7206086)	1436 (835-2457)	22026 (12808-37702)	17808 (10269-30642)
Barbados	127 (72-222)	2201 (1242-3846)	674 (375-1184)	12 (7-21)	9 (5-17)
Belize	167 (99-279)	6592 (3916-11003)	871 (513-1475)	59 (28-124)	47 (22-100)
Benin	306 (185-509)	522886 (316293-869280)	1585 (951-2670)	4724 (2412-9162)	3819 (1935-7430)
Bhutan	175 (102-301)	11542 (6700-19839)	920 (526-1592)	62 (35-111)	50 (28-91)
Bolivia	123 (69-216)	146047 (81595-255661)	652 (360-1149)	773 (427-1367)	628 (344-1113)
Botswana	249 (152-414)	66395 (40437-110219)	1250 (752-2070)	3240 (1845-5684)	2618 (1483-4621)
Brazil	167 (99-279)	2503090 (1487643-4186797)	871 (511-1477)	13096 (7683-22216)	10594 (6166-18103)
Burkina Faso	275 (162-476)	865732 (509393-1496970)	1426 (827-2485)	7281 (3658-14423)	5881 (2937-11693)
Burundi	231 (138-391)	476026 (283527-805224)	1190 (696-2027)	7429 (3645-14528)	6002 (2936-11779)
Cambodia	255 (154-423)	451360 (273618-749415)	1326 (789-2218)	2640 (1504-5513)	2134 (1204-4472)
Cameroon	239 (143-400)	893933 (535403-1496571)	1201 (709-2017)	41921 (23804-72909)	33831 (19088-59196)
Cape Verde	221 (134-367)	11857 (7182-19658)	1150 (688-1908)	68 (39-147)	55 (31-120)
Central African Republic	227 (137-376)	160590 (97009-265981)	1150 (685-1909)	5816 (3152-10619)	4701 (2535-8625)

Chad	239 (129-437)	628909 (340011-1151351)	1223 (651-2260)	15758 (7397-32953)	12733 (5962-26735)
Chile	127 (72-221)	148432 (84084-258693)	673 (374-1182)	788 (438-1383)	640 (353-1129)
China	84 (40-166)	7024251 (3315052-13791976)	469 (217-929)	39027 (18022-77290)	32001 (14717-63656)
Colombia	125 (70-218)	466206 (262860-815495)	662 (367-1164)	2478 (1372-4379)	2013 (1107-3568)
Comoros	301 (174-532)	35902 (20744-63517)	1561 (895-2772)	189 (108-368)	153 (87-297)
Congo	225 (136-372)	170980 (103225-282490)	1150 (689-1903)	4536 (2407-8457)	3665 (1937-6844)
Cook Islands	285 (172-476)	599 (362-1000)	1482 (888-2494)	3 (2-5)	3 (1-4)
Costa Rica	133 (69-246)	46614 (24287-86255)	710 (363-1320)	249 (127-463)	202 (103-378)
Cote d'Ivoire	129 (73-226)	474218 (268115-827879)	673 (375-1183)	13820 (7140-26134)	11231 (5762-21334)
Dem. Peoples's Rep. of Korea	148 (74-293)	257929 (129840-512812)	782 (390-1561)	1367 (681-2728)	1109 (551-2228)
Dem. Rep. of the Congo	278 (163-471)	3854542 (2262964-6539301)	1437 (836-2459)	37763 (17560-79648)	30511 (14111-64499)
Djibouti	195 (117-325)	19864 (11912-33180)	1008 (599-1698)	334 (177-617)	270 (142-502)
Dominica	127 (72-222)	773 (437-1350)	673 (374-1183)	4 (2-7)	3 (2-6)
Dominican Republic	145 (79-264)	154361 (83906-280276)	770 (413-1410)	876 (454-2053)	711 (367-1670)
Ecuador	127 (72-221)	204113 (115402-356669)	673 (374-1186)	1085 (602-1910)	881 (485-1556)
Egypt	117 (64-209)	1414776 (775148-2537521)	627 (340-1132)	7602 (4114-13721)	6190 (3337-11234)
El Salvador	166 (99-278)	86519 (51377-144434)	870 (511-1475)	467 (271-872)	378 (219-707)
Equatorial Guinea	233 (140-391)	29912 (18006-50161)	1174 (700-1984)	1271 (705-2269)	1028 (567-1844)
Eritrea	241 (146-400)	196014 (119180-326040)	1252 (751-2078)	1126 (643-2341)	911 (517-1904)
Ethiopia	242 (147-402)	3539917 (2152704-5874567)	1252 (750-2078)	52893 (26480-101945)	42744 (21303-82705)
Fiji	162 (89-291)	14265 (7845-25647)	850 (462-1542)	75 (41-136)	61 (33-111)
Gabon	248 (142-433)	59385 (34058-103632)	1265 (718-2232)	1779 (896-3442)	1438 (718-2788)
Gambia	242 (147-400)	88597 (53835-146466)	1250 (748-2080)	905 (427-1864)	731 (344-1508)
Ghana	190 (114-315)	770760 (463959-1277691)	984 (584-1648)	11014 (4178-25716)	8906 (3364-20908)
Grenada	127 (72-222)	1260 (710-2201)	674 (373-1185)	7 (4-12)	5 (3-10)
Guatemala	167 (99-278)	348076 (206639-580886)	871 (511-1476)	1926 (1111-3784)	1561 (894-3067)
Guinea	244 (145-413)	499544 (296745-844625)	1258 (738-2144)	7226 (3469-14462)	5832 (2795-11750)
Guinea-Bissau	248 (151-411)	71594 (43475-118794)	1251 (748-2077)	2958 (1660-5232)	2387 (1336-4250)

Guyana	228 (136-385)	15322 (9100-25866)	1184 (695-2018)	140 (58-406)	113 (47-330)
Haiti	226 (133-383)	279997 (164390-473784)	1167 (674-1995)	4065 (1935-8206)	3286 (1553-6657)
Honduras	166 (98-281)	135049 (79884-229016)	862 (501-1483)	714 (414-1268)	577 (332-1029)
India	352 (206-611)	43567384 (25429504-75589014)	1830 (1057-3182)	226344 (130818-393623)	182810 (105223-319849)
Indonesia	326 (196-545)	8106927 (4884066-13560739)	1697 (1015-2870)	42504 (25297-72719)	34362 (20296-59071)
Iran (Islamic Republic of)	148 (74-293)	1013570 (507690-2010985)	782 (391-1563)	5367 (2680-10716)	4354 (2162-8720)
Iraq	193 (115-321)	1104387 (660330-1839203)	1007 (599-1699)	5768 (3432-9731)	4668 (2751-7913)
Jamaica	127 (72-221)	25874 (14613-45104)	673 (374-1183)	167 (86-363)	135 (69-295)
Jordan	148 (74-294)	144730 (72863-287787)	782 (390-1561)	767 (383-1530)	622 (310-1248)
Kenya	234 (140-391)	1679839 (1004783-2800621)	1187 (699-1997)	60951 (32562-111733)	49262 (26239-90882)
Kiribati	163 (91-285)	2399 (1350-4210)	855 (474-1505)	13 (7-22)	10 (6-18)
Kuwait	148 (74-293)	51420 (25781-102028)	782 (389-1561)	272 (135-543)	221 (109-442)
Lao People's Dem. Republic	362 (205-638)	303412 (172077-534900)	1876 (1051-3314)	1578 (885-2826)	1275 (711-2283)
Lebanon	148 (74-294)	68089 (34236-135376)	782 (390-1562)	361 (180-720)	293 (145-586)
Lesotho	262 (158-438)	73010 (44022-122030)	1151 (687-1926)	14278 (8389-24441)	11532 (6735-19853)
Liberia	206 (117-353)	144612 (82091-247522)	1068 (599-1842)	1527 (682-3258)	1234 (548-2636)
Libyan Arab Jamahiriya	148 (74-294)	95809 (48082-190747)	782 (391-1564)	508 (254-1015)	412 (205-826)
Madagascar	194 (116-326)	729961 (435981-1228874)	1007 (592-1705)	3950 (2285-7288)	3194 (1836-5923)
Malawi	221 (132-375)	653748 (390018-1106792)	1078 (635-1838)	53271 (31140-92137)	43037 (25002-74811)
Malaysia	159 (87-286)	393096 (216260-708730)	842 (456-1528)	2088 (1128-3791)	1697 (913-3087)
Maldives	168 (96-290)	6289 (3596-10841)	892 (504-1550)	33 (19-58)	27 (15-47)
Mali	293 (176-494)	958538 (574186-1614397)	1517 (896-2574)	8167 (3968-16735)	6604 (3185-13584)
Marshall Islands	237 (131-433)	1191 (657-2176)	1235 (673-2288)	6 (3-12)	5 (3-9)
Mauritania	221 (133-367)	132968 (80109-220504)	1150 (684-1913)	718 (420-1388)	580 (337-1122)
Mauritius	226 (136-380)	15989 (9636-26812)	1175 (699-1978)	83 (49-142)	67 (40-115)
Mexico	127 (72-222)	1472309 (832716-2574787)	674 (374-1182)	7826 (4350-13744)	6352 (3503-11245)
Micronesia (Fed. States of)	224 (126-408)	2597 (1463-4720)	1168 (648-2130)	14 (7-25)	11 (6-20)

Mongolia	131 (68-240)	44238 (23139-81220)	685 (353-1268)	232 (120-429)	187 (96-349)
Morocco	193 (116-321)	659275 (396184-1098142)	1007 (599-1697)	3446 (2048-5806)	2788 (1647-4718)
Mozambique	276 (166-462)	1328171 (801551-2227055)	1348 (805-2270)	100838 (58812-174572)	81485 (47150-141734)
Myanmar	286 (162-502)	1305054 (740564-2290541)	1481 (830-2620)	7599 (4056-16404)	6137 (3263-13245)
Namibia	245 (147-414)	82857 (49778-139972)	1179 (700-2018)	7910 (4498-14055)	6397 (3619-11439)
Nauru	142 (69-300)	136 (66-288)	758 (367-1595)	1 (0-2)	1 (0-2)
Nepal	259 (153-436)	725981 (429986-1225106)	1343 (782-2296)	3805 (2218-6805)	3075 (1782-5520)
Nicaragua	166 (99-278)	100819 (59931-168516)	871 (511-1478)	527 (309-896)	427 (249-730)
Niger	300 (173-521)	1243350 (715895-2157346)	1554 (885-2723)	6496 (3693-11453)	5248 (2965-9318)
Nigeria	302 (160-538)	9401585 (4984868-16747235)	1541 (805-2760)	266475 (135793-483365)	215309 (109239-391682)
Niue	158 (88-284)	22 (12-39)	819 (444-1476)	1 (0-2)	1 (0-1)
Oman	148 (74-293)	56952 (28579-112875)	781 (390-1558)	301 (150-600)	244 (122-490)
Pakistan	289 (170-488)	7120514 (4202740-12028777)	1497 (880-2556)	36929 (21693-63041)	29834 (17428-51048)
Palau	169 (94-299)	337 (188-598)	888 (492-1589)	2 (1-3)	1 (1-3)
Panama	127 (72-221)	46697 (26361-81559)	674 (374-1181)	250 (139-449)	203 (111-367)
Papua New Guinea	213 (127-361)	212031 (126127-359379)	1108 (653-1899)	1723 (828-3730)	1392 (666-3024)
Paraguay	167 (99-279)	112274 (66675-187900)	871 (510-1476)	588 (344-1008)	475 (277-817)
Peru	127 (72-219)	382408 (218525-661697)	670 (375-1177)	2025 (1133-3563)	1643 (912-2892)
Philippines	288 (168-517)	3244633 (1893117-5822399)	1500 (860-2691)	16888 (9684-30294)	13646 (7779-24537)
Qatar	148 (74-293)	19550 (9826-38823)	782 (390-1560)	104 (52-206)	84 (42-169)
Republic of Korea	137 (73-251)	312376 (167220-573186)	728 (382-1341)	1666 (875-3071)	1356 (701-2514)
Rwanda	154 (90-264)	261327 (152141-447199)	799 (458-1381)	2730 (1254-5704)	2207 (1011-4630)
Saint Kitts and Nevis	127 (72-221)	581 (329-1014)	673 (376-1184)	3 (2-5)	3 (1-4)
Saint Lucia	127 (72-221)	1745 (986-3045)	673 (373-1181)	9 (5-16)	8 (4-13)
Saint Vincent and Grenadines	127 (71-222)	1080 (606-1887)	674 (374-1184)	6 (3-10)	5 (3-8)
Samoa	153 (80-282)	3693 (1933-6808)	800 (414-1493)	19 (10-36)	16 (8-29)

Sao Tome and Principe	206 (124-345)	6098 (3663-10215)	1054 (625-1773)	137 (51-315)	111 (41-257)
Saudi Arabia	148 (74-294)	466829 (234362-928317)	782 (390-1560)	2473 (1234-4931)	2007 (995-4021)
Senegal	251 (150-423)	652553 (390649-1101261)	1303 (771-2225)	3636 (2093-7533)	2940 (1680-6112)
Seychelles	226 (136-380)	1897 (1143-3184)	1175 (699-1983)	10 (6-17)	8 (5-14)
Sierra Leone	239 (142-400)	239822 (142572-401208)	1234 (725-2078)	2682 (1358-5221)	2166 (1092-4221)
Solomon Islands	185 (107-323)	15154 (8768-26425)	962 (551-1690)	79 (45-138)	64 (36-112)
Somalia	464 (258-834)	914247 (507717-1643265)	2403 (1318-4358)	5717 (2881-12516)	4623 (2315-10166)
South Africa	233 (141-387)	1252624 (757150-2077824)	1150 (687-1910)	86427 (49393-151936)	69776 (39616-123689)
Sri Lanka	193 (111-340)	316629 (182203-559399)	1007 (575-1789)	1654 (945-2939)	1336 (757-2388)
Sudan	193 (116-320)	1146911 (688367-1907236)	1008 (599-1695)	6018 (3575-10205)	4871 (2870-8299)
Suriname	127 (72-221)	6107 (3451-10658)	674 (374-1180)	33 (18-59)	27 (15-49)
Swaziland	176 (101-307)	30585 (17556-53261)	804 (453-1410)	4871 (2643-8850)	3939 (2122-7186)
Syrian Arab Republic	148 (74-294)	323640 (162375-643845)	782 (389-1560)	1714 (853-3419)	1391 (691-2785)
Thailand	167 (88-312)	635279 (333865-1186013)	873 (452-1644)	3317 (1717-6247)	2682 (1385-5060)
Timor-Leste	266 (142-478)	54259 (28914-97422)	1383 (731-2494)	282 (149-508)	228 (120-412)
Togo	245 (148-406)	283704 (172031-471354)	1251 (748-2081)	7112 (3826-13055)	5749 (3072-10587)
Tonga	149 (80-267)	1918 (1029-3443)	784 (414-1411)	10 (5-18)	8 (4-15)
Trinidad and Tobago	127 (72-221)	12185 (6888-21254)	673 (374-1181)	72 (39-153)	59 (31-125)
Tunisia	148 (74-293)	145095 (72832-288135)	782 (389-1557)	768 (382-1529)	623 (310-1247)
Tuvalu	132 (66-252)	133 (67-253)	698 (343-1341)	1 (0-2)	1 (0-2)
Uganda	232 (141-384)	1687729 (1024842-2795560)	1158 (694-1931)	91625 (51799-159997)	74024 (41628-129982)
United Arab Emirates	148 (74-293)	72595 (36473-144187)	782 (390-1563)	384 (192-768)	312 (155-625)
United Republic of Tanzania	255 (153-426)	2397937 (1437770-4003238)	1291 (764-2169)	86882 (47941-155753)	70117 (38591-126297)
Uruguay	127 (72-221)	30533 (17238-53327)	674 (375-1185)	162 (90-286)	132 (72-234)
Vanuatu	233 (132-411)	8091 (4574-14278)	1207 (675-2145)	42 (23-75)	34 (19-61)
Venezuela	127 (72-221)	375058 (212331-654559)	674 (373-1184)	2005 (1109-3581)	1629 (895-2925)
Viet Nam	240 (133-427)	1859015 (1025819-3304844)	1248 (679-2247)	9716 (5272-17648)	7855 (4232-14345)
Yemen	193 (116-321)	756698 (455188-1261711)	1007 (599-1697)	3952 (2352-6658)	3197 (1891-5418)

Zambia	289 (173-490)	824264 (491788-1396281)	1395 (818-2382)	78276 (44604-137539)	63280 (35816-111346)
Zimbabwe	242 (145-407)	606343 (364290-1018681)	1157 (686-1953)	62790 (36284-109647)	50731 (29080-89295)

Supplementary table 7: Incidence and episodes of severe pneumonia in children younger than 5 years in 2015

Country	Incidence of severe pneumonia (per 1000 children per year) in children younger than 5 years	Episodes of severe pneumonia in children younger than 5 years	Incidence of severe pneumonia in HIV infected children (per 1000 children per year)	Episode of severe pneumonia in HIV infected children	Episodes of severe pneumonia attributable to HIV
Afghanistan	78 (29-188)	384260 (142964-928264)	404 (149-981)	2001 (737-4856)	1617 (595-3939)
Algeria	36 (14-80)	166754 (64459-368296)	189 (73-422)	868 (335-1945)	700 (270-1583)
Angola	25 (10-58)	118577 (45455-271754)	130 (50-301)	2074 (499-7252)	1682 (404-5896)
Antigua and Barbuda	20 (8-47)	147 (56-342)	108 (40-253)	1 (0-2)	1 (0-2)
Argentina	20 (8-47)	75398 (28340-175130)	108 (40-253)	400 (149-940)	325 (121-768)
Bahamas	20 (8-47)	591 (222-1371)	108 (40-253)	4 (1-11)	3 (1-9)
Bahrain	24 (8-60)	2560 (904-6523)	124 (44-319)	14 (5-35)	11 (4-28)
Bangladesh	44 (17-99)	677348 (259359-1518390)	230 (87-519)	3524 (1337-7958)	2849 (1078-6470)
Barbados	20 (8-47)	352 (132-818)	108 (40-253)	2 (1-4)	2 (1-4)
Belize	27 (10-60)	1054 (408-2359)	139 (53-314)	9 (3-25)	8 (3-20)
Benin	49 (19-108)	83873 (32569-184835)	254 (99-567)	756 (267-1895)	610 (215-1538)
Bhutan	28 (11-64)	1857 (702-4236)	148 (56-340)	10 (4-23)	8 (3-19)
Bolivia	20 (7-46)	23375 (8781-54582)	104 (39-246)	124 (46-293)	101 (37-237)
Botswana	40 (16-88)	10647 (4141-23540)	201 (78-445)	519 (196-1198)	419 (158-967)
Brazil	27 (10-60)	399901 (155019-897109)	139 (53-315)	2092 (803-4743)	1693 (649-3849)
Burkina Faso	44 (17-100)	138710 (52841-313146)	228 (87-519)	1170 (410-2987)	946 (330-2421)
Burundi	37 (14-83)	76281 (29252-171157)	190 (73-430)	1180 (413-3002)	954 (334-2436)
Cambodia	41 (16-90)	72438 (27985-159135)	213 (82-470)	431 (159-1132)	348 (129-917)
Cameroon	38 (15-86)	143164 (55211-320223)	192 (74-433)	6737 (2513-15570)	5442 (2025-12593)
Cape Verde	35 (14-79)	1898 (738-4227)	184 (71-409)	11 (4-29)	9 (3-24)

Central African Republic	36 (14-81)	25731 (9994-57065)	184 (71-410)	927 (345-2209)	750 (279-1798)
Chad	38 (14-92)	100662 (37096-241302)	196 (72-472)	2513 (848-6650)	2033 (684-5414)
Chile	20 (8-47)	23699 (8933-55168)	108 (40-253)	126 (47-296)	103 (38-242)
China	14 (5-34)	1123550 (376390-2866461)	75 (25-193)	6249 (2067-16036)	5125 (1690-13244)
Colombia	20 (7-46)	74528 (28018-173341)	106 (40-249)	397 (148-935)	322 (120-762)
Comoros	48 (18-111)	5780 (2205-13249)	251 (96-583)	30 (12-73)	25 (9-59)
Congo	36 (14-80)	27333 (10604-60758)	184 (71-410)	725 (259-1770)	587 (210-1438)
Cook Islands	46 (18-101)	96 (37-212)	238 (93-532)	1 (0-1)	0 (0-1)
Costa Rica	21 (8-52)	7484 (2647-18132)	114 (40-279)	40 (14-98)	32 (11-80)
Cote d'Ivoire	21 (8-48)	75899 (28583-176202)	108 (40-253)	2202 (797-5534)	1790 (644-4510)
Dem. Peoples's Rep. of Korea	24 (8-60)	41143 (14489-104759)	125 (44-321)	218 (77-560)	177 (62-456)
Dem. Rep. of the Congo	44 (17-100)	615657 (235185-1384938)	230 (87-521)	6040 (2039-16057)	4879 (1649-13003)
Djibouti	31 (12-70)	3188 (1237-7108)	162 (63-364)	53 (19-131)	43 (16-106)
Dominica	20 (8-47)	124 (46-287)	108 (40-253)	1 (0-2)	1 (0-1)
Dominican Republic	23 (9-56)	24649 (9114-59129)	123 (45-296)	142 (50-390)	115 (41-318)
Ecuador	20 (8-47)	32665 (12310-75813)	108 (40-253)	173 (65-407)	141 (53-332)
Egypt	19 (7-44)	226501 (84820-538621)	100 (37-241)	1217 (448-2920)	990 (365-2393)
El Salvador	27 (10-60)	13845 (5372-31005)	139 (53-314)	75 (29-179)	61 (23-146)
Equatorial Guinea	37 (14-83)	4806 (1853-10647)	189 (73-424)	204 (77-477)	165 (62-388)
Eritrea	39 (15-85)	31388 (12172-69506)	201 (78-445)	184 (69-459)	148 (55-373)
Ethiopia	39 (15-86)	567035 (220985-1255877)	201 (78-445)	8365 (2929-20798)	6768 (2360-16901)
Fiji	26 (10-61)	2295 (848-5351)	136 (51-325)	12 (4-29)	10 (4-23)
Gabon	40 (15-92)	9533 (3611-21972)	203 (77-470)	284 (100-700)	230 (81-568)
Gambia	39 (15-86)	14165 (5527-31333)	200 (78-445)	144 (49-381)	117 (39-310)
Ghana	30 (12-68)	123352 (47930-274980)	157 (61-352)	1752 (501-5214)	1416 (405-4213)
Grenada	20 (8-47)	202 (76-468)	108 (40-253)	1 (0-3)	1 (0-2)
Guatemala	27 (10-60)	55726 (21549-124796)	139 (53-314)	312 (118-769)	253 (95-625)
Guinea	39 (15-88)	79935 (30790-180036)	202 (78-456)	1159 (390-3009)	938 (314-2437)

Guinea-Bissau	40 (15-88)	11468 (4471-25345)	200 (78-446)	474 (177-1108)	383 (143-899)
Guyana	37 (14-82)	2464 (946-5528)	190 (73-431)	22 (7-80)	18 (5-65)
Haiti	36 (14-82)	44982 (17204-101564)	188 (72-426)	648 (218-1688)	524 (176-1375)
Honduras	26 (10-60)	21593 (8295-48728)	138 (53-313)	115 (44-264)	93 (35-214)
India	57 (22-127)	6993653 (2661243-15765551)	293 (111-671)	36296 (13779-83009)	29328 (11098-67412)
Indonesia	52 (20-115)	1301069 (498847-2869919)	272 (105-607)	6809 (2618-15351)	5505 (2104-12469)
Iran (Islamic Republic of)	24 (8-60)	161453 (56768-410399)	125 (44-320)	855 (302-2195)	694 (245-1786)
Iraq	31 (12-69)	177196 (68967-395165)	162 (63-362)	926 (359-2075)	749 (290-1689)
Jamaica	20 (8-47)	4139 (1556-9591)	108 (40-252)	27 (9-73)	22 (8-60)
Jordan	24 (8-60)	23102 (8124-58962)	124 (44-320)	122 (43-314)	99 (35-256)
Kenya	38 (15-84)	269243 (104272-600469)	191 (74-429)	9755 (3599-23550)	7889 (2899-19073)
Kiribati	26 (10-61)	385 (143-895)	137 (51-322)	2 (1-5)	2 (1-4)
Kuwait	24 (8-60)	8193 (2874-20821)	125 (44-319)	43 (15-111)	35 (12-90)
Lao People's Dem. Republic	58 (22-134)	48715 (18218-112476)	302 (112-708)	254 (94-598)	205 (76-486)
Lebanon	24 (8-60)	10859 (3826-27682)	125 (44-320)	57 (20-148)	47 (16-120)
Lesotho	42 (16-93)	11717 (4549-26007)	185 (71-412)	2289 (873-5157)	1851 (704-4184)
Liberia	33 (12-75)	23094 (8762-52581)	170 (64-392)	243 (80-662)	196 (64-536)
Libyan Arab Jamahiriya	24 (8-60)	15280 (5372-38936)	125 (44-320)	81 (29-207)	66 (23-169)
Madagascar	31 (12-69)	116583 (44986-261906)	161 (62-363)	635 (240-1490)	514 (193-1211)
Malawi	35 (14-79)	104755 (40457-233850)	173 (66-388)	8518 (3244-19331)	6886 (2624-15700)
Malaysia	25 (9-61)	63120 (23495-150520)	135 (50-324)	334 (123-804)	271 (100-655)
Maldives	27 (10-62)	1007 (384-2325)	143 (54-332)	5 (2-12)	4 (2-10)
Mali	47 (18-105)	153660 (59481-342394)	243 (94-547)	1312 (455-3426)	1061 (366-2788)
Marshall Islands	38 (14-91)	191 (70-455)	198 (73-479)	1 (0-2)	1 (0-2)
Mauritania	35 (14-79)	21288 (8273-47320)	184 (71-411)	116 (45-279)	94 (36-226)
Mauritius	36 (14-81)	2562 (991-5696)	189 (73-423)	13 (5-30)	11 (4-25)
Mexico	20 (8-47)	235595 (88526-547638)	108 (40-252)	1252 (467-2939)	1017 (378-2397)

Micronesia (Fed. States of)	36 (13-85)	417 (155-981)	188 (69-447)	2 (1-5)	2 (1-4)
Mongolia	21 (8-51)	7088 (2577-17182)	109 (39-267)	37 (13-90)	30 (11-73)
Morocco	31 (12-69)	105827 (41146-235471)	162 (63-362)	554 (214-1240)	448 (173-1009)
Mozambique	44 (17-98)	213124 (82285-471772)	216 (84-485)	16227 (6147-36881)	13116 (4955-29918)
Myanmar	46 (17-106)	209183 (77752-483656)	238 (88-552)	1233 (446-3312)	996 (359-2688)
Namibia	39 (15-88)	13301 (5176-29757)	190 (73-426)	1272 (482-2929)	1027 (387-2378)
Nauru	23 (8-61)	22 (7-58)	121 (41-325)	0 (0-0)	0 (0-0)
Nepal	41 (16-92)	115876 (44604-259539)	215 (82-486)	611 (232-1416)	494 (188-1148)
Nicaragua	27 (10-60)	16144 (6226-36164)	139 (53-314)	84 (32-191)	68 (26-155)
Niger	48 (18-109)	198793 (75021-451921)	249 (93-570)	1040 (391-2404)	841 (314-1946)
Nigeria	48 (18-113)	1500575 (547605-3516956)	245 (89-581)	42340 (15306-103084)	34202 (12350-83467)
Niue	25 (9-60)	3 (1-8)	131 (48-313)	0 (0-0)	0 (0-0)
Oman	24 (8-60)	9074 (3198-23045)	125 (44-320)	48 (17-123)	39 (14-101)
Pakistan	46 (18-103)	1140680 (440718-2552577)	241 (93-544)	5937 (2290-13408)	4794 (1850-10874)
Palau	27 (10-64)	54 (20-128)	143 (53-339)	0 (0-1)	0 (0-1)
Panama	20 (8-47)	7468 (2815-17298)	108 (40-252)	40 (15-95)	33 (12-77)
Papua New Guinea	34 (13-77)	34224 (13026-76732)	179 (68-404)	275 (93-752)	222 (75-611)
Paraguay	27 (10-60)	17940 (6950-40317)	139 (54-315)	94 (36-213)	76 (29-173)
Peru	20 (8-47)	61258 (22882-142437)	107 (40-250)	323 (122-758)	262 (98-617)
Philippines	46 (18-107)	522829 (198457-1204693)	241 (91-562)	2718 (1026-6342)	2196 (825-5146)
Qatar	24 (8-60)	3114 (1098-7956)	125 (44-321)	16 (6-42)	13 (5-35)
Republic of Korea	22 (8-53)	50195 (18071-120925)	117 (42-284)	267 (96-648)	217 (78-529)
Rwanda	25 (9-56)	41664 (15875-95655)	127 (48-293)	435 (145-1135)	352 (117-922)
Saint Kitts and Nevis	20 (8-47)	93 (35-216)	108 (40-253)	0 (0-1)	0 (0-1)
Saint Lucia	20 (8-47)	279 (105-646)	108 (40-253)	1 (1-3)	1 (0-3)
Saint Vincent and Grenadines	20 (8-47)	173 (65-400)	108 (40-252)	1 (0-2)	1 (0-2)
Samoa	24 (9-59)	592 (214-1436)	128 (46-314)	3 (1-8)	3 (1-6)

Sao Tome and Principe	33 (13-74)	977 (377-2181)	169 (65-379)	22 (6-63)	18 (5-51)
Saudi Arabia	24 (8-60)	74471 (26204-189719)	125 (44-320)	394 (139-1012)	320 (113-823)
Senegal	40 (16-90)	104392 (40463-234065)	209 (81-468)	592 (222-1530)	478 (179-1234)
Seychelles	36 (14-80)	304 (118-674)	189 (72-423)	2 (1-4)	1 (0-3)
Sierra Leone	38 (15-86)	38365 (14758-86086)	198 (76-444)	431 (151-1089)	348 (121-885)
Solomon Islands	30 (11-68)	2440 (929-5538)	155 (59-356)	13 (5-29)	10 (4-24)
Somalia	74 (28-174)	146691 (54754-342779)	386 (142-910)	927 (320-2483)	749 (257-2006)
South Africa	37 (15-83)	200634 (78038-445634)	184 (72-410)	13883 (5267-32148)	11222 (4243-26089)
Sri Lanka	31 (12-71)	50981 (19092-117264)	162 (61-375)	266 (100-616)	215 (80-500)
Sudan	31 (12-69)	184135 (71551-410563)	162 (62-363)	966 (373-2189)	781 (302-1778)
Suriname	20 (8-47)	977 (368-2264)	108 (40-253)	5 (2-12)	4 (2-10)
Swaziland	28 (11-65)	4888 (1837-11302)	128 (48-299)	779 (287-1861)	630 (231-1514)
Syrian Arab Republic	24 (8-60)	51656 (18139-132000)	125 (44-320)	273 (97-701)	222 (78-572)
Thailand	27 (10-65)	101972 (36671-248355)	140 (50-344)	531 (190-1307)	429 (154-1060)
Timor-Leste	42 (15-100)	8623 (3129-20397)	220 (80-524)	45 (16-107)	36 (13-86)
Togo	39 (15-87)	45439 (17626-100510)	200 (78-445)	1134 (414-2716)	917 (334-2205)
Tonga	24 (9-57)	308 (111-733)	125 (45-300)	2 (1-4)	1 (0-3)
Trinidad and Tobago	20 (8-47)	1949 (732-4516)	108 (40-253)	12 (4-31)	10 (3-25)
Tunisia	24 (8-60)	23112 (8104-58931)	125 (44-320)	122 (43-315)	99 (35-257)
Tuvalu	21 (7-53)	21 (7-53)	111 (39-281)	0 (0-0)	0 (0-0)
Uganda	37 (14-83)	270471 (105347-600568)	186 (72-413)	14679 (5549-34031)	11864 (4483-27561)
United Arab Emirates	24 (8-60)	11571 (4082-29531)	125 (44-320)	61 (22-157)	50 (18-128)
United Republic of Tanzania	41 (16-91)	383430 (148445-855392)	207 (80-464)	13894 (5175-33123)	11221 (4172-26893)
Uruguay	20 (8-47)	4880 (1836-11317)	108 (40-252)	26 (10-61)	21 (8-50)
Vanuatu	37 (14-86)	1304 (488-2993)	195 (72-452)	7 (3-16)	5 (2-13)
Venezuela	20 (8-47)	60024 (22535-139189)	108 (40-252)	321 (120-756)	260 (97-617)
Viet Nam	39 (14-91)	298455 (109028-702805)	200 (73-474)	1557 (569-3699)	1257 (458-3001)
Yemen	31 (12-69)	121259 (47184-270659)	162 (63-363)	634 (246-1425)	513 (198-1159)

Zambia	47 (18-104)	132848 (51225-297764)	225 (87-506)	12610 (4746-29188)	10190 (3817-23583)
Zimbabwe	39 (15-86)	97432 (37808-216024)	186 (72-416)	10070 (3844-23272)	8131 (3095-18973)

Supplementary table 8: Decrease in incidence of clinical pneumonia in developing countries between 2000 and 2015 (in descending order)

Country	Estimated incidence of clinical pneumonia per 1000 children per year [2000]	Estimated incidence of clinical pneumonia per 1000 children per year [2015]	Reduction in incidence of clinical pneumonia between 2000 and 2015
China	259	84	68%
Niue	467	158	66%
Malaysia	460	159	65%
Palau	460	169	63%
Swaziland	441	176	60%
Cote d'Ivoire	315	129	59%
Central African Republic	534	227	57%
Madagascar	456	194	57%
Guatemala	388	167	57%
Dem. Peoples's Rep. of Korea	341	148	57%
Bolivia	277	123	56%
Chad	528	239	55%
Togo	513	245	52%
Angola	327	158	52%
Bahrain	302	148	51%
Iran (Islamic Republic of)	302	148	51%
Kuwait	302	148	51%
Lebanon	302	148	51%
Libyan Arab Jamahiriya	302	148	51%
Oman	302	148	51%
Qatar	302	148	51%
Saudi Arabia	302	148	51%
United Arab Emirates	302	148	51%
South Africa	473	233	51%
Mongolia	259	131	49%
Tuvalu	259	132	49%
Jordan	283	148	48%
Republic of Korea	259	137	47%
Tunisia	271	148	45%
Nauru	259	142	45%
Cambodia	462	255	45%
Philippines	521	288	45%
Malawi	396	221	44%
Botswana	437	249	43%
Tonga	259	149	42%
Niger	519	300	42%
Kenya	402	234	42%
Benin	520	306	41%

Samoa	258	153	41%
Burundi	380	231	39%
Sierra Leone	385	239	38%
Sao Tome and Principe	331	206	38%
Fiji	259	162	37%
El Salvador	265	166	37%
Belize	266	167	37%
Colombia	199	125	37%
Kiribati	259	163	37%
Paraguay	265	167	37%
Eritrea	376	241	36%
Peru	197	127	36%
Guinea-Bissau	384	248	35%
Comoros	466	301	35%
Gambia	374	242	35%
Rwanda	237	154	35%
Namibia	372	245	34%
Zambia	438	289	34%
Ghana	286	190	34%
Antigua and Barbuda	191	127	34%
Argentina	191	127	34%
Bahamas	191	127	34%
Barbados	191	127	34%
Chile	191	127	34%
Ecuador	191	127	34%
Grenada	191	127	34%
Jamaica	191	127	34%
Mexico	191	127	34%
Panama	191	127	34%
Saint Kitts and Nevis	191	127	34%
Saint Lucia	191	127	34%
Saint Vincent and Grenadines	191	127	34%
Suriname	191	127	34%
Trinidad and Tobago	191	127	34%
Venezuela	191	127	34%
Dominica	190	127	33%
Uruguay	190	127	33%
Indonesia	487	326	33%
Dem. Rep. of the Congo	413	278	33%
Cape Verde	325	221	32%
Mauritania	325	221	32%
Mozambique	405	276	32%
Brazil	244	167	32%
Lesotho	380	262	31%

Ethiopia	349	242	31%
Costa Rica	190	133	30%
Nicaragua	236	166	30%
Haiti	317	226	29%
Zimbabwe	339	242	29%
Solomon Islands	259	185	29%
Morocco	263	193	27%
Nigeria	401	302	25%
Bangladesh	361	277	23%
Gabon	323	248	23%
Nepal	336	259	23%
Egypt	151	117	23%
Syrian Arab Republic	191	148	23%
Dominican Republic	187	145	22%
Guinea	313	244	22%
Lao People's Dem. Republic	460	362	21%
Burkina Faso	349	275	21%
Mauritius	283	226	20%
Algeria	282	226	20%
Seychelles	282	226	20%
Somalia	576	464	19%
Thailand	207	167	19%
Uganda	287	232	19%
Afghanistan	598	484	19%
Mali	362	293	19%
Bhutan	216	175	19%
Myanmar	353	286	19%
Timor-Leste	328	266	19%
Maldives	207	168	19%
Equatorial Guinea	287	233	19%
Sri Lanka	237	193	19%
Papua New Guinea	259	213	18%
Honduras	201	166	17%
Liberia	240	206	14%
Guyana	265	228	14%
Micronesia (Fed. States of)	259	224	14%
Vanuatu	259	233	10%
Senegal	278	251	10%
United Republic of Tanzania	281	255	9%
Marshall Islands	259	237	8%
Viet Nam	259	240	7%
India	366	352	4%
Cameroon	241	239	1%
Djibouti	193	195	-1%

Iraq	191	193	-1%
Sudan	191	193	-1%
Yemen	191	193	-1%
Congo	210	225	-7%
Cook Islands	259	285	-10%
Pakistan	195	289	-48%

Supplementary table 9: Decrease in number of episodes of clinical pneumonia in developing countries between 2000 and 2015 (in descending order)

Country	Episodes of clinical pneumonia in 2000	Episodes of clinical pneumonia in 2015	Reduction in incidence of clinical pneumonia between 2000 and 2015 (%)
Niue	109	22	80%
Malaysia	1252567	393096	69%
Palau	1058	337	68%
China	21664371	7024251	68%
Dem. Peoples's Rep. of Korea	676397	257929	62%
Republic of Korea	809678	312376	61%
El Salvador	205855	86519	58%
Bolivia	337941	146047	57%
Nauru	312	136	56%
Swaziland	69222	30585	56%
Tuvalu	299	133	56%
Jamaica	54224	25874	52%
Guatemala	721079	348076	52%
Central African Republic	315982	160590	49%
Saint Vincent and Grenadines	2085	1080	48%
Colombia	886715	466206	47%
Iran (Islamic Republic of)	1909614	1013570	47%
South Africa	2287592	1252624	45%
Saudi Arabia	846478	466829	45%
Tonga	3443	1918	44%
Samoa	6615	3693	44%
Fiji	25507	14265	44%
Madagascar	1296879	729961	44%
Cote d'Ivoire	831445	474218	43%
Mauritius	27851	15989	43%
Saint Lucia	3020	1745	42%

Libyan Arab Jamahiriya	165612	95809	42%
Philippines	5569601	3244633	42%
Dominica	1324	773	42%
Chile	253993	148432	42%
Brazil	4256325	2503090	41%
Cape Verde	20141	11857	41%
Uruguay	51639	30533	41%
Paraguay	188106	112274	40%
Nicaragua	166240	100819	39%
Costa Rica	75133	46614	38%
Nepal	1164550	725981	38%
Antigua and Barbuda	1479	923	38%
Barbados	3523	2201	38%
Mexico	2343698	1472309	37%
Grenada	1993	1260	37%
Suriname	9634	6107	37%
Tunisia	225313	145095	36%
Peru	593405	382408	36%
Thailand	967387	635279	34%
Rwanda	397823	261327	34%
Cambodia	686893	451360	34%
Guyana	23147	15322	34%
Botswana	99258	66395	33%
Micronesia (Fed. States of)	3879	2597	33%
Saint Kitts and Nevis	867	581	33%
Togo	414104	283704	31%
Bahamas	5377	3695	31%
Oman	81486	56952	30%
Bangladesh	6041515	4241015	30%
Panama	66520	46697	30%
Venezuela	530593	375058	29%
Chad	889337	628909	29%

Syrian Arab Republic	457405	323640	29%
Bhutan	16262	11542	29%
Lesotho	102662	73010	29%
Honduras	189792	135049	29%
Trinidad and Tobago	17113	12185	29%
Ecuador	286484	204113	29%
Argentina	657436	471297	28%
Belize	9138	6592	28%
Haiti	387837	279997	28%
Mongolia	60535	44238	27%
Bahrain	21901	16058	27%
Marshall Islands	1620	1191	26%
Jordan	196313	144730	26%
Lebanon	92236	68089	26%
Myanmar	1715988	1305054	24%
Eritrea	252602	196014	22%
Indonesia	10234904	8106927	21%
Morocco	821577	659275	20%
Sri Lanka	393835	316629	20%
Dominican Republic	191800	154361	20%
Malawi	811482	653748	19%
Namibia	102839	82857	19%
Benin	647464	522886	19%
Lao People's Dem. Republic	374893	303412	19%
Kenya	2052821	1679839	18%
Ethiopia	4315381	3539917	18%
Angola	892424	743818	17%
Sao Tome and Principe	7162	6098	15%
Guinea-Bissau	82753	71594	13%
Maldives	7140	6289	12%
Sierra Leone	270598	239822	11%
Comoros	39824	35902	10%

Solomon Islands	16733	15154	9%
Kuwait	56363	51420	9%
Seychelles	2054	1897	8%
Mauritania	143839	132968	8%
United Arab Emirates	78282	72595	7%
Kiribati	2568	2399	7%
Afghanistan	2551075	2395405	6%
Ghana	816597	770760	6%
Timor-Leste	57165	54259	5%
India	45046369	43567384	3%
Papua New Guinea	217962	212031	3%
Zimbabwe	613876	606343	1%
Gabon	59423	59385	0%
Zambia	817804	824264	-1%
Viet Nam	1844250	1859015	-1%
Gambia	86442	88597	-2%
Mozambique	1287681	1328171	-3%
Djibouti	19012	19864	-4%
Burundi	455332	476026	-5%
Dem. Rep. of the Congo	3650795	3854542	-6%
Guinea	472902	499544	-6%
Niger	1173726	1243350	-6%
Cook Islands	565	599	-6%
Somalia	845515	914247	-8%
Vanuatu	7326	8091	-10%
Nigeria	8459265	9401585	-11%
Burkina Faso	757451	865732	-14%
Qatar	16773	19550	-17%
Algeria	877260	1039118	-18%
Egypt	1177828	1414776	-20%
Liberia	119385	144612	-21%
Uganda	1384676	1687729	-22%

Equatorial Guinea	24450	29912	-22%
Sudan	902948	1146911	-27%
Yemen	593564	756698	-27%
Cameroon	665451	893933	-34%
Mali	694702	958538	-38%
Senegal	467974	652553	-39%
United Republic of Tanzania	1655983	2397937	-45%
Iraq	736872	1104387	-50%
Congo	108072	170980	-58%
Pakistan	4099287	7120514	-74%

Supplementary table 10: Reduction in episodes of clinical pneumonia in HIV-infected children between 2000 and 2015 (in descending order)

Country	Estimated episodes in 2000	Estimated episodes in 2015	Reduction in clinical pneumonia in HIV-infected between 2000 and 2015 (%)
Rwanda	19478	2730	86%
Botswana	18501	3240	82%
Cote d'Ivoire	73607	13820	81%
Ethiopia	249513	52893	79%
Central African Republic	26995	5816	78%
Kenya	243421	60951	75%
Haiti	15817	4065	74%
Burkina Faso	28310	7281	74%
Dominican Republic	3106	876	72%
South Africa	293956	86427	71%
Eritrea	3819	1126	71%
Jamaica	557	167	70%
Togo	22939	7112	69%
China	123010	39027	68%
Malaysia	6490	2088	68%
Honduras	2177	714	67%
Palau	6	2	67%
Malawi	149884	53271	64%
Swaziland	13442	4871	64%
Republic of Korea	4591	1666	64%
Suriname	88	33	62%
Dem. Peoples's Rep. of Korea	3511	1367	61%
Cambodia	6749	2640	61%
Zimbabwe	156959	62790	60%
El Salvador	1128	467	59%
Madagascar	9540	3950	59%
Bolivia	1845	773	58%
Ghana	25458	11014	57%
Liberia	3517	1527	57%
Benin	10717	4724	56%
United Republic of Tanzania	194405	86882	55%
Colombia	5032	2478	51%
Cape Verde	138	68	51%
Nauru	2	1	50%

Niue	2	1	50%
Samoa	38	19	50%
Tonga	20	10	50%
Tuvalu	2	1	50%
Guatemala	3817	1926	50%
Fiji	146	75	49%
Namibia	15194	7910	48%
Chad	30044	15758	48%
Iran (Islamic Republic of)	10062	5367	47%
Saint Vincent and Grenadines	11	6	45%
Saudi Arabia	4451	2473	44%
Saint Lucia	16	9	44%
Mauritius	146	83	43%
Brazil	22998	13096	43%
Dominica	7	4	43%
Belize	103	59	43%
Burundi	12826	7429	42%
Trinidad and Tobago	124	72	42%
Thailand	5706	3317	42%
Bahamas	43	25	42%
Zambia	134456	78276	42%
Libyan Arab Jamahiriya	871	508	42%
Philippines	28893	16888	42%
Chile	1341	788	41%
Uruguay	274	162	41%
Tunisia	1296	768	41%
Mali	13650	8167	40%
Saint Kitts and Nevis	5	3	40%
Paraguay	978	588	40%
Nicaragua	866	527	39%
Congo	7323	4536	38%
Lesotho	23007	14278	38%
Dem. Rep. of the Congo	60481	37763	38%
Antigua and Barbuda	8	5	38%
Costa Rica	398	249	37%
Nepal	6069	3805	37%
Barbados	19	12	37%
Mexico	12343	7826	37%
Grenada	11	7	36%
Micronesia (Fed. States of)	22	14	36%
Niger	10130	6496	36%
Peru	3123	2025	35%
Marshall Islands	9	6	33%

Sao Tome and Principe	204	137	33%
Mongolia	343	232	32%
Venezuela	2954	2005	32%
Panama	366	250	32%
Oman	431	301	30%
Bangladesh	31396	22026	30%
Ecuador	1537	1085	29%
Syrian Arab Republic	2387	1714	28%
Argentina	3481	2503	28%
Bhutan	85	62	27%
Bahrain	115	85	26%
Gabon	2394	1779	26%
Lebanon	485	361	26%
Cook Islands	4	3	25%
Jordan	1021	767	25%
Uganda	119754	91625	23%
Mauritania	906	718	21%
Indonesia	53117	42504	20%
Sri Lanka	2054	1654	19%
Morocco	4272	3446	19%
Lao People's Dem. Republic	1945	1578	19%
Myanmar	9168	7599	17%
Comoros	228	189	17%
Solomon Islands	95	79	17%
Kiribati	15	13	13%
Maldives	38	33	13%
Guinea-Bissau	3368	2958	12%
Djibouti	375	334	11%
Viet Nam	10797	9716	10%
Seychelles	11	10	9%
Kuwait	296	272	8%
United Arab Emirates	413	384	7%
Angola	14149	13166	7%
Afghanistan	13240	12433	6%
Papua New Guinea	1830	1723	6%
Timor-Leste	297	282	5%
India	233949	226344	3%
Guyana	144	140	3%
Somalia	5839	5717	2%
Cameroon	42650	41921	2%
Vanuatu	42	42	0%
Nigeria	254032	266475	-5%
Guinea	6397	7226	-13%
Algeria	4590	5397	-18%

Qatar	88	104	-18%
Senegal	3053	3636	-19%
Mozambique	82950	100838	-22%
Egypt	6229	7602	-22%
Yemen	3100	3952	-27%
Sudan	4711	6018	-28%
Gambia	702	905	-29%
Sierra Leone	1821	2682	-47%
Iraq	3850	5768	-50%
Pakistan	21309	36929	-73%
Equatorial Guinea	624	1271	-104%

Supplementary table 11: List of hospital-based studies reporting hospitalisation rate for pneumonia in children younger than 5 years

Location (author)	Study period	Region	No. of hospitalisations	Population	Hospitalisation rate	LCI	UCI
Kassena-Nankana District, Ghana ⁴⁷	1990-91	Africa	30	1439	20.9	14.6	29.8
Western Region, The Gambia ⁴⁸	1993-96	Africa			8.0	7.5	8.6
Soweto, South Africa ⁴⁹	1998-2001	Africa	1134	41879.38	27.1	25.5	28.7
Manhiça, Mozambique ⁷	1999-2000	Africa		6020	68.0	62.0	75.0
Bamako, Mali ⁵⁰	2000	Africa		200160	3.5	3.2	3.7
Agincourt, South Africa ⁷	2000-01	Africa		8258	80.0	75.0	86.0
Bondo district, Kenya ⁵¹	2001-03	Africa		52200	7.0	6.6	7.4
Upper River Division and Central River Division, The Gambia ⁴⁷	2002-04	Africa			10.3	8.9	11.9
Kilifi District, Kenya ⁴⁷	2002-08	Africa	5453	274075.4	19.9	19.4	20.4
Manhiça district, Mozambique ⁴⁷	2004-06	Africa			24.2	21.7	26.9
Bondo district, Nyanza province, Kenya ⁴⁷	2007-09	Africa	1694	100911.8389	16.8	16.0	17.6
The Greater Banjul area and Upper River region, The Gambia ⁴⁷	2008-09	Africa	898	27086	33.2	31.1	35.4
Lwak, Kisumu, Kenya ⁴⁷	2008-09	Africa	241	2437.63	98.9	87.1	112.2
Soweto, South Africa ⁴⁷	2009-10	Africa	1836	123574	14.9	14.2	15.6
Lwak, Kisumu, Kenya ⁴⁷	2009-10	Africa	177	2058.25	86.0	74.2	99.7
American Indians and Alaska Natives, USA ⁵²	1990-95	America	7641	678782	11.3	11.0	11.5
Tennessee, USA ⁵³	1995-2003	America			31.8	31.1	32.6
USA ⁵⁴	1997-99	America	569856	76903644	7.4	7.4	7.4
USA ⁵⁵	1996-98	America	2221	122369	18.2	17.4	18.9
USA ⁵⁶	1997-2000	America	232552	48127200	5.2	5.2	5.2

American Indians and Alaska Natives, USA⁵⁷	1999-2001	America	11454	348486	32.9	32.3	33.5
Colorado, USA⁴⁷	2000-08	America	50469	2993352	16.9	16.7	17.0
Monroe County (NY), Davidson County (TN) and Hamilton County (OH), USA⁵⁸	2000-04	America		183839	15.2	14.7	15.8
USA⁵⁴	2001-07	America	821914	141222337	5.8	5.8	5.8
Paysandú and Salto, Uruguay⁴⁷	2001-04	America	2137	61950	34.5	33.1	36.0
Yukon Kuskokwim Delta, Alaska, USA⁴⁷	2001-07	America			82.6	77.3	88.4
Concordia and Parana, Argentina⁴⁷	2002-05	America	1601	37672	14.2	13.5	14.9
San Lorenzo & Comitancillo, Guatemala⁴⁷	2002-04	America			18.4	11.8	28.9
USA⁵⁹	2003	America			18.63	17.64	19.62
Pilar, (Buenos Aires Province), Argentina⁴⁷	2003-05	America	856	81627	10.5	9.8	11.2
USA⁵⁶	2003-06	America	232552	48127200	4.8	4.8	4.9
San José, Costa Rica⁴⁷	2007-09	America			3.7	3.2	4.2
Goiânia, Brazil⁴⁷	2007-09	America			21.6	20.7	22.6
Multicentric, El Salvador⁴⁷	2007-08	America	31209	1114176	28.0	27.7	28.3
Santa Rosa, Guatemala⁴⁷	2007-08	America	187	12700.6638	14.7	12.8	17.0
Paysandú and Salto, Uruguay⁴⁷	2009	America	922	20650	44.7	41.9	47.6
Colorado, USA⁴⁷	2009	America	6338	360188	17.6	17.2	18.0
Santa Rosa, Guatemala⁴⁷	2009-10	America	676	21939.8487	30.8	28.6	33.2
Quetzaltenango, Guatemala⁴⁷	2009-10	America	517	53033.336	9.8	8.9	10.6
Yukon Kuskokwim Delta, Alaska, USA⁴⁷	2009-10	America			64.3	53.4	77.4

Multicentric, El Salvador⁴⁷	2009-10	America	37931	1124341	33.7	33.4	34.1
Multicentric, Pakistan⁶⁰	2002-03	Eastern Mediterranean	137	13364	10.3	8.7	12.1
Karachi, Pakistan⁶¹	2007-08	Eastern Mediterranean	58	3950	14.7	11.4	19.0
Scotland, United Kingdom⁶²	1981-2005	Europe	16840	7679789	2.2	2.2	2.2
Kuopio, Finland⁶³	1981-82	Europe	55	2917	18.9	14.5	24.6
Spain⁶⁴	1995-96	Europe	15877	3213968	4.9	4.9	5.0
Spain⁶⁵	1995-98	Europe	32123	7684928	4.2	4.1	4.2
Valencia, Spain⁶⁶	1995-2000	Europe	23	3270	7.0	4.7	10.6
Valencia, Spain⁶⁷	1995-2001	Europe	8181	1582398	5.2	5.1	5.3
Gipuzoka, Spain⁶⁸	1996-2000	Europe	635	62800	10.1	9.4	10.9
Kiel, Germany⁶⁹	1996-2000	Europe	367	53655	6.8	6.2	7.6
Netherlands⁷⁰	1999-2000	Europe	3041	980986	3.1	3.0	3.2
Multicentric, Germany⁷¹	1999-2001	Europe			23.2	23.0	23.5
Liguria, Italy⁷²	2000-04	Europe			4.1	3.8	4.5
Gipuzoka, Spain⁷³	2004-07	Europe			20.7	19.0	22.5
Netherlands⁷⁰	2006-07	Europe	3303	971471	3.4	3.3	3.5
Limousin, France⁷⁴	2007-08	Europe			8.0	6.7	9.5
Matlab, Bangladesh⁷⁵	1988-89	South-East Asia	27	503.39	53.6	36.8	78.2
Kamalapur, Bangladesh⁷⁶	1999-2000	South-East Asia			40.5	30.0	54.9
Lombok, Indonesia⁴⁷	1999-2002	South-East Asia			30.9	30.1	31.8
Matlab, Bangladesh⁷⁷	1999-2001	South-East Asia	1250	24902	50.2	47.5	53.1
Bhaktapur, Nepal⁷⁸	2004-07	South-East Asia			4.3	3.3	5.7
Kathmandu, Nepal⁷⁹	2004-07	South-East Asia	967	150945	6.2	5.9	6.5

Nakhon Phanom and Sa Kaeo provinces, Thailand⁸⁰	2005-10	South-East Asia	28543		57.7	57.1	58.4
Mirzapur, Bangladesh⁴⁷	2004-08	South-East Asia	4444	41040	19.0	17.7	20.4
Patan, Nepal⁸¹	2005-06	South-East Asia	360	56875	6.3	5.7	7.0
Multicentric, India⁴⁷	2005-07	South-East Asia			25.6	23.5	28.0
Bangalore, India⁸²	2006	South-East Asia	967	150945	6.4	6.0	6.8
Kamalapur, Bangladesh⁴⁷	2008	South-East Asia	109	4547.00229	24.0	19.9	28.9
Multicentric, Bangladesh⁴⁷	2008	South-East Asia	96	6864	14.0	11.5	17.1
Kamalapur, Bangladesh⁴⁷	2009-10	South-East Asia	151	7193.820435	20.99	17.9	24.62
Multicentric, Bangladesh⁴⁷	2009	South-East Asia	186	14037	13.3	11.5	15.3
Ballabgarh, Haryana, India⁴⁷	2009-10	South-East Asia	25	4840	3.7	2.6	5.2
Alabang (Metro Manila), Philippines⁸³	1985-87	Western Pacific	34	1418.3	24.0	17.1	33.6
Western Australia, Australia⁸⁴	1988-93	Western Pacific	7719	757610	10.2	10.0	10.4
Zhejiang, China⁸⁵	1990-91	Western Pacific	64	7472	8.57	6.7	10.94
Zhejiang, China⁸⁶	1990-91	Western Pacific	12	1215	9.88	5.61	17.39
Heilongjiang, China⁸⁷	1991-93	Western Pacific	503	9901	50.8	46.55	55.44

Shangdong, China⁸⁸	1992-93	Western Pacific	34	16751	2.03	1.45	2.84
Chongqing, China⁸⁹	1992-93	Western Pacific	70	2246	31.17	24.66	39.39
Heilongjiang, China⁹⁰	1993	Western Pacific	37	5812	6.37	4.61	8.79
Auckland, New Zealand⁹¹	1993-96	Western Pacific	548	50280	10.9	10.0	11.9
Fujian, China⁹²	1994-95	Western Pacific	226	9323	24.24	21.28	27.62
Henan, China⁹³	1994	Western Pacific	184	7917	23.24	20.11	26.85
Jiangsu, China⁹⁴	1994-95	Western Pacific	110	11729	9.38	7.78	11.31
Henan, China⁹⁵	1994-96	Western Pacific	1402	29590	47.38	44.96	49.93
Fujian, China⁹⁶	1994-95	Western Pacific	112	4665	24.01	19.95	28.89
Yunnan, China⁹⁷	1995-97	Western Pacific	1364	6966	195.81	185.69	206.48
Shandong, China⁹⁸	1995-2001	Western Pacific	5823	375629	15.5	15.11	15.91
Shangdong, China⁹⁹	1995-2004	Western Pacific	6916	537734	12.86	12.56	13.17
Western Australia, Australia¹⁰⁰	1996-2005	Western Pacific	9358	360517	20.9	20.6	21.2
Bohol, Philippines⁴⁷	2000-04	Western Pacific			33.2	30.3	36.4
Tongatapu, Tonga¹⁰¹	2000-04	Western Pacific		N/A	10.1	9.3	11.0
Hong Kong SAR, China¹⁰²	2000-05	Western Pacific	18315	2131182	8.6	8.5	8.7

Suva, Fiji¹⁰³	2001-02	Western Pacific	377.17	20954	18.0	16.3	19.9
NhaTrang district, Vietnam¹⁰⁴	2005-06	Western Pacific	556	24641	22.6	20.8	24.5
Tongatapu, Tonga¹⁰¹	2006-07	Western Pacific		10322	7.2	6.1	8.5
NhaTrang city, Vietnam¹⁰⁵	2007-08	Western Pacific	474	13941	34.0	31.1	37.2
Biliran Island, The Philippines¹⁰⁶	2011-12	Western Pacific	94	4510	20.8		
Kilifi District, Kenya¹⁰⁷	2007-10	Africa	603	45644	13.2	12.7	13.8
Australia¹⁰⁸	1998-2004	Western Pacific	53452	7686007	7.0		
Australia¹⁰⁸	2005-10	Western Pacific	33472	6734296	5.0		
Commercial Claims database, United States¹⁰⁹	2007-11	America	87461	11190358	7.8		
Medicaid database, United States¹⁰⁹	2007-11	America	79250	5716641	13.9		
Bangalore, India¹¹⁰	2009-11	South-East Asia	883	224966	3.9		
Northwestern Ontario, Canada¹¹¹	2007-09	America	102		51.0		
Metro Manila, Philippines¹¹²	2007-09	Western Pacific	4699	158426	29.7		

Supplementary table 12: Hospitalisation rate (per 1000 children younger than 5 year per year) for pneumonia in young children (2000-2015) by World Bank income regions

Region	2000	2005	2010	2015
Middle income	11.5 (7.1-18.6)	15.7 (9.7-25.4)	21.4 (13.2-34.7)	29.3 (18.1-47.5)
Low income	5.0 (2.2-11.3)	8.1 (3.5-18.3)	13.0 (5.7-29.5)	21.0 (9.2-47.7)

Supplementary table 13: Hospitalisation rate (per 1000 children younger than 5 year per year) and estimated hospitalisations for pneumonia in young children (2000-2015) by World Bank income regions

Region	Hospitalisation rate (2000)	Hospitalisations (2000) in millions	Hospitalisation rate (2015)	Hospitalisations (2015) in millions
Low income	5.0 (2.2-11.4)	0.3 (0.2-0.8)	20.9 (9.1-47.9)	2.1 (0.9-4.8)
Middle income	11.5 (7.1-18.5)	5.4 (3.3-8.7)	29.3 (18.1-47.4)	14.3 (8.8-23.2)

Supplementary table 14: List of studies reporting in hospital case fatality ratio for children admitted with pneumonia

Study	Median study year	WHO region	World Bank Income Region	CFR (95%CI)
Goiânia, Brazil ⁴⁷	2008	Americas	Upper middle	0.3 (0.2 ,0.5)
Upper River Division and Central River Division, The Gambia ⁴⁷	2003	Africa	Low income	12 (7.4 ,19.3)
Multihospital surveillance, Bangladesh ⁴⁷	2006	South East Asia	Low income	8 (7.3 ,8.7)
Multicentric, El Salvador ⁴⁷	2007	Americas	Lower middle income	1.1 (1 ,1.2)
NhaTrang district, Vietnam (Anh et al., 2009) ¹⁰⁴	2006	Western Pacific	Lower middle income	2.6 (1.7 ,4.1)
Kilifi District, Kenya ⁴⁷	2005	Africa	Low income	9.5 (8.7 ,10.4)
Bondo district, Kenya ⁵¹	2002	Africa	Low income	11 (9.2 ,13.2)
Paysandú and Salto, Uruguay ⁴⁷	2002	Americas	High income	0.3 (0.2 ,0.7)
Pilar, Argentina ⁴⁷	2004	Americas	Lower middle income	0.2 (0.1 ,0.9)
Santa Rosa, Guatemala ⁴⁷	2008	Americas	Guatemala	4.8 (2.5 ,9.3)
Goiânia, Brazil ⁴⁷	2007	Americas	Lower middle income	1.1 (0.3 ,3.3)
Nakhon Phanom and Sa Kaeo provinces, Thailand ⁴⁷	2007	South East Asia	Upper middle	0.8 (0.7 ,1)
Bangalore, India ⁸²	2006	South East Asia	Lower middle income	5.8 (4.5 ,7.5)
Patan, Nepal ⁸¹	2006	South East Asia	Low income	2.2 (1.1 ,4.4)
Kamalapur, Bangladesh ⁴⁷	2008	South East Asia	Low income	0.9 (0.1 ,6.5)
Bohol, Philippines ⁴⁷	2002	Western Pacific	Lower middle income	1.6 (0.9 ,2.9)
Suva, Fiji ¹⁰³	2002	Western Pacific	Upper middle	2.8 (1.4 ,5.9)
Paysandú and Salto, Uruguay ⁴⁷	2009	Americas	High income	5.1 (3.8 ,6.8)
Nakhon Phanom and Sa Kaeo provinces, Thailand ⁴⁷	2009	South East Asia	Upper middle	0.4 (0.2 ,0.6)
Kamalapur, Bangladesh ⁴⁷	2009	South East Asia	Low income	0.7 (0.1 ,4.7)

Study	Median study year	WHO region	World Bank Income Region	CFR (95%CI)
Soweto, South Africa ⁴⁷	2010	Africa	Upper middle	0.8 (0.5 ,1.4)
Manhiça district, Mozambique ⁴⁷	2005	Africa	Low income	8.8 (6.6 ,11.7)
Multicentric, India ⁴⁷	2006	South East Asia	Lower middle income	0.3 (0.1 ,1.2)
Bondo district, Kenya ⁴⁷	2008	Africa	Low income	4.3 (3.2 ,5.8)
The Greater Banjul area and Upper River region, The Gambia ⁴⁷	2009	Africa	Low income	3.7 (2.6 ,5.2)
Lwak, Kisumu, Kenya ⁴⁷	2009	Africa	Low income	1.6 (0.7 ,3.2)
Kibera, Nairobi, Kenya ⁴⁷	2009	Africa	Low income	1.4 (0.5 ,3.7)
Karachi, Pakistan ⁶¹	2008	Eastern Mediterranean	Lower middle income	3.7 (0.9 ,14.8)
Lwak, Kisumu, Kenya ⁴⁷	2010	Africa	Low income	1 (0.3 ,3.1)
Kibera, Nairobi, Kenya ⁴⁷	2010	Africa	Low income	0.6 (0.2 ,1.9)
Santa Rosa, Guatemala ⁴⁷	2010	Americas	Lower middle income	5 (3.6 ,7)
Quetzaltenango, Guatemala ⁴⁷	2010	Americas	Lower middle income	3.5 (2.2 ,5.5)
Soweto, South Africa ⁴⁷	2002	Africa	Upper middle	6.3 (5.4 ,7.3)
Concordia and Parana, Argentina ⁴⁷	2004	Americas	Lower middle income	1.1 (0.7 ,1.7)
Mirzapur, Bangladesh ⁴⁷	2006	South East Asia	Low income	2.2 (1.4 ,3.5)
Lombok, Indonesia ⁴⁷	2001	South East Asia	Lower middle income	11 (10.2 ,11.9)
Multicentre, Kenya ¹¹³	2008	Africa	Low income	5.9 (5.1 ,6.8)
Western Australia ¹¹⁴	2001	Western Pacific	High income	0.9 (0.7 ,1.2)
Guriel district, Somalia ¹¹⁵	2010	Africa	Low income	2.1 (1.6 ,2.7)
Chennai, India ¹¹⁶	2007	South East Asia	Lower middle income	8.2 (7.4 ,9.1)
Blantyre, Malawi ¹¹⁷	2006	Africa	Low income	12.2 (8.2 ,18.1)
Kilifi, Kenya ¹¹⁸	2007	Africa	Low income	6 (4.3 ,8.4)
Biliran, The Philippines ¹⁰⁶	2011	Western Pacific	Lower middle income	1.4 (0.4 ,5.8)

Study	Median study year	WHO region	World Bank Income Region	CFR (95%CI)
Bangalore, India ¹¹⁰	2010	South East Asia	Lower middle income	0.8 (0.6 ,1.1)
Multicentre, Malawi ¹¹⁹	2001	Africa	Low income	15.2 (13.3 ,17.3)
Multicentre, Malawi ¹¹⁹	2002	Africa	Low income	11.3 (10.2 ,12.6)
Multicentre, Malawi ¹¹⁹	2003	Africa	Low income	9.1 (8.2 ,10)
Multicentre, Malawi ¹¹⁹	2004	Africa	Low income	9.2 (8.3 ,10.2)
Multicentre, Malawi ¹¹⁹	2005	Africa	Low income	9.7 (9 ,10.5)
Multicentre, Malawi ¹¹⁹	2006	Africa	Low income	7.4 (6.8 ,8)
Multicentre, Malawi ¹¹⁹	2007	Africa	Low income	6.8 (6.4 ,7.4)
Multicentre, Malawi ¹¹⁹	2008	Africa	Low income	7.3 (6.8 ,7.9)
Multicentre, Malawi ¹¹⁹	2009	Africa	Low income	6.1 (5.7 ,6.5)
Multicentre, Malawi ¹¹⁹	2010	Africa	Low income	5.3 (4.9 ,5.6)
Multicentre, Malawi ¹¹⁹	2011	Africa	Low income	4.1 (3.8 ,4.4)
Multicentre, Malawi ¹¹⁹	2012	Africa	Low income	4.5 (4.2 ,4.9)
Colorado, USA ⁴⁷	2004	Americas	High income	0.6 (0.5 ,0.7)
USA ⁵⁴	2000	Americas	High income	0.2 (0.2 ,0.2)
Colorado, USA ⁴⁷	2009	Americas	High income	0.8 (0.6 ,1.1)
Tuscany, Italy ¹²⁰	2005	Europe	High income	0.1 (0 ,0.2)
Poznań and Poznański, Poland ¹²¹	2008	Europe	High income	0.1 (0 ,0.6)
Malawi ¹²²	2002	Africa	Low income	10.4 (9.9 ,10.9)
Mozambique ¹²³	2007	Africa	Low income	9.8 (7.9 ,12.2)
Bangladesh ¹²⁴	2012	South-east Asia	Lower middle income	0 (0 ,0.2)

Supplementary table 15: Number of children aged below 5 years residing in low and middle income countries and exposed to the risk factors for pneumonia in 2000 and 2015

Risk factor	year	Number of children exposed (uncertainty range)	Percentage of children <5 exposed (UR)
HIV	2000	1517247 (1413328-1652981)	0.29 (0.27-0.32)
HIV	2015	1046529 (979467-1116290)	0.18 (0.17-0.19)
Incomplete immunisation	2000	177383184 (175158137-179486533)	34.14 (33.71-34.54)
Incomplete immunisation	2015	143938193 (143106886-144715979)	24.82 (24.68-24.95)
Indoor air pollution	2000	283449840 (282633011-284312655)	54.55 (54.39-54.71)
Indoor air pollution	2015	317162319 (316345916-317999622)	54.69 (54.55-54.83)
Low birth weight	2000	45058267 (43611587-46448152)	8.67 (8.39-8.94)
Low birth weight	2015	56102037 (55579933-56663706)	9.67 (9.58-9.77)
Malnutrition	2000	169994730 (167422035-172307433)	32.71 (32.22-33.16)
Malnutrition	2015	138866321 (138055666-139679023)	23.94 (23.8-24.08)
Non-exclusive breastfeeding	2000	111180903 (110285434-112158640)	21.4 (21.22-21.58)
Non-exclusive breastfeeding	2015	145729789 (144969738-146520225)	25.13 (25-25.26)
Overcrowding	2000	274991971 (272641751-277504089)	52.92 (52.47-53.4)
Overcrowding	2015	269602621 (268770720- 270498009)	46.49 (46.34-46.64)

Supplementary table 16: Number and proportion of children aged below 5 years exposed to risk factors for pneumonia in 2000 and 2015 by WHO region

WHO Region	Risk factor	Year	Number of children <5 years exposed	Proportion of children <5 years exposed
Africa	HIV	2000	1359327 (1281359-1444812)	1.23 (1.16-1.31)
Africa	HIV	2015	935157 (876380-993682)	0.59 (0.56-0.63)
Africa	Incomplete immunisation	2000	50187173 (49811529-50553124)	45.51 (45.17-45.84)
Africa	Incomplete immunisation	2015	48954267 (48596704-49319121)	31.01 (30.78-31.24)
Africa	Indoor air pollution	2000	83067674 (82801791-83327464)	75.32 (75.08-75.56)
Africa	Indoor air pollution	2015	126385468 (126057269-126691254)	80.05 (79.85-80.25)
Africa	Low birth weight	2000	6677566 (6502727-6846623)	6.05 (5.9-6.21)
Africa	Low birth weight	2015	11740886 (11527591-11967748)	7.44 (7.3-7.58)
Africa	Malnutrition	2000	30637217 (30250518-30996126)	27.78 (27.43-28.11)
Africa	Malnutrition	2015	39398207 (39023342-39778736)	24.96 (24.72-25.2)
Africa	Non-exclusive breastfeeding	2000	35199474 (34854015-35561790)	31.92 (31.6-32.25)
Africa	Non-exclusive breastfeeding	2015	35631421 (35302371-35962243)	22.57 (22.36-22.78)
Africa	Overcrowding	2000	65676921 (65271690-66080104)	59.55 (59.18-59.92)
Africa	Overcrowding	2015	90697231 (90271048-91113680)	57.45 (57.18-57.71)
Americas	HIV	2000	38890 (26547-57112)	0.07 (0.05-0.1)
Americas	HIV	2015	15739 (11001-22377)	0.03 (0.02-0.04)
Americas	Incomplete immunisation	2000	14701969 (14415651-14983042)	26.06 (25.55-26.56)
Americas	Incomplete immunisation	2015	7839078 (7681172-8013075)	14.91 (14.61-15.24)
Americas	Indoor air pollution	2000	28525155 (28174495-28858713)	50.56 (49.94-51.15)
Americas	Indoor air pollution	2015	20430282 (20221678-20651161)	38.87 (38.47-39.29)
Americas	Low birth weight	2000	4979795 (4778269-5180071)	8.83 (8.47-9.18)
Americas	Low birth weight	2015	4837143 (4703597-4981895)	9.2 (8.95-9.48)
Americas	Malnutrition	2000	4396997 (4224571-4574243)	7.79 (7.49-8.11)
Americas	Malnutrition	2015	4167716 (4036279-4302185)	7.93 (7.68-8.18)
Americas	Non-exclusive breastfeeding	2000	19656560 (19341361-19974090)	34.84 (34.28-35.41)
Americas	Non-exclusive breastfeeding	2015	9580729 (9405765-9754210)	18.23 (17.89-18.56)

Americas	Overcrowding	2000	25569037 (25246038-25902275)	45.32 (44.75-45.91)
Americas	Overcrowding	2015	23529458 (23292239-23750698)	44.76 (44.31-45.18)
Eastern Mediterranean	HIV	2000	9669 (5093-17317)	0.02 (0.01-0.03)
Eastern Mediterranean	HIV	2015	13007 (7673-21274)	0.02 (0.01-0.03)
Eastern Mediterranean	Incomplete immunisation	2000	13764639 (13516337-14022351)	21.42 (21.03-21.82)
Eastern Mediterranean	Incomplete immunisation	2015	18091538 (17822412-18357222)	22.74 (22.4-23.07)
Eastern Mediterranean	Indoor air pollution	2000	33190463 (32935988-33426011)	51.65 (51.26-52.02)
Eastern Mediterranean	Indoor air pollution	2015	27006480 (26748652-27264002)	33.94 (33.61-34.26)
Eastern Mediterranean	Low birth weight	2000	5671189 (5516894-5818944)	8.83 (8.59-9.06)
Eastern Mediterranean	Low birth weight	2015	8694050 (8533716-8856996)	10.93 (10.72-11.13)
Eastern Mediterranean	Malnutrition	2000	7715006 (7546633-7889825)	12.01 (11.74-12.28)
Eastern Mediterranean	Malnutrition	2015	15451407 (15197935-15747717)	19.42 (19.1-19.79)
Eastern Mediterranean	Non-exclusive breastfeeding	2000	17738982 (17524436-17964649)	27.61 (27.27-27.96)
Eastern Mediterranean	Non-exclusive breastfeeding	2015	20599906 (20361046-20857997)	25.89 (25.59-26.21)
Eastern Mediterranean	Overcrowding	2000	41157777 (40903211-41408354)	64.05 (63.66-64.44)
Eastern Mediterranean	Overcrowding	2015	49120476 (48835717-49408113)	61.73 (61.37-62.09)
South East Asia	HIV	2000	68003 (41648-103765)	0.04 (0.02-0.06)
South East Asia	HIV	2015	70950 (48889-98802)	0.04 (0.03-0.06)
South East Asia	Incomplete immunisation	2000	67512686 (66790318-68259841)	38 (37.6-38.42)
South East Asia	Incomplete immunisation	2015	60435075 (59844539-61060421)	33.81 (33.47-34.15)
South East Asia	Indoor air pollution	2000	123930679 (123232981-124588730)	69.76 (69.37-70.13)
South East Asia	Indoor air pollution	2015	124716236 (124112463-125342264)	69.76 (69.42-70.11)
South East Asia	Low birth weight	2000	17883921 (17443377-18384735)	10.07 (9.82-10.35)
South East Asia	Low birth weight	2015	25453233 (25007115-25920165)	14.24 (13.99-14.5)
South East Asia	Malnutrition	2000	75367309 (74615634-76097785)	42.42 (42-42.83)
South East Asia	Malnutrition	2015	71476697 (70837057-72085927)	39.98 (39.62-40.32)

South East Asia	Non-exclusive breastfeeding	2000	29238112 (28846281-29688741)	16.46 (16.24-16.71)
South East Asia	Non-exclusive breastfeeding	2015	38796183 (38292551-39275361)	21.7 (21.42-21.97)
South East Asia	Overcrowding	2000	92554939 (91810611-93345362)	52.1 (51.68-52.54)
South East Asia	Overcrowding	2015	94744206 (94108902-95400693)	53 (52.64-53.36)
Western Pacific	HIV	2000	41359 (6665-157357)	0.04 (0.01-0.14)
Western Pacific	HIV	2015	11675 (5997-20460)	0.01 (0.01-0.02)
Western Pacific	Incomplete immunisation	2000	31216717 (29217765-33111860)	28.12 (26.32-29.82)
Western Pacific	Incomplete immunisation	2015	8618235 (8405198-8835134)	7.75 (7.56-7.95)
Western Pacific	Indoor air pollution	2000	14735869 (14648160-14876786)	13.27 (13.19-13.4)
Western Pacific	Indoor air pollution	2015	18623854 (18388328-18851831)	16.75 (16.54-16.96)
Western Pacific	Low birth weight	2000	9845797 (8567230-11093255)	8.87 (7.72-9.99)
Western Pacific	Low birth weight	2015	5376725 (5212534-5548181)	4.84 (4.69-4.99)
Western Pacific	Malnutrition	2000	51878201 (49559122-54047723)	46.73 (44.64-48.68)
Western Pacific	Malnutrition	2015	8372293 (8182197-8562801)	7.53 (7.36-7.7)
Western Pacific	Non-exclusive breastfeeding	2000	9347775 (8740731-10055203)	8.42 (7.87-9.06)
Western Pacific	Non-exclusive breastfeeding	2015	41121550 (40721572-41536390)	36.99 (36.63-37.36)
Western Pacific	Overcrowding	2000	50033298 (47790734-52380411)	45.07 (43.05-47.18)
Western Pacific	Overcrowding	2015	11511251 (11279656-11728475)	10.35 (10.15-10.55)

Additional care is required in interpreting the results for the Western Pacific region as there was a considerable increase in Countries contributing data to the DHS between 2000 and 2015. Only 2 countries (Cambodia and the Philippines) of the 20 of countries contributing data in 2015 contributed in 2000. This means that the regional comparison was particularly vulnerable to the imputation approached described in the analysis. This was not an issue in the remaining regions where the majority of countries contributing to the DHS survey in the 2015 period also contributed in 2000; the percentages were 86%, 90%, 100% and 100% for the Africa, Americas, Eastern Mediterranean and South-East Asian regions respectively.

Supplementary table 17: Pneumonia deaths among children under-five for 132 low and middle income countries, 2000-2015

Country	Pneumonia deaths among children under-five				Difference between 2000 and 2015	
	2000	2005	2010	2015	Absolute difference	Relative difference
Afghanistan	28942	29981	25105	18671	-10271	-35%
Algeria	3723	3303	3117	3130	-592	-16%
Angola	30484	36275	34571	29502	-982	-3%
Antigua and Barbuda	0	1	0	0	0	0%
Argentina	968	886	823	708	-260	-27%
Bahamas	19	9	15	9	-10	-52%
Bahrain	3	6	7	3	0	11%
Bangladesh	62632	45036	25034	17352	-45281	-72%
Barbados	0	3	1	1	1	0%
Belize	24	14	13	11	-13	-53%
Benin	7229	6413	6555	5702	-1528	-21%
Bhutan	277	172	114	60	-217	-78%
Bolivia (Plurinational State of)	3728	2594	1903	1304	-2424	-65%
Botswana	330	391	429	307	-22	-7%
Brazil	14929	7549	3415	4773	-10156	-68%
Burkina Faso	9774	11872	7856	7761	-2013	-21%
Burundi	7522	7086	7322	5913	-1609	-21%
Cabo Verde	76	49	49	37	-39	-52%
Cambodia	7405	4632	2739	1694	-5712	-77%
Cameroon	16115	14747	14227	11071	-5045	-31%
Central African Republic	3135	2978	3420	3368	233	7%
Chad	15765	18810	19393	19275	3511	22%
Chile	276	142	89	67	-209	-76%
China	118092	60173	33332	22242	-95850	-81%
Colombia	2631	1973	1372	1217	-1415	-54%
Comoros	373	403	330	300	-72	-19%
Congo	2202	2101	1407	971	-1232	-56%

Country	Pneumonia deaths among children under-five				Difference between 2000 and 2015	
	2000	2005	2010	2015	Absolute difference	Relative difference
Cook Islands	1	1	0	0	-1	-81%
Costa Rica	74	51	34	33	-41	-56%
Cote d'Ivoire	9279	8641	9323	10935	1656	18%
Democratic People's Republic of Korea	4637	2146	1854	1383	-3254	-70%
Democratic Republic of the Congo	41587	38820	44934	46226	4639	11%
Djibouti	367	325	235	184	-183	-50%
Dominica	0	1	0	1	0	84%
Dominican Republic	1164	884	782	700	-464	-40%
Ecuador	1573	1153	1059	861	-712	-45%
Egypt	15545	10894	8216	8375	-7170	-46%
El Salvador	835	456	301	215	-620	-74%
Equatorial Guinea	485	381	463	418	-67	-14%
Eritrea	2402	2388	1824	1551	-851	-35%
Ethiopia	86397	68880	44478	31427	-54971	-64%
Fiji	53	51	57	47	-6	-10%
Gabon	397	445	396	355	-42	-11%
Gambia	998	977	836	766	-232	-23%
Ghana	7923	8013	7740	6450	-1472	-19%
Grenada	3	2	1	2	-2	-52%
Guatemala	4456	3190	2566	2146	-2309	-52%
Guinea	8732	8403	7050	7008	-1724	-20%
Guinea-Bissau	1523	1591	1178	1028	-495	-33%
Guyana	74	52	31	44	-30	-40%
Haiti	6537	5412	6037	4021	-2516	-38%
Honduras	1156	753	539	372	-784	-68%
India	481539	371044	270948	178994	-302545	-63%
Indonesia	44917	34851	27372	25000	-19918	-44%
Iran (Islamic Republic of)	7320	4644	3877	3098	-4222	-58%

Country	Pneumonia deaths among children under-five				Difference between 2000 and 2015	
	2000	2005	2010	2015	Absolute difference	Relative difference
Iraq	6354	6191	6648	5874	-480	-8%
Jamaica	68	56	56	41	-27	-40%
Jordan	481	359	347	327	-155	-32%
Kenya	21276	17415	14681	10507	-10769	-51%
Kiribati	37	27	38	27	-10	-26%
Kuwait	35	23	41	56	21	60%
Lao People's Democratic Republic	4314	3748	2989	2006	-2308	-54%
Lebanon	132	75	33	46	-85	-65%
Lesotho	1086	1078	942	955	-130	-12%
Liberia	2845	2492	2242	1737	-1108	-39%
Libya	369	278	187	127	-242	-66%
Madagascar	15968	12599	9220	6951	-9017	-56%
Malawi	13366	7975	7031	5416	-7950	-59%
Malaysia	484	271	204	185	-299	-62%
Maldives	45	18	9	5	-41	-89%
Mali	17781	16339	15731	10766	-7015	-39%
Marshall Islands	15	13	10	8	-7	-47%
Mauritania	2162	2438	2169	1616	-546	-25%
Mauritius	13	21	21	21	8	65%
Mexico	10458	6895	4877	3459	-6999	-67%
Micronesia (Federated States of)	29	22	15	12	-17	-58%
Mongolia	594	361	288	236	-358	-60%
Morocco	5299	3834	2864	2246	-3052	-58%
Mozambique	17254	17590	14809	11757	-5497	-32%
Myanmar	17745	15336	11019	7516	-10230	-58%
Namibia	659	661	596	618	-41	-6%
Nauru	1	1	1	1	0	-39%
Nepal	12038	8004	5208	2946	-9092	-76%

Country	Pneumonia deaths among children under-five				Difference between 2000 and 2015	
	2000	2005	2010	2015	Absolute difference	Relative difference
Nicaragua	993	693	574	431	-563	-57%
Niger	25830	25072	19325	18290	-7541	-29%
Nigeria	145231	149071	157059	133239	-11992	-8%
Niue	0	0	0	0	0	-24%
Oman	102	57	55	60	-41	-41%
Pakistan	93923	84850	78094	63960	-29963	-32%
Palau	1	1	0	0	0	-44%
Panama	185	194	228	170	-15	-8%
Papua New Guinea	2300	2516	2264	1934	-366	-16%
Paraguay	705	488	401	305	-400	-57%
Peru	3952	2199	1487	1076	-2876	-73%
Philippines	19200	17475	15141	12224	-6976	-36%
Qatar	8	6	7	9	1	17%
Republic of Korea	188	77	59	39	-149	-79%
Rwanda	12710	6657	3573	1929	-10781	-85%
Saint Kitts and Nevis	1	0	0	0	-1	-100%
Saint Lucia	2	3	3	2	0	1%
Saint Vincent and the Grenadines	2	1	2	2	0	1%
Samoa	15	11	10	8	-7	-47%
Sao Tome and Principe	72	59	44	35	-37	-52%
Saudi Arabia	1284	857	675	491	-793	-62%
Senegal	9729	8264	5567	3984	-5745	-59%
Seychelles	1	1	1	1	0	-9%
Sierra Leone	5914	6766	4864	3714	-2199	-37%
Solomon Islands	75	86	95	85	10	14%
Somalia	12480	14883	17018	14669	2189	18%
South Africa	12851	10431	10521	7105	-5746	-45%
Sri Lanka	550	426	264	193	-357	-65%

Country	Pneumonia deaths among children under-five				Difference between 2000 and 2015	
	2000	2005	2010	2015	Absolute difference	Relative difference
Sudan	24491	24467	20654	15551	-8940	-37%
Suriname	31	24	22	16	-15	-47%
Swaziland	696	721	517	354	-342	-49%
Syrian Arab Republic	1749	1017	806	427	-1322	-76%
Thailand	2651	1725	1149	843	-1808	-68%
Timor-Leste	972	584	460	550	-422	-43%
Togo	2831	2857	2716	2962	131	5%
Tonga	6	5	5	5	-1	-18%
Trinidad and Tobago	17	43	36	30	13	76%
Tunisia	822	451	331	234	-589	-72%
Tuvalu	2	1	1	1	-1	-66%
Uganda	22161	19172	16025	13659	-8502	-38%
United Arab Emirates	31	27	33	25	-5	-17%
United Republic of Tanzania	31096	27617	19171	14322	-16773	-54%
Uruguay	79	73	53	31	-48	-61%
Vanuatu	26	25	32	26	0	-1%
Venezuela (Bolivarian Republic of)	1014	1051	1047	965	-49	-5%
Viet Nam	8603	7754	5685	4808	-3795	-44%
Yemen	14202	10937	8027	5373	-8830	-62%
Zambia	12365	8815	8202	6020	-6345	-51%
Zimbabwe	5108	6570	6847	5582	474	9%

Supplementary table 18: Pneumonia mortality among children under-five for 132 low and middle income countries, 2000-2015

Country	Pneumonia mortality among children under-five				Difference between 2000 and 2015		
	2000	2005	2010	2015	Absolute difference	Relative difference	Annual Rate of Change*
Afghanistan	30.8	28.4	23.0	18.3	-12.5	-41%	3.5
Algeria	6.6	5.0	3.4	3.3	-3.3	-50%	4.6
Angola	41.3	41.9	34.9	27.0	-14.3	-35%	2.8
Antigua and Barbuda	0.0	0.6	0.3	0.3	0.3	0%	0.0
Argentina	1.4	1.2	1.1	0.9	-0.5	-34%	2.7
Bahamas	3.7	1.6	2.3	1.6	-2.1	-57%	5.7
Bahrain	0.2	0.4	0.4	0.1	-0.1	-35%	2.9
Bangladesh	17.3	12.9	7.9	5.4	-11.8	-69%	7.7
Barbados	0.0	0.8	0.4	0.3	0.3	0%	0.0
Belize	3.1	1.9	1.7	1.4	-1.8	-57%	5.6
Benin	25.3	19.9	18.7	15.2	-10.1	-40%	3.4
Bhutan	17.5	11.7	7.5	4.9	-12.6	-72%	8.5
Bolivia (Plurinational State of)	14.7	10.4	7.6	5.3	-9.4	-64%	6.8
Botswana	7.0	8.4	8.3	5.3	-1.7	-24%	1.9
Brazil	3.9	2.2	1.2	1.5	-2.4	-62%	6.5
Burkina Faso	19.0	20.5	12.2	11.3	-7.7	-41%	3.5
Burundi	27.2	21.8	17.9	12.8	-14.4	-53%	5.0
Cabo Verde	6.0	4.4	4.3	3.4	-2.7	-44%	3.9
Cambodia	23.8	13.6	7.2	4.7	-19.1	-80%	10.8
Cameroon	25.6	20.7	18.6	13.5	-12.1	-47%	4.3
Central African Republic	21.7	20.5	23.2	20.5	-1.1	-5%	0.4
Chad	38.9	39.5	35.9	31.8	-7.1	-18%	1.3

* For formula see p2155 of the - Li Liu, Hope L. Johnson, Simon Cousens, Jamie Perin, Susana Scott, Joy Lawn, Igor Rudan, Harry Campbell, Richard Cibulskis, Mengying Li, Colin Mathers, and Robert E. Black, for the Child Health Epidemiology Reference Group (CHERG) of WHO and UNICEF. 2012. "Global, regional, and national causes of child mortality: an updated systematic analysis for 2010 with time trends since 2000". Lancet. 379: 2151-61.

Country	Pneumonia mortality among children under-five				Difference between 2000 and 2015		
	2000	2005	2010	2015	Absolute difference	Relative difference	Annual Rate of Change*
Chile	1.1	0.6	0.4	0.3	-0.8	-73%	8.8
China	7.6	3.5	2.1	1.3	-6.2	-83%	11.7
Colombia	3.2	2.3	1.8	1.6	-1.6	-49%	4.5
Comoros	18.3	18.3	13.6	11.5	-6.9	-37%	3.1
Congo	18.8	16.1	9.4	5.9	-12.9	-68%	7.7
Cook Islands	1.8	1.8	0.8	0.4	-1.4	-78%	10.1
Costa Rica	0.9	0.7	0.5	0.5	-0.5	-49%	4.5
Cote d'Ivoire	14.0	12.6	12.6	13.2	-0.8	-6%	0.4
Democratic People's Republic of Korea	11.9	5.6	5.6	3.7	-8.3	-69%	7.9
Democratic Republic of the Congo	19.3	15.5	16.0	14.8	-4.6	-24%	1.8
Djibouti	16.8	14.5	11.1	8.3	-8.5	-50%	4.7
Dominica	0.5	0.8	0.1	0.8	0.4	76%	-3.8
Dominican Republic	5.6	3.9	3.6	3.2	-2.4	-43%	3.7
Ecuador	5.0	3.7	3.2	2.6	-2.4	-47%	4.3
Egypt	9.1	5.6	4.1	3.0	-6.1	-67%	7.4
El Salvador	6.0	3.9	2.6	2.1	-3.9	-66%	7.1
Equatorial Guinea	23.6	16.9	17.7	14.7	-9.0	-38%	3.2
Eritrea	19.4	15.1	10.8	9.3	-10.0	-52%	4.9
Ethiopia	29.6	23.6	15.0	10.0	-19.6	-66%	7.3
Fiji	2.7	2.6	2.9	2.8	0.1	2%	-0.1
Gabon	9.9	10.6	8.3	6.9	-3.0	-30%	2.4
Gambia	18.4	15.7	11.7	9.3	-9.1	-50%	4.6
Ghana	12.7	11.1	9.8	7.2	-5.5	-43%	3.8
Grenada	1.5	1.3	0.4	0.8	-0.7	-46%	4.1
Guatemala	11.2	7.8	6.3	4.8	-6.4	-57%	5.6
Guinea	24.2	22.1	17.1	15.4	-8.9	-37%	3.0

Country	Pneumonia mortality among children under-five				Difference between 2000 and 2015		
	2000	2005	2010	2015	Absolute difference	Relative difference	Annual Rate of Change*
Guinea-Bissau	29.8	28.8	19.7	15.8	-14.0	-47%	4.2
Guyana	4.0	3.4	2.8	2.6	-1.4	-35%	2.9
Haiti	24.6	20.8	22.1	15.6	-8.9	-36%	3.0
Honduras	5.9	4.1	3.1	2.3	-3.6	-61%	6.3
India	17.3	13.5	10.2	7.1	-10.2	-59%	5.9
Indonesia	10.3	7.8	5.9	4.6	-5.8	-56%	5.4
Iran (Islamic Republic of)	5.7	3.8	2.8	2.3	-3.4	-60%	6.1
Iraq	7.5	6.9	6.0	4.8	-2.7	-36%	3.0
Jamaica	1.2	1.2	1.2	1.0	-0.2	-13%	0.9
Jordan	3.2	2.4	1.9	1.6	-1.6	-51%	4.7
Kenya	18.2	13.0	10.2	6.9	-11.3	-62%	6.5
Kiribati	14.2	15.3	10.4	9.5	-4.7	-33%	2.7
Kuwait	0.8	0.5	0.6	0.8	0.0	6%	-0.4
Lao People's Democratic Republic	26.8	23.0	16.2	11.6	-15.2	-57%	5.6
Lebanon	2.2	1.2	0.7	0.5	-1.7	-79%	10.4
Lesotho	18.4	20.9	16.6	15.3	-3.1	-17%	1.2
Liberia	23.5	19.5	15.7	11.5	-12.0	-51%	4.8
Libya	3.1	2.2	1.3	1.0	-2.1	-67%	7.4
Madagascar	24.8	18.9	12.6	8.5	-16.3	-66%	7.2
Malawi	28.2	15.6	11.7	8.6	-19.6	-69%	7.9
Malaysia	0.9	0.6	0.5	0.3	-0.5	-62%	6.4
Maldives	7.3	2.8	1.2	0.6	-6.7	-92%	16.5
Mali	35.1	27.7	23.1	14.8	-20.2	-58%	5.7
Marshall Islands	6.9	6.8	6.3	6.0	-0.8	-12%	0.9
Mauritania	21.4	21.5	17.6	12.3	-9.1	-43%	3.7
Mauritius	0.7	1.0	1.5	1.5	0.7	96%	-4.5

Country	Pneumonia mortality among children under-five				Difference between 2000 and 2015		
	2000	2005	2010	2015	Absolute difference	Relative difference	Annual Rate of Change*
Mexico	4.2	2.9	2.1	1.5	-2.7	-65%	7.0
Micronesia (Federated States of)	9.0	8.1	6.0	5.1	-3.9	-44%	3.8
Mongolia	12.4	7.5	4.3	3.3	-9.1	-73%	8.8
Morocco	8.7	6.3	4.1	3.1	-5.6	-64%	6.8
Mozambique	21.7	19.8	15.2	11.1	-10.6	-49%	4.5
Myanmar	15.3	13.2	11.2	8.2	-7.1	-47%	4.2
Namibia	11.6	11.3	9.3	8.3	-3.3	-28%	2.2
Nauru	6.8	6.5	4.9	4.7	-2.0	-30%	2.4
Nepal	15.7	11.7	8.2	5.3	-10.3	-66%	7.2
Nicaragua	7.3	5.4	4.4	3.6	-3.7	-51%	4.7
Niger	45.1	37.6	24.4	19.2	-25.9	-57%	5.7
Nigeria	28.8	26.1	24.9	19.0	-9.7	-34%	2.8
Niue	6.5	0.9	6.9	5.5	-1.1	-17%	1.2
Oman	1.9	1.1	0.8	0.7	-1.1	-60%	6.1
Pakistan	21.0	19.7	14.8	11.9	-9.1	-43%	3.8
Palau	2.6	2.1	2.1	1.2	-1.4	-53%	5.0
Panama	2.5	2.9	3.0	2.3	-0.3	-11%	0.8
Papua New Guinea	12.3	13.2	10.9	9.2	-3.1	-25%	1.9
Paraguay	4.8	3.8	2.8	2.3	-2.5	-53%	5.0
Peru	6.5	3.6	2.5	1.7	-4.7	-73%	8.8
Philippines	8.4	7.3	6.7	5.2	-3.2	-38%	3.2
Qatar	0.6	0.5	0.4	0.3	-0.3	-51%	4.7
Republic of Korea	0.4	0.2	0.1	0.1	-0.3	-77%	9.7
Rwanda	36.0	20.7	9.6	5.7	-30.3	-84%	12.3
Saint Kitts and Nevis	0.5	0.3	0.2	0.0	-0.5	-100%	0.0
Saint Lucia	0.7	1.1	1.1	0.8	0.1	9%	-0.6

Country	Pneumonia mortality among children under-five				Difference between 2000 and 2015		
	2000	2005	2010	2015	Absolute difference	Relative difference	Annual Rate of Change*
Saint Vincent and the Grenadines	0.7	0.5	0.8	1.0	0.2	33%	-1.9
Samoa	2.9	2.0	1.8	1.7	-1.2	-40%	3.4
Sao Tome and Principe	13.7	10.4	7.6	5.5	-8.2	-60%	6.1
Saudi Arabia	2.2	1.5	1.1	0.8	-1.5	-65%	6.9
Senegal	25.5	19.0	11.4	6.9	-18.6	-73%	8.7
Seychelles	0.9	0.8	0.6	0.7	-0.2	-23%	1.7
Sierra Leone	34.1	32.7	22.0	17.0	-17.0	-50%	4.6
Solomon Islands	5.4	5.5	5.6	5.1	-0.3	-6%	0.4
Somalia	34.9	39.9	39.4	32.9	-2.0	-6%	0.4
South Africa	11.0	10.1	8.5	7.0	-4.0	-36%	3.0
Sri Lanka	1.6	1.1	0.7	0.6	-1.0	-62%	6.5
Sudan	22.7	20.5	16.9	12.0	-10.7	-47%	4.2
Suriname	2.8	2.4	2.2	1.6	-1.2	-42%	3.6
Swaziland	21.0	21.2	14.2	9.7	-11.3	-54%	5.2
Syrian Arab Republic	3.3	2.2	1.5	1.0	-2.3	-70%	8.0
Thailand	3.0	2.0	1.5	1.1	-1.8	-61%	6.4
Timor-Leste	24.6	18.4	15.3	10.6	-14.0	-57%	5.6
Togo	15.2	13.3	11.5	11.8	-3.4	-22%	1.7
Tonga	2.3	1.8	1.9	1.8	-0.4	-18%	1.3
Trinidad and Tobago	0.9	2.1	1.8	1.6	0.7	72%	-3.6
Tunisia	4.9	2.7	1.8	1.1	-3.8	-77%	9.8
Tuvalu	7.6	5.9	3.9	3.5	-4.1	-54%	5.2
Uganda	20.3	15.0	11.2	8.6	-11.7	-58%	5.7
United Arab Emirates	0.6	0.4	0.4	0.3	-0.3	-57%	5.6
United Republic of Tanzania	23.2	17.1	10.7	7.0	-16.2	-70%	8.0
Uruguay	1.5	1.4	1.1	0.6	-0.9	-57%	5.7

Country	Pneumonia mortality among children under-five				Difference between 2000 and 2015		
	2000	2005	2010	2015	Absolute difference	Relative difference	Annual Rate of Change*
Vanuatu	4.4	4.1	4.1	3.9	-0.5	-12%	0.9
Venezuela (Bolivarian Republic of)	1.7	1.8	1.8	1.6	-0.1	-8%	0.6
Viet Nam	7.3	5.1	3.7	3.1	-4.2	-58%	5.8
Yemen	22.0	14.5	10.0	6.5	-15.5	-70%	8.1
Zambia	27.6	17.4	14.4	9.8	-17.8	-65%	6.9
Zimbabwe	13.0	15.2	13.7	10.2	-2.8	-21%	1.6

Supplementary table 19: Pneumonia deaths among children under-five for all countries and selected regions, 2000-2015

Level	Country	Pneumonia deaths among children under-five			
		2000	2005	2010	2015
Region	Low income region*	442418	397618	336014	281143
	Middle income region*	1291163	1032085	833061	636871
	Developing countries	1694792	1401246	1146196	898291
	Africa [#]	645206	602249	547266	463098
	Southeast Asia [#]	628004	479342	343430	234841
Country	Afghanistan	28942	29981	25105	18671
	Angola	30484	36275	34571	29502
	Albania	266	135	72	74
	Andorra	0	0	0	0
	United Arab Emirates	31	27	33	25
	Argentina	968	886	823	708
	Armenia	218	170	106	62
	Antigua and Barbuda	0	1	0	0
	Australia	40	42	42	31
	Austria	8	1	6	4
	Azerbaijan	1877	1182	1041	881
	Burundi	7522	7086	7322	5913
	Belgium	8	18	15	9
	Benin	7229	6413	6555	5702
	Burkina Faso	9774	11872	7856	7761
	Bangladesh	62632	45036	25034	17352
	Bulgaria	290	219	195	108
	Bahrain	3	6	7	3
	Bahamas	19	9	15	9
	Bosnia and Herzegovina	35	17	19	9
	Belarus	181	96	50	34
	Belize	24	14	13	11

Level	Country	Pneumonia deaths among children under-five			
		2000	2005	2010	2015
	Bolivia (Plurinational State of)	3728	2594	1903	1304
	Brazil	14929	7549	3415	4773
	Barbados	0	3	1	1
	Brunei Darussalam	3	3	3	3
	Bhutan	277	172	114	60
	Botswana	330	391	429	307
	Central African Republic	3135	2978	3420	3368
	Canada	52	40	43	38
	Switzerland	6	8	7	4
	Chile	276	142	89	67
	China	118092	60173	33332	22242
	Cote d'Ivoire	9279	8641	9323	10935
	Cameroon	16115	14747	14227	11071
	Democratic Republic of the Congo	41587	38820	44934	46226
	Congo	2202	2101	1407	971
	Cook Islands	1	1	0	0
	Colombia	2631	1973	1372	1217
	Comoros	373	403	330	300
	Cabo Verde	76	49	49	37
	Costa Rica	74	51	34	33
	Cuba	81	88	75	72
	Cyprus	4	2	1	1
	Czech Republic	21	24	36	20
	Germany	74	68	41	47
	Djibouti	367	325	235	184
	Dominica	0	1	0	1
	Denmark	9	7	3	2
	Dominican Republic	1164	884	782	700

Level	Country	Pneumonia deaths among children under-five			
		2000	2005	2010	2015
	Algeria	3723	3303	3117	3130
	Ecuador	1573	1153	1059	861
	Egypt	15545	10894	8216	8375
	Eritrea	2402	2388	1824	1551
	Spain	49	39	43	23
	Estonia	10	4	6	2
	Ethiopia	86397	68880	44478	31427
	Finland	4	6	6	3
	Fiji	53	51	57	47
	France	61	65	59	60
	Micronesia (Federated States of)	29	22	15	12
	Gabon	397	445	396	355
	United Kingdom	185	167	178	123
	Georgia	329	189	104	54
	Ghana	7923	8013	7740	6450
	Guinea	8732	8403	7050	7008
	Gambia	998	977	836	766
	Guinea-Bissau	1523	1591	1178	1028
	Equatorial Guinea	485	381	463	418
	Greece	24	32	17	16
	Grenada	3	2	1	2
	Guatemala	4456	3190	2566	2146
	Guyana	74	52	31	44
	Honduras	1156	753	539	372
	Croatia	24	15	8	4
	Haiti	6537	5412	6037	4021
	Hungary	70	55	25	26
	Indonesia	44917	34851	27372	25000

Level	Country	Pneumonia deaths among children under-five			
		2000	2005	2010	2015
	India	481539	371044	270948	178994
	Ireland	13	12	13	5
	Iran (Islamic Republic of)	7320	4644	3877	3098
	Iraq	6354	6191	6648	5874
	Iceland	0	0	0	0
	Israel	15	24	9	12
	Italy	53	38	27	25
	Jamaica	68	56	56	41
	Jordan	481	359	347	327
	Japan	357	279	224	185
	Kazakhstan	1687	1574	1151	726
	Kenya	21276	17415	14681	10507
	Kyrgyzstan	992	701	591	509
	Cambodia	7405	4632	2739	1694
	Kiribati	37	27	38	27
	Saint Kitts and Nevis	1	0	0	0
	Republic of Korea	188	77	59	39
	Kuwait	35	23	41	56
	Lao People's Democratic Republic	4314	3748	2989	2006
	Lebanon	132	75	33	46
	Liberia	2845	2492	2242	1737
	Libya	369	278	187	127
	Saint Lucia	2	3	3	2
	Sri Lanka	550	426	264	193
	Lesotho	1086	1078	942	955
	Lithuania	37	29	6	10
	Luxembourg	0	0	0	0
	Latvia	15	23	7	5

Level	Country	Pneumonia deaths among children under-five			
		2000	2005	2010	2015
	Morocco	5299	3834	2864	2246
	Monaco	0	0	0	0
	Republic of Moldova	393	229	145	108
	Madagascar	15968	12599	9220	6951
	Maldives	45	18	9	5
	Mexico	10458	6895	4877	3459
	Marshall Islands	15	13	10	8
	The former Yugoslav Republic of Macedonia	34	23	15	8
	Mali	17781	16339	15731	10766
	Malta	1	1	0	1
	Myanmar	17745	15336	11019	7516
	Montenegro	3	4	2	1
	Mongolia	594	361	288	236
	Mozambique	17254	17590	14809	11757
	Mauritania	2162	2438	2169	1616
	Mauritius	13	21	21	21
	Malawi	13366	7975	7031	5416
	Malaysia	484	271	204	185
	Namibia	659	661	596	618
	Niger	25830	25072	19325	18290
	Nigeria	145231	149071	157059	133239
	Nicaragua	993	693	574	431
	Niue	0	0	0	0
	Netherlands	28	25	22	13
	Norway	10	7	3	3
	Nepal	12038	8004	5208	2946
	Nauru	1	1	1	1
	New Zealand	23	25	24	22

Level	Country	Pneumonia deaths among children under-five			
		2000	2005	2010	2015
	Oman	102	57	55	60
	Pakistan	93923	84850	78094	63960
	Panama	185	194	228	170
	Peru	3952	2199	1487	1076
	Philippines	19200	17475	15141	12224
	Palau	1	1	0	0
	Papua New Guinea	2300	2516	2264	1934
	Poland	167	128	110	85
	Democratic People's Republic of Korea	4637	2146	1854	1383
	Portugal	29	19	7	6
	Paraguay	705	488	401	305
	Qatar	8	6	7	9
	Romania	2186	1190	865	526
	Russian Federation	4632	2725	1615	1290
	Rwanda	12710	6657	3573	1929
	Saudi Arabia	1284	857	675	491
	Sudan	24491	24467	20654	15551
	Senegal	9729	8264	5567	3984
	Singapore	16	26	11	20
	Solomon Islands	75	86	95	85
	Sierra Leone	5914	6766	4864	3714
	El Salvador	835	456	301	215
	San Marino	0	0	0	0
	Somalia	12480	14883	17018	14669
	Serbia	86	55	30	30
	South Sudan	9754	8600	8493	8058
	Sao Tome and Principe	72	59	44	35
	Suriname	31	24	22	16

Level	Country	Pneumonia deaths among children under-five			
		2000	2005	2010	2015
	Slovakia	68	52	34	35
	Slovenia	0	1	2	1
	Sweden	6	10	11	14
	Swaziland	696	721	517	354
	Seychelles	1	1	1	1
	Syrian Arab Republic	1749	1017	806	427
	Chad	15765	18810	19393	19275
	Togo	2831	2857	2716	2962
	Thailand	2651	1725	1149	843
	Tajikistan	4031	2508	2100	2048
	Turkmenistan	1621	1689	1138	983
	Timor-Leste	972	584	460	550
	Tonga	6	5	5	5
	Trinidad and Tobago	17	43	36	30
	Tunisia	822	451	331	234
	Turkey	4489	2440	1030	725
	Tuvalu	2	1	1	1
	United Republic of Tanzania	31096	27617	19171	14322
	Uganda	22161	19172	16025	13659
	Ukraine	1111	660	601	331
	Uruguay	79	73	53	31
	United States of America	988	1018	832	675
	Uzbekistan	6539	5293	4515	3909
	Saint Vincent and the Grenadines	2	1	2	2
	Venezuela (Bolivarian Republic of)	1014	1051	1047	965
	Viet Nam	8603	7754	5685	4808
	Vanuatu	26	25	32	26
	Samoa	15	11	10	8

Level	Country	Pneumonia deaths among children under-five			
		2000	2005	2010	2015
	Yemen	14202	10937	8027	5373
	South Africa	12851	10431	10521	7105
	Zambia	12365	8815	8202	6020
	Zimbabwe	5108	6570	6847	5582

* World Bank region, # WHO region

Supplementary table 20: Pneumonia mortality among children under-five for all countries and selected regions, 2000-2015

Level	Country	Pneumonia deaths among children under-five			
		2000	2005	2010	2015
Region	Low income region*	25.5	21.0	16.2	12.6
	Middle income region*	13.1	10.2	8.2	6.1
	Developing countries	15.2	12.1	9.7	7.4
	Africa [#]	24.6	20.8	16.9	13.2
	Southeast Asia [#]	15.9	12.3	9.1	6.4
Country	Afghanistan	30.8	28.4	23.0	18.3
	Angola	41.3	41.9	34.9	27.0
	Albania	5.1	3.4	2.2	1.6
	Andorra	0.1	0.2	0.1	0.1
	United Arab Emirates	0.6	0.4	0.4	0.3
	Argentina	1.4	1.2	1.1	0.9
	Armenia	6.2	3.7	2.3	1.5
	Antigua and Barbuda	0.0	0.6	0.3	0.3
	Australia	0.2	0.2	0.1	0.1
	Austria	0.1	0.0	0.1	0.1
	Azerbaijan	15.0	9.0	6.3	3.8
	Burundi	27.2	21.8	17.9	12.8
	Belgium	0.1	0.1	0.1	0.1
	Benin	25.3	19.9	18.7	15.2
	Burkina Faso	19.0	20.5	12.2	11.3
	Bangladesh	17.3	12.9	7.9	5.4
	Bulgaria	4.4	3.3	2.5	1.8
	Bahrain	0.2	0.4	0.4	0.1
	Bahamas	3.7	1.6	2.3	1.6
	Bosnia and Herzegovina	0.7	0.7	0.4	0.3
	Belarus	2.0	1.0	0.5	0.3
	Belize	3.1	1.9	1.7	1.4

Level	Country	Pneumonia deaths among children under-five			
		2000	2005	2010	2015
	Bolivia (Plurinational State of)	14.7	10.4	7.6	5.3
	Brazil	3.9	2.2	1.2	1.5
	Barbados	0.0	0.8	0.4	0.3
	Brunei Darussalam	0.5	0.4	0.5	0.4
	Bhutan	17.5	11.7	7.5	4.9
	Botswana	7.0	8.4	8.3	5.3
	Central African Republic	21.7	20.5	23.2	20.5
	Canada	0.2	0.1	0.1	0.1
	Switzerland	0.1	0.1	0.1	0.0
	Chile	1.1	0.6	0.4	0.3
	China	7.6	3.5	2.1	1.3
	Cote d'Ivoire	14.0	12.6	12.6	13.2
	Cameroon	25.6	20.7	18.6	13.5
	Democratic Republic of the Congo	19.3	15.5	16.0	14.8
	Congo	18.8	16.1	9.4	5.9
	Cook Islands	1.8	1.8	0.8	0.4
	Colombia	3.2	2.3	1.8	1.6
	Comoros	18.3	18.3	13.6	11.5
	Cabo Verde	6.0	4.4	4.3	3.4
	Costa Rica	0.9	0.7	0.5	0.5
	Cuba	0.5	0.7	0.6	0.6
	Cyprus	0.4	0.2	0.1	0.1
	Czech Republic	0.3	0.2	0.3	0.2
	Germany	0.1	0.1	0.1	0.1
	Djibouti	16.8	14.5	11.1	8.3
	Dominica	0.5	0.8	0.1	0.8
	Denmark	0.1	0.1	0.0	0.0
	Dominican Republic	5.6	3.9	3.6	3.2

Level	Country	Pneumonia deaths among children under-five			
		2000	2005	2010	2015
	Algeria	6.6	5.0	3.4	3.3
	Ecuador	5.0	3.7	3.2	2.6
	Egypt	9.1	5.6	4.1	3.0
	Eritrea	19.4	15.1	10.8	9.3
	Spain	0.1	0.1	0.1	0.1
	Estonia	0.8	0.3	0.3	0.2
	Ethiopia	29.6	23.6	15.0	10.0
	Finland	0.1	0.1	0.1	0.1
	Fiji	2.7	2.6	2.9	2.8
	France	0.1	0.1	0.1	0.1
	Micronesia (Federated States of)	9.0	8.1	6.0	5.1
	Gabon	9.9	10.6	8.3	6.9
	United Kingdom	0.3	0.2	0.2	0.2
	Georgia	6.4	3.3	1.6	1.0
	Ghana	12.7	11.1	9.8	7.2
	Guinea	24.2	22.1	17.1	15.4
	Gambia	18.4	15.7	11.7	9.3
	Guinea-Bissau	29.8	28.8	19.7	15.8
	Equatorial Guinea	23.6	16.9	17.7	14.7
	Greece	0.2	0.3	0.1	0.2
	Grenada	1.5	1.3	0.4	0.8
	Guatemala	11.2	7.8	6.3	4.8
	Guyana	4.0	3.4	2.8	2.6
	Honduras	5.9	4.1	3.1	2.3
	Croatia	0.4	0.4	0.2	0.1
	Haiti	24.6	20.8	22.1	15.6
	Hungary	0.8	0.5	0.3	0.3
	Indonesia	10.3	7.8	5.9	4.6

Level	Country	Pneumonia deaths among children under-five			
		2000	2005	2010	2015
	India	17.3	13.5	10.2	7.1
	Ireland	0.2	0.2	0.2	0.1
	Iran (Islamic Republic of)	5.7	3.8	2.8	2.3
	Iraq	7.5	6.9	6.0	4.8
	Iceland	0.0	0.1	0.0	0.0
	Israel	0.1	0.2	0.1	0.1
	Italy	0.1	0.1	0.0	0.1
	Jamaica	1.2	1.2	1.2	1.0
	Jordan	3.2	2.4	1.9	1.6
	Japan	0.3	0.3	0.2	0.2
	Kazakhstan	8.0	5.4	3.1	1.9
	Kenya	18.2	13.0	10.2	6.9
	Kyrgyzstan	9.1	6.7	4.1	3.0
	Cambodia	23.8	13.6	7.2	4.7
	Kiribati	14.2	15.3	10.4	9.5
	Saint Kitts and Nevis	0.5	0.3	0.2	0.0
	Republic of Korea	0.4	0.2	0.1	0.1
	Kuwait	0.8	0.5	0.6	0.8
	Lao People's Democratic Republic	26.8	23.0	16.2	11.6
	Lebanon	2.2	1.2	0.7	0.5
	Liberia	23.5	19.5	15.7	11.5
	Libya	3.1	2.2	1.3	1.0
	Saint Lucia	0.7	1.1	1.1	0.8
	Sri Lanka	1.6	1.1	0.7	0.6
	Lesotho	18.4	20.9	16.6	15.3
	Lithuania	1.1	0.9	0.2	0.3
	Luxembourg	0.0	0.0	0.0	0.0
	Latvia	0.8	0.9	0.3	0.3

Level	Country	Pneumonia deaths among children under-five			
		2000	2005	2010	2015
	Morocco	8.7	6.3	4.1	3.1
	Monaco	0.0	0.0	0.3	0.1
	Republic of Moldova	8.3	5.4	3.1	2.5
	Madagascar	24.8	18.9	12.6	8.5
	Maldives	7.3	2.8	1.2	0.6
	Mexico	4.2	2.9	2.1	1.5
	Marshall Islands	6.9	6.8	6.3	6.0
	The former Yugoslav Republic of Macedonia	1.3	0.9	0.7	0.3
	Mali	35.1	27.7	23.1	14.8
	Malta	0.1	0.3	0.0	0.1
	Myanmar	15.3	13.2	11.2	8.2
	Montenegro	0.3	0.5	0.3	0.2
	Mongolia	12.4	7.5	4.3	3.3
	Mozambique	21.7	19.8	15.2	11.1
	Mauritania	21.4	21.5	17.6	12.3
	Mauritius	0.7	1.0	1.5	1.5
	Malawi	28.2	15.6	11.7	8.6
	Malaysia	0.9	0.6	0.5	0.3
	Namibia	11.6	11.3	9.3	8.3
	Niger	45.1	37.6	24.4	19.2
	Nigeria	28.8	26.1	24.9	19.0
	Nicaragua	7.3	5.4	4.4	3.6
	Niue	6.5	0.9	6.9	5.5
	Netherlands	0.1	0.1	0.1	0.1
	Norway	0.2	0.1	0.0	0.1
	Nepal	15.7	11.7	8.2	5.3
	Nauru	6.8	6.5	4.9	4.7
	New Zealand	0.4	0.4	0.4	0.4

Level	Country	Pneumonia deaths among children under-five			
		2000	2005	2010	2015
	Oman	1.9	1.1	0.8	0.7
	Pakistan	21.0	19.7	14.8	11.9
	Panama	2.5	2.9	3.0	2.3
	Peru	6.5	3.6	2.5	1.7
	Philippines	8.4	7.3	6.7	5.2
	Palau	2.6	2.1	2.1	1.2
	Papua New Guinea	12.3	13.2	10.9	9.2
	Poland	0.5	0.4	0.2	0.2
	Democratic People's Republic of Korea	11.9	5.6	5.6	3.7
	Portugal	0.3	0.2	0.1	0.1
	Paraguay	4.8	3.8	2.8	2.3
	Qatar	0.6	0.5	0.4	0.3
	Romania	8.2	5.8	4.0	3.2
	Russian Federation	3.1	1.8	1.0	0.7
	Rwanda	36.0	20.7	9.6	5.7
	Saudi Arabia	2.2	1.5	1.1	0.8
	Sudan	22.7	20.5	16.9	12.0
	Senegal	25.5	19.0	11.4	6.9
	Singapore	0.4	0.6	0.2	0.4
	Solomon Islands	5.4	5.5	5.6	5.1
	Sierra Leone	34.1	32.7	22.0	17.0
	El Salvador	6.0	3.9	2.6	2.1
	San Marino	0.3	0.1	0.1	0.1
	Somalia	34.9	39.9	39.4	32.9
	Serbia	0.7	0.6	0.3	0.3
	South Sudan	34.6	27.6	22.6	18.6
	Sao Tome and Principe	13.7	10.4	7.6	5.5
	Suriname	2.8	2.4	2.2	1.6

Level	Country	Pneumonia deaths among children under-five			
		2000	2005	2010	2015
	Slovakia	1.4	0.9	0.6	0.6
	Slovenia	0.0	0.0	0.1	0.1
	Sweden	0.1	0.1	0.1	0.1
	Swaziland	21.0	21.2	14.2	9.7
	Seychelles	0.9	0.8	0.6	0.7
	Syrian Arab Republic	3.3	2.2	1.5	1.0
	Chad	38.9	39.5	35.9	31.8
	Togo	15.2	13.3	11.5	11.8
	Thailand	3.0	2.0	1.5	1.1
	Tajikistan	21.1	14.1	9.1	7.6
	Turkmenistan	18.1	13.9	11.3	8.6
	Timor-Leste	24.6	18.4	15.3	10.6
	Tonga	2.3	1.8	1.9	1.8
	Trinidad and Tobago	0.9	2.1	1.8	1.6
	Tunisia	4.9	2.7	1.8	1.1
	Turkey	3.2	1.9	0.8	0.5
	Tuvalu	7.6	5.9	3.9	3.5
	United Republic of Tanzania	23.2	17.1	10.7	7.0
	Uganda	20.3	15.0	11.2	8.6
	Ukraine	2.8	1.6	1.0	0.8
	Uruguay	1.5	1.4	1.1	0.6
	United States of America	0.3	0.2	0.2	0.2
	Uzbekistan	12.1	9.8	6.8	5.8
	Saint Vincent and the Grenadines	0.7	0.5	0.8	1.0
	Venezuela (Bolivarian Republic of)	1.7	1.8	1.8	1.6
	Viet Nam	7.3	5.1	3.7	3.1
	Vanuatu	4.4	4.1	4.1	3.9
	Samoa	2.9	2.0	1.8	1.7

Level	Country	Pneumonia deaths among children under-five			
		2000	2005	2010	2015
	Yemen	22.0	14.5	10.0	6.5
	South Africa	11.0	10.1	8.5	7.0
	Zambia	27.6	17.4	14.4	9.8
	Zimbabwe	13.0	15.2	13.7	10.2

* World Bank region, # WHO region

Supplementary table 21: Pneumonia-specific mortality and number of deaths due to pneumonia among children under-five, assuming no Hib/PCV coverage, in 2000 and 2015

Country	Pneumonia mortality among children under-five (per 1,000 livebirths)		Pneumonia deaths among children under-five	
	2000	2015	2000	2015
Afghanistan	30.8	22.1	28942	22608
Angola	41.3	35.5	30484	38768
Albania	5.1	2.3	266	102
Andorra	0.1	0.1	0	0
United Arab Emirates	0.7	0.4	37	38
Argentina	1.6	1.3	1112	1011
Armenia	6.2	1.7	218	71
Antigua and Barbuda	0.0	0.3	0	0
Australia	0.2	0.2	46	47
Austria	0.1	0.1	8	5
Azerbaijan	15.0	4.9	1877	1143
Burundi	27.2	18.2	7522	8431
Belgium	0.1	0.1	9	12
Benin	25.3	19.7	7229	7424
Burkina Faso	19.0	16.2	9774	11097
Bangladesh	17.3	6.2	62632	19778
Bulgaria	4.4	2.5	290	152
Bahrain	0.3	0.2	4	5
Bahamas	4.1	2.3	21	13
Bosnia and Herzegovina	0.7	0.3	35	9
Belarus	2.0	0.3	181	36
Belize	3.1	1.6	24	13
Bolivia (Plurinational State of)	16.7	6.9	4236	1705
Brazil	4.5	2.1	17187	6888
Barbados	0.0	0.5	0	2
Brunei Darussalam	0.5	0.4	3	3
Bhutan	17.5	5.7	277	71
Botswana	7.0	7.3	330	423
Central African Republic	21.7	24.0	3135	3940
Canada	0.2	0.1	60	55
Switzerland	0.1	0.1	7	5
Chile	1.3	0.4	321	91
China	7.6	1.3	118092	22242
Cote d'Ivoire	14.0	14.7	9279	12209
Cameroon	25.6	19.1	16115	15655
Democratic Republic of the Congo	19.3	19.0	41587	59358
Congo	18.8	8.0	2202	1308
Cook Islands	1.8	0.5	1	0

Colombia	3.6	2.3	2911	1688
Comoros	18.3	12.7	373	333
Cabo Verde	6.0	3.9	76	43
Costa Rica	1.1	0.6	86	43
Cuba	0.6	0.7	92	82
Cyprus	0.4	0.1	5	1
Czech Republic	0.3	0.2	21	23
Germany	0.1	0.1	87	66
Djibouti	16.8	10.8	367	239
Dominica	0.5	1.0	0	1
Denmark	0.2	0.1	10	3
Dominican Republic	5.6	3.8	1164	823
Algeria	6.6	3.8	3723	3630
Ecuador	5.0	3.6	1573	1191
Egypt	9.1	3.0	15545	8375
Eritrea	19.4	10.8	2402	1799
Spain	0.1	0.1	55	26
Estonia	0.8	0.2	10	2
Ethiopia	29.6	12.5	86397	39430
Finland	0.1	0.1	5	5
Fiji	3.1	3.9	61	67
France	0.1	0.1	70	89
Micronesia (Federated States of)	10.1	6.3	33	15
Gabon	9.9	7.7	397	398
United Kingdom	0.3	0.2	210	176
Georgia	6.4	1.1	329	62
Ghana	12.7	10.3	7923	9267
Guinea	24.2	16.7	8732	7617
Gambia	21.4	13.3	1161	1098
Guinea-Bissau	29.8	17.9	1523	1165
Equatorial Guinea	23.6	15.2	485	435
Greece	0.3	0.2	27	26
Grenada	1.6	0.9	3	2
Guatemala	11.2	6.0	4456	2679
Guyana	4.0	3.5	74	60
Honduras	7.0	3.2	1360	524
Croatia	0.4	0.1	24	5
Haiti	24.6	16.8	6537	4325
Hungary	1.0	0.4	82	37
Indonesia	10.3	4.7	44917	25806
India	17.6	7.7	490274	193883
Ireland	0.2	0.1	14	6
Iran (Islamic Republic of)	5.7	2.3	7320	3098
Iraq	7.5	5.3	6354	6473
Iceland	0.0	0.0	0	0
Israel	0.1	0.1	17	18
Italy	0.1	0.1	59	35

Jamaica	1.2	1.2	68	46
Jordan	3.2	1.8	481	381
Japan	0.3	0.2	357	185
Kazakhstan	8.0	2.5	1687	961
Kenya	18.2	9.1	21276	13842
Kyrgyzstan	9.1	3.4	992	591
Cambodia	23.8	5.5	7405	1973
Kiribati	14.2	12.1	37	34
Saint Kitts and Nevis	0.5	0.0	1	0
Republic of Korea	0.4	0.1	188	39
Kuwait	0.9	1.2	42	84
Lao People's Democratic Republic	26.8	15.3	4314	2646
Lebanon	2.2	0.5	132	53
Liberia	23.5	13.5	2845	2040
Libya	3.1	1.3	369	162
Saint Lucia	0.7	0.9	2	3
Sri Lanka	1.6	0.7	550	224
Lesotho	18.4	17.9	1086	1119
Lithuania	1.1	0.3	38	10
Luxembourg	0.0	0.0	0	0
Latvia	0.9	0.4	16	7
Morocco	8.7	4.2	5299	3021
Monaco	0.0	0.1	0	0
Republic of Moldova	8.3	2.7	393	119
Madagascar	24.8	10.8	15968	8872
Maldives	7.3	0.7	45	5
Mexico	5.0	2.0	12390	4809
Marshall Islands	7.4	7.1	16	10
The former Yugoslav Republic of Macedonia	1.3	0.4	34	9
Mali	35.1	20.0	17781	14529
Malta	0.1	0.2	1	1
Myanmar	15.3	9.1	17745	8380
Montenegro	0.3	0.2	3	1
Mongolia	12.4	3.9	594	279
Mozambique	21.7	14.4	17254	15323
Mauritania	21.4	16.9	2162	2226
Mauritius	0.7	1.7	13	24
Malawi	28.2	12.0	13366	7551
Malaysia	0.9	0.4	484	219
Namibia	11.6	9.6	659	720
Niger	45.1	21.9	25830	20850
Nigeria	28.8	21.3	145231	148937
Nicaragua	8.4	5.3	1140	632
Niue	7.9	8.2	0	0
Netherlands	0.2	0.1	31	19
Norway	0.2	0.1	10	5
Nepal	15.7	6.1	12038	3355

Nauru	6.8	5.5	1	1
New Zealand	0.5	0.5	26	28
Oman	1.9	1.2	102	93
Pakistan	21.0	14.8	93923	79726
Panama	2.5	2.8	185	212
Peru	6.9	2.4	4231	1467
Philippines	8.4	5.9	19200	13910
Palau	3.0	1.6	1	1
Papua New Guinea	12.3	10.1	2300	2123
Poland	0.5	0.3	167	101
Democratic People's Republic of Korea	11.9	4.2	4637	1592
Portugal	0.3	0.1	32	8
Paraguay	4.8	3.1	705	419
Qatar	0.8	0.5	9	14
Romania	8.2	3.7	2186	607
Russian Federation	3.1	0.7	4632	1328
Rwanda	36.0	8.3	12710	2807
Saudi Arabia	2.2	1.2	1284	734
Sudan	22.7	16.8	24491	21733
Senegal	25.5	9.4	9729	5474
Singapore	0.4	0.4	16	20
Solomon Islands	5.4	5.8	75	97
Sierra Leone	34.1	23.6	5914	5154
El Salvador	6.0	2.9	835	304
San Marino	0.3	0.2	0	0
Somalia	34.9	34.9	12480	15567
Serbia	0.7	0.4	86	34
South Sudan	34.6	18.6	9754	8058
Sao Tome and Principe	13.7	7.8	72	49
Suriname	2.8	1.9	31	19
Slovakia	1.5	0.9	74	51
Slovenia	0.0	0.1	0	2
Sweden	0.1	0.2	7	20
Swaziland	21.0	13.5	696	494
Seychelles	0.9	0.9	1	1
Syrian Arab Republic	3.3	1.1	1749	453
Chad	38.9	34.2	15765	20707
Togo	15.2	14.7	2831	3675
Thailand	3.0	1.1	2651	843
Tajikistan	21.1	8.9	4031	2390
Turkmenistan	18.1	10.2	1621	1162
Timor-Leste	24.6	11.9	972	620
Tonga	2.3	2.2	6	6
Trinidad and Tobago	1.0	1.9	18	37
Tunisia	4.9	1.3	822	272
Turkey	3.2	0.7	4489	1045
Tuvalu	7.6	3.9	2	1

United Republic of Tanzania	23.2	10.0	31096	20593
Uganda	20.3	10.7	22161	17041
Ukraine	2.8	0.9	1111	368
Uruguay	1.7	0.9	92	45
United States of America	0.3	0.3	1168	1048
Uzbekistan	12.1	6.9	6539	4586
Saint Vincent and the Grenadines	0.7	1.2	2	2
Venezuela (Bolivarian Republic of)	1.8	1.8	1017	1068
Viet Nam	7.3	3.3	8603	5207
Vanuatu	4.4	4.3	26	29
Samoa	2.9	2.0	15	9
Yemen	22.0	8.7	14202	7154
South Africa	12.4	9.1	14564	9248
Zambia	27.6	13.2	12365	8140
Zimbabwe	13.0	14.3	5108	7819

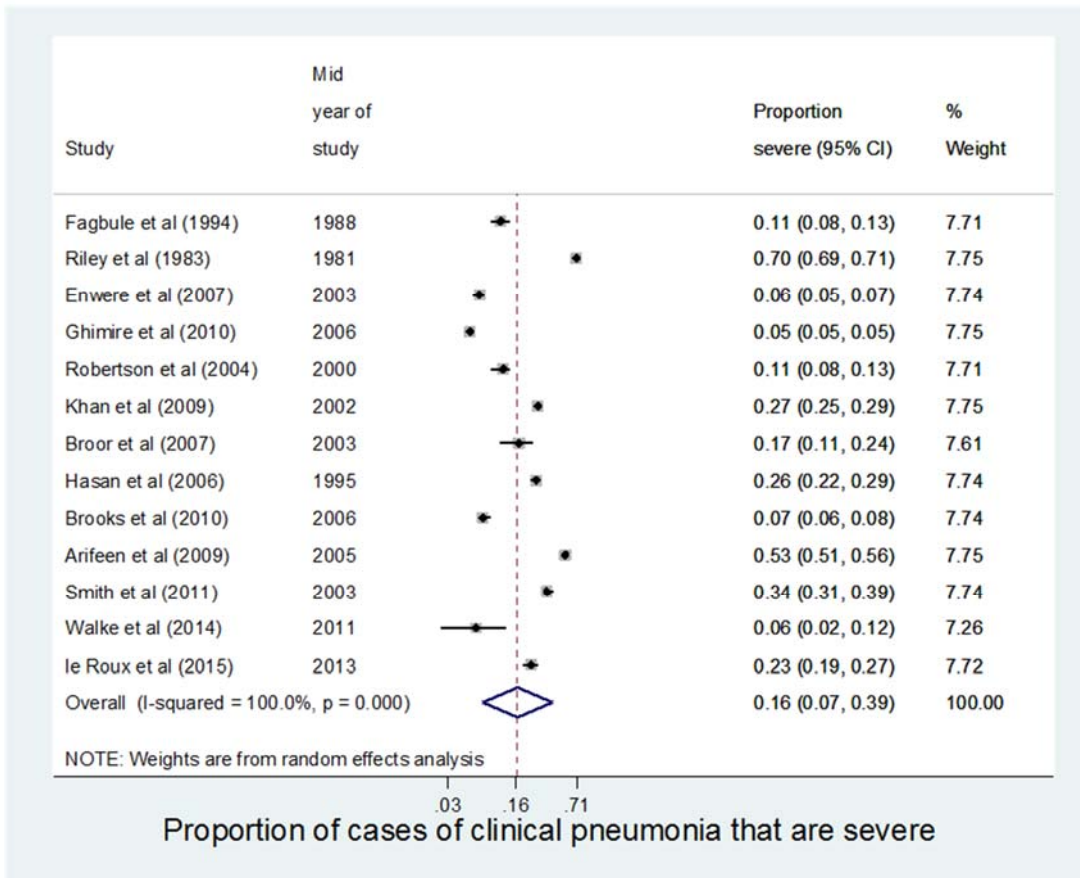


Checklist of information that should be included in new reports of global health estimates

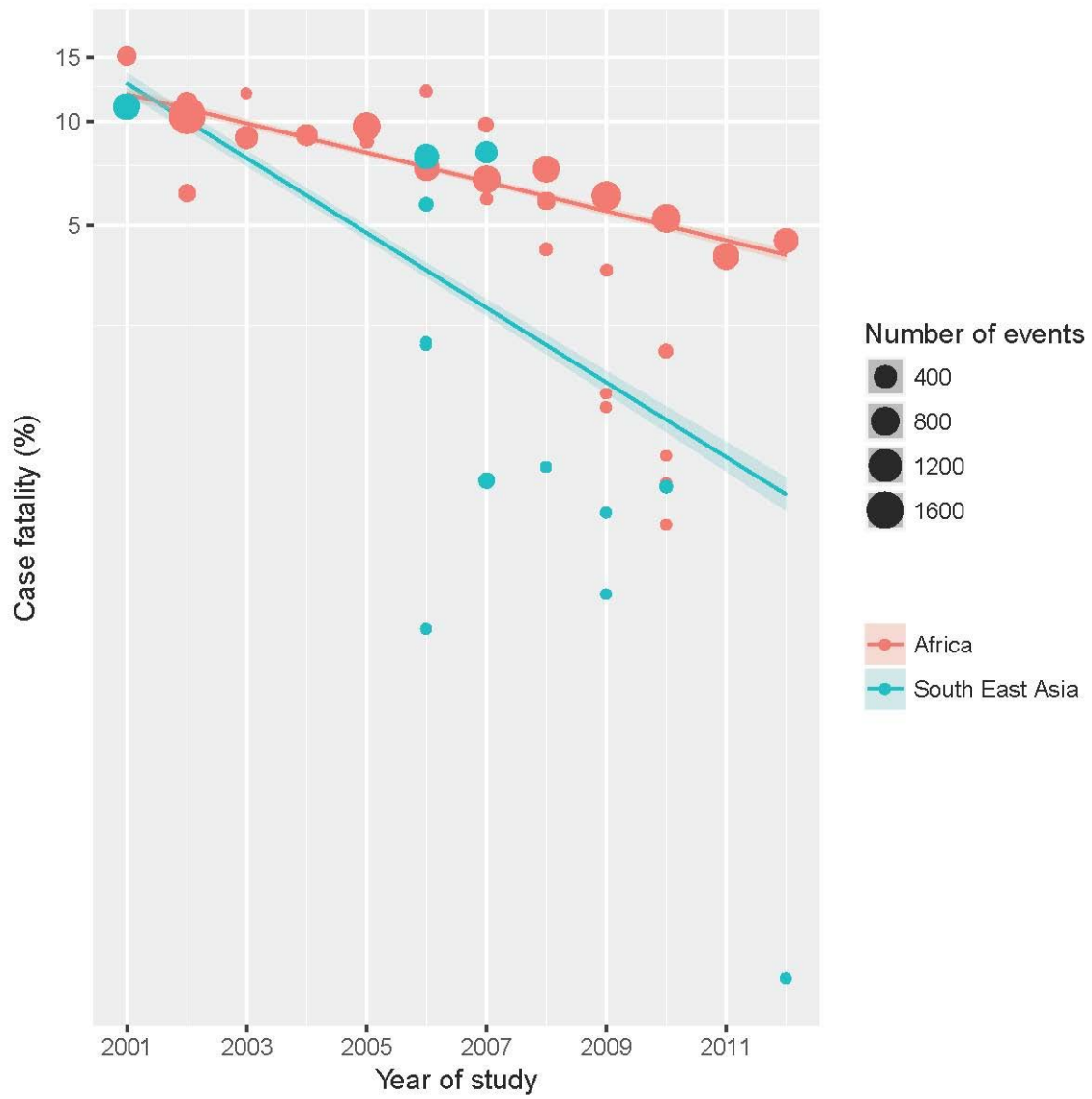
Item #	Checklist item	Reported on page #
Objectives and funding		
1	Define the indicator(s), populations (including age, sex, and geographic entities), and time period(s) for which estimates were made.	4-5
2	List the funding sources for the work.	13
Data Inputs		
<i>For all data inputs from multiple sources that are synthesized as part of the study:</i>		
3	Describe how the data were identified and how the data were accessed.	4-5, 17
4	Specify the inclusion and exclusion criteria. Identify all ad-hoc exclusions.	22
5	Provide information on all included data sources and their main characteristics. For each data source used, report reference information or contact name/institution, population represented, data collection method, year(s) of data collection, sex and age range, diagnostic criteria or measurement method, and sample size, as relevant.	Supplementary material p 7-16, 57-64, 67-69
6	Identify and describe any categories of input data that have potentially important biases (e.g., based on characteristics listed in item 5).	10-12
<i>For data inputs that contribute to the analysis but were not synthesized as part of the study:</i>		
7	Describe and give sources for any other data inputs.	5
<i>For all data inputs:</i>		
8	Provide all data inputs in a file format from which data can be efficiently extracted (e.g., a spreadsheet rather than a PDF), including all relevant meta-data listed in item 5. For any data inputs that cannot be shared because of ethical or legal reasons, such as third-party ownership, provide a contact name or the name of the institution that retains the right to the data.	We will provide a weblink to Edinburgh Datashare which will be active for public when paper is published.
Data analysis		
9	Provide a conceptual overview of the data analysis method. A diagram may be helpful.	4-6
10	Provide a detailed description of all steps of the analysis, including mathematical formulae. This description should cover, as relevant, data cleaning, data pre-processing, data adjustments and weighting of data sources, and mathematical or statistical model(s).	4-6, Supplementary material p 2-6
11	Describe how candidate models were evaluated and how the final model(s) were selected.	4-6
12	Provide the results of an evaluation of model performance, if done, as well as the results of any relevant sensitivity analysis.	101-105
13	Describe methods for calculating uncertainty of the estimates. State which sources of uncertainty were, and were not, accounted for in the uncertainty analysis.	5, 10

14	State how analytic or statistical source code used to generate estimates can be accessed.	Codes are on git hub. We will provide a weblink which will be active for public when paper is published.
Results and Discussion		
15	Provide published estimates in a file format from which data can be efficiently extracted.	We will provide a weblink to Edinburgh Datashare which will be active for public when paper is published.
16	Report a quantitative measure of the uncertainty of the estimates (e.g. uncertainty intervals).	6-9
17	Interpret results in light of existing evidence. If updating a previous set of estimates, describe the reasons for changes in estimates.	10
18	Discuss limitations of the estimates. Include a discussion of any modelling assumptions or data limitations that affect interpretation of the estimates.	10-12

This checklist should be used in conjunction with the GATHER statement and Explanation and Elaboration document, found on gather-statement.org



Supplementary figure 1: Studies reporting the proportion of children with clinical pneumonia having severe pneumonia (lower chest wall indrawing)



Supplementary figure 3: In-hospital case fatality ratio for child pneumonia in South-east Asia and Africa regions of WHO (2001-2012) on logit scale. The size of circle indicates number of pneumonia cases. The solid lines indicate trend and shaded areas indicate uncertainty range

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