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Trends In Non-polio Acute Flaccid Paralysis Incidence In India

Corresponding Author:
Dr. V. Sreenivas,
Associate Professor, Department of Biostatistics, All India Institute of Medical Sciences, New Delhi , Department of Bio-statistics, All India Institute of Medical Sciences, New Delhi 110029, 110029 - India

Submitting Author:
Dr. Jacob Puliyel,
Head of Pediatrics, Department of Pediatrics, St Stephens Hospital, St Stephens Hospital, Tis Hazari, Delhi 110054, 110054 - India

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JP conceived the study and planned it with NV and VS. NV collected the data, VS did the statistical analysis with NV, NV wrote the first draft of the paper that was revised by JP and VS. The final draft is approved by all the authors. VS and JP are guarantors.

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None

Trends In Non-polio Acute Flaccid Paralysis Incidence In India

Author(s): Puliyel J, Vashisht N, Sreenivas V

Abstract

Background: Although the incidence of polio acute flaccid paralysis (AFP) is coming down in India, the non-polio AFP (NPAFP) rate has increased. Nationwide, the NPAFP rate is 13.7/100,000 where the expected rate is 1-2/100,000. We examined the correlates of NPAFP, to discern explanations for the increase.

Methods: National Polio Surveillance data 2000-2012 was used. Differences between states and changes over time were examined. Demographic factors and polio programme parameters were assessed. Multiple linear regression analysis adjusting for region/state, literacy rate, female literacy rate, population density and per-capita GDP was performed.

Results: NPAFP increased with the OPV doses used. (R^2=32.1%;P2=62.5). Per capita income of the state, female literacy and overall literacy showed negative correlation with NPAFP. This disappeared in a multivariable analysis when the number of doses of OPV was considered. On multiple regression analysis, the number of OPV doses was the only factor that showed a positive correlation with the NPAFP rate. NPAFP in UP and Bihar decreased in 2012 coinciding with a reduction in OPV administered.

Conclusion: Our observation showed positive association between NPAFP and the number of OPV doses. In 1994 the National Academy of Sciences, Washington noted a causal relation between Guillain-Barre syndrome and OPV. We hope our findings will stimulate further work to bring down the NPAFP incidence and if needed, to rationalize and optimize the dose schedule of the OPV.

Key words: Acute flaccid paralysis, surveillance, vaccination, polio

Introduction

Acute Flaccid Paralysis (AFP) surveillance helps identify poliovirus circulation promptly and also provides certification quality evidence that wild polio transmission is not occurring. To qualify as AFP for polio surveillance, there must be acute onset of focal weakness or paralysis with reduced tone in the absence of other obvious cause (like trauma) in children under 15 years (1). The full list of causes of non-polio AFP were reviewed and listed by Marx and colleagues (2). Transient weakness (postictal paralysis for example) is not included (3). In the absence of wild polio transmission, the WHO estimates that there is a background annual incidence of at least 1 case of AFP per 100,000 children under 15 because of diseases like Guillain–Barré syndrome (GBS). In other words, once polio is eradicated, it is expected that the AFP rate (made up of polio and non-polio AFP) would come down to 1 to 2 per 100,000 as there would only be non polio AFP left (4).

The surveillance performance of India has been excellent, and the incidence of polio AFP is coming down in the country (5). As a consequence the total AFP rate (which includes polio and non-polio causes of AFP) must come down with the non-polio AFP rate remaining steady. Inexplicably however, the non-polio AFP rate has shown a trend to increase. Nationally, the non-polio AFP rate is 13.7 per 100,000 (2012 data) where the acceptable rate is 1 to 2 per 100,000 (6). In the state of Uttar Pradesh (UP) the non-polio AFP rate is 24.6 per 100,000 and in Bihar this is 37 per 100,000 (2012 data) (5). It has been said that the increase in AFP in recent years is the result of a deliberate effort (that began in 2004) to intensify surveillance and reporting in India (7). However, a surveillance program no matter how good, can only record every case of AFP, but it cannot exaggerate the numbers or explain the 20 to 40 fold increase in the non-polio AFP rate, as seen in the state of Bihar (assuming that the natural non-polio AFP rate should lie between 1 to 2 per 100,000 as per internationally accepted norms) (6). The lowest non-polio AFP rates are seen in the states were polio was eliminated earliest. These are the states which must have had the best implementation of the polio control programme and the best surveillance. If good surveillance was the reason for the increase in non-polio AFP, it is paradoxical that the well-performing states should have the lowest non-polio AFP rates.

Follow-up of these cases of non-polio AFP is not done routinely. However a fifth of these cases of non-polio AFP in the state of Uttar Pradesh were followed-up after 60 days, in 2005. 35.2% were found to have

residual paralysis and 8.5% had died (total residual paralysis or death 43.7%). (8) This suggests that the pathology in children being registered as non-polio AFP cannot be considered as trivial. There is thus impelling reason to try and understand the underlying causes for the surge in non-polio paralysis numbers.

The AFP rates are different in the various states and Union Territories of India. In this study we examined the factors that correlate with the non polio AFP rates in the states, to discern possible explanations for the increasing incidence of non-polio AFP. Data on AFP rate from the National Polio Surveillance Programme (NPSP) in India over the period 2000–2012 was used. Differences between states and changes over time with respect to non-polio AFP were examined. Association with demographic factors and polio programme parameters were assessed.

States reporting more wild polio cases are targeted for increased vaccine coverage. For example it was reported that during the year 2005, children under 5 years in UPand Bihar received on average 15 doses of trivalent oral polio vaccine (tOPV), compared with 10 doses in the rest of India (9). Confounding is a possibility. On cursory examination of the NPSP data it appears that the states with the highest polio rates are also the ones with higher non-polio AFP rates. It is conceivable that the factors that result in higher polio incidence in these states, also promote non-polio AFP. Grassly and colleagues suggest that high population densities and poor sanitation explain the persistence of polio (9). We aimed to see whether various factors like population density, literacy and poverty could explain the non-polio AFP rate.

Matherials and methods

The data on AFP, polio and non-polio AFP and number of polio rounds were examined in each state in each year from 2000 to 2012. Data from the National Polio Surveillance web site (5) was used. The raw data, as extracted from the web site, has been uploaded as supplementary file (and also available at http://bit.ly/npsi_data). Data on numbers of polio rounds during the years 2003 and 2012 was incomplete and so figures for these years were not included in the general analysis. However data from 2012 on polio rounds for some states were available and they were used in analysis specific for those states. When different areas within a state received different numbers of doses, the arithmetic mean of doses was taken as the representative dose for that state. Normal linear regression analysis was carried out, taking the non-polio AFP rate as the outcome variable and the number of OPV doses as the explanatory variable. Both these were treated as continuous variables. Multiple linear regression analysis was carried out to adjust for region/state, literacy rate, female literacy rate and per capita GDP. Pearson's correlation coefficient of non-polio AFP rate with the per capita income (10) and population density (11) of each state and union territory were looked into. According to Rosser and colleagues, sanitation is closely linked to female literacy in a range of Asian countries. (12) We could not find authentic data on sanitation in the different states and hence we used female literacy as a surrogate for social development and also of the general level of sanitation and hygiene in each state. Data on female literacy and overall literacy was obtained from the Census of India (13). We also included overall literacy because some communities tend not send their girl children to school and we expected overall literacy may have a positive effect on the evolving social developments of the area, which may not be reflected entirely and accurately by female literacy in that area.

We explored whether any correlation exists between the non-polio AFP rates and the number of doses of polio vaccine used in the state in that year. Further, we tried to look for cumulative effect by adding data on vaccine doses from previous years.

Results

The non-polio AFP rate per 100,000 increased with increased number of OPV doses during 2000-2011, irrespective of time and region. Figure 1 shows the trend of non-polio AFP with doses of OPV. As can be seen, the relationship is curvilinear with a more steep increase in non-polio AFP beyond 6 doses of OPV. To demonstrate this association, the Pearson correlation was calculated. This association is statistically highly significant (R^2= 32.1%; P)

Fig 1.

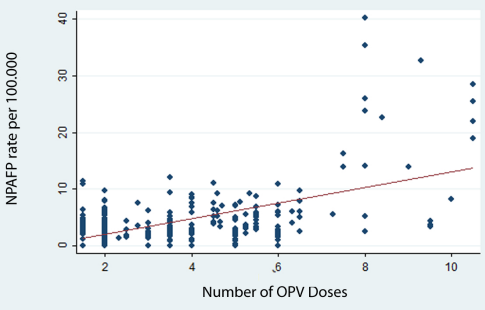

Figure 1: Trends in Non Polio AFP rate with number of OPV doses

Looking at data up to 2012 from Uttar Pradesh and Bihar, where the maximum doses of OPV were used, the R^2 was 51.9% (P < 0.001). Regression analysis indicated that for an increase of one dose of OPV, the non-polio AFP rate increased on the average by 3.7 per 100,000 populations under 15 (95% CI: 2.1-5.3). The relation is shown in Figure 2. To examine the trends over time we looked at the relationship of the non-polio AFP rate each year to the number of doses of OPV received in that year separately for UP and Bihar. Figure 3 shows the non-polio AFP over the years in the states of UP and Bihar alongside the 4 year cumulative OPV doses. The fall in NPAFP rate for the first time in 2012 with a decrease in the OPV doses is noted.

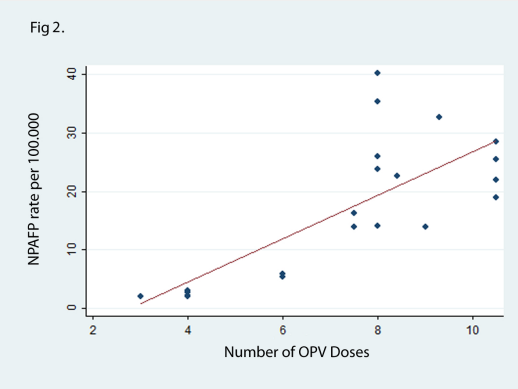

Figure 2: Trends in Non Polio AFP rate with number of OPV doses in UP and Bihar

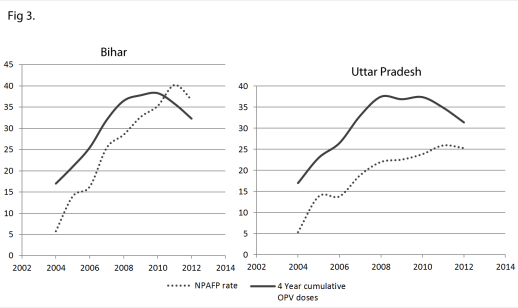

Figure 3: Yearly trend in non-polio AFP rate with 4 year cumulative polio doses in Bihar and UP

The figures on the Y axis represent number of doses of polio and the non-polio AFP rate /100,000 children.

When the effect of cumulative doses over the previous years was examined, the non-polio AFP rate in 2011 best correlated to the cumulative doses received in the previous 4 years. Association (R^2) of non-polio AFP rate with OPV doses received in 2011 was 52.6%. It increased to 56.9.6%, when we looked at AFP rate in 2011 related to total doses received in the years 2010 and 2011. Adding up dosesreceived in 2009 to that in 2010 and 2011 further increased the association (R^2 = 54.4%) and adding up doses received between 2009 and 2011 the regression coefficient rose to 62.5. All these correlations were highly significant (P < 0.001). The association showed no further improvement with addition in OPV doses from earlier years.

Per capita income of the state, female literacy and overall literacy showed negative correlation with the non-polio AFP (R^2 = 4.1%, P < 0.001; R^2 = 13.0%, P < 0.001; and R^2 =12, P < 0.001 respectively). Population density did not show any association with the non-polio AFP (R^2 = 0.0%, P = 0.91).

A multivariable model to adjust simultaneously the influence of factors like overall literacy, female literacy and per capita GDP, confirmed the significant positive association between the number of OPV doses and non-polio AFP rate. Per capita income, female literacy and overall literacy did not show significant association with non-polio AFP rate once we considered the number of doses of OPV. After adjusting for these factors, the average increase in the non-polio AFP rate was 1.30 per 100,000 (P < 0.001, 95% CI: 1.09-1.51) with each dose of OPV. The results of this multiple regression analysis are presented in Table 1.

Characteristic	Coefficient (95% C.I.)	P
OPV doses	1.30 (1.09 1.51)	<0.001
State	0.01 (-0.03 0.05)	0.69
Literacy	- 0.05 (-0.25 0.15)	0.64
Female literacy	0.05 (-0.20 0.11)	0.56
Percapita GDP (Rs 10,000 increase)	0.13 (-0.41 0.15)	0.36

Table 1: Multivariate Regression Analysis

Discussion

Our results indicate that the incidence of non-polio AFP was strongly associated with the number of OPV doses delivered to the area. We also observed a dose response relation with cumulative doses over the years, which further strengthen the hypothetical relationship between polio vaccine and non-polio AFP. The cumulative dose received in the previous 4 years related best to the non-polio AFP rate in 2011.

Children over 5 are not vaccinated and the vaccine naïve newborns are added to the pool each year and this is perhaps the reason cumulative doses beyond 4 years did not improve the strength of association. The fall in the NPAFP rate in Bihar and UP for the first time in 2012, with a decrease in the number of OPV doses delivered, is further corroborative evidence of a causative association between OPV doses and the NPAFP rate

A regression analysis reveals an association but does not prove a causal role. Ecological fallacies must be borne in mind meaning that correlation of aggregate variables take into account cross sectional effects which are not relevant at the individual level. The likelihood of confounding also needs to be kept in mind. Poor sanitation can cause spread of entero-pathogens (like Campylobacter jejuni) which cause non polio flaccid paralysis. The same sanitation problem can result in increased polio in that area and this will trigger more frequent polio immunization rounds in the locality. Thus, a spurious relationship between OPV doses and non-polio flaccid paralysis may be inferred when poor sanitation is the real culprit - the confounding variable – causing the non-polio AFP.

Data from the WHO / UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation, suggests that states of Delhi and Kerala, with a female literacy rate of 75% and 88% respectively have achieved millennium development goals (MDGs) on sanitation already, while Assam with 64% female literacy and Arunachal with 55% female literacy will achieve it in 10 years, and Madhya Pradesh and Orissa with 50% and 51% female literacy respectively, will achieve the MDG only in the next century. (14) This further supports the observation that sanitation is linked to female literacy in many Asian countries. (12) In the absence of hard data on the number of households with toilets for safe disposal of excreta and free running water, we tried to remove the confounding effect of poor sanitation, by using female literacy as a surrogate for social development in the state and its level of sanitation and hygiene. We did not find an association of non-polio AFP rates with female literacy in the multivariable analysis. Admittedly although female literacy is often used as a surrogate for social development, it need not be an adequate surrogate for sanitation in an area. However poor sanitation by itself cannot explain why the incidence of non-polio AFP should increase year to year in the same area, in proportion to doses of polio vaccine administered here, unless sanitation in the area is deteriorating each year, coinciding with increased vaccine doses administered.

Another possible explanation for the apparent association could be increased surveillance of AFP in areas where the polio related AFP is high, and this may be detecting more cases of NPAFP. Though the surveillance has improved over time, there is no evidence to suggest that there are differences in the quality of surveillance between states in the same year. The difference in non-polio AFP rate between states in any particular year cannot therefore be explained on the basis of improved surveillance alone. In fact it is the states with the best health indicators and therefore presumably the best surveillance, (for example Goa and Kerala) that have some of the lowest non-polio AFP rates. The case definition of AFP has also changed over the years but the definition at any point of time has been uniform all over the country and so this cannot explain the differences in the rates of non polio AFP seen in different states in the same year.

Our findings point to the need for a critical appraisal to find the factors contributing to the increase in non-polio AFP with increase in OPV doses – perhaps looking at the influence of strain shifts of enteropathogens induced by the vaccine given repatedly. The clear dose response relationship indicates that this relationship in not a spurious one. In 1994 the Institute of Medicine of the National Academy of Sciences, Washington had noted that the evidence available to them favors acceptance of a causal relation between Guillain-Barre syndrome (a major component of the non polio AFP rate) and OPV. (15) All these factors need to be examined.

Further studies perhaps including a rapid epidemiological appraisal exploring the hypothesis of association between number of doses of OPV and NPAFP by case control studies, individual children with NPAFP being the cases and matched healthy children as the controls are called for.

Conclusion

Our observation showed positive association between the non-polio AFP rate and the number of OPV doses. Though there is a possibility that the apparent association between the increasing trend of non-polio AFP and OPV doses could be a statistical artifact due to confounding factors, the magnitude of non-polio AFP incidence and its increasing trend are public health problems in themselves and need to be looked into. We hope our findings will stimulate further work to bring down the non-polio AFP incidence and if needed, may also to rationalize and optimize the dose schedule of the OPV.

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Illustrations

Illustration 1

Supplementary Data

National Polio Surveillance India updated data 2000 - 2012

NPSP Polio surveillance data on Acute Flaccid Paralysis (AFP) and non-polio AFP and Demographic data

State	state	year	polio	afp	afp rate	npafp	npafp rate	GDP	Percap gdp (Rs 10,000)	Population	Density	Literacy	Female literacy	Number of dose
Andaman & Nicobar	1	1999						1567	0.00439981	356152	43	81	75	4
Andaman & Nicobar	1	2000	0	2	1.44	2	1.44	1567	0.00439981	356152	43	81	75	2
Andaman & Nicobar	1	2001	0	1	0.73	0	0	1567	0.00439981	356152	43	81	75	2
Andaman & Nicobar	1	2002	0	0	0	0	0	1567	0.00439981	356152	43	81	75	2
Andaman & Nicobar	1	2003	0	2	1.46	2	1.46	1567	0.00439981	356152	43	81	75	
Andaman & Nicobar	1	2004	0	0	0	0	0	1567	0.00439981	356152	43	81	75	5
Andaman & Nicobar	1	2005	0	0	0	0	0	1567	0.00439981	356152	43	81	75	2
Andaman & Nicobar	1	2006	0	3	2.52	2	1.68	1567	0.00439981	356152	43	81	75	2
Andaman & Nicobar	1	2007	0	5	4.1	5	4.1	1567	0.00439981	356152	43	81	75	2
Andaman & Nicobar	1	2008	0	3	2.42	3	2.42	1567	0.00439981	356152	43	81	75	3.5
Andaman & Nicobar	1	2009	0	0	0	0	0	1567	0.00439981	356152	43	81	75	1.5
Andaman & Nicobar	1	2010	0	3	2.29	3	2.29	1567	0.00439981	356152	43	81	75	2
Andaman & Nicobar	1	2011	0	0	0	0	0	1567	0.00439981	356152	43	81	75	2
Andaman & Nicobar	1	2012	0	1	2.7	1	2.7	1567	0.00439981	356152	43	81	75	2
Andhra Pradesh	2	1999						236094	0.00309715	76210007	277	61	51	4.5
Andhra Pradesh	2	2000	0	373	1.38	365	1.35	236094	0.00309715	76210007	277	61	51	2
Andhra Pradesh	2	2001	0	342	1.17	332	1.14	236094	0.00309715	76210007	277	61	51	2
Andhra Pradesh	2	2002	0	371	1.27	369	1.27	236094	0.00309715	76210007	277	61	51	2
Andhra Pradesh	2	2003	19	474	1.58	401	1.34	236094	0.00309715	76210007	277	61	51	2.33
Andhra Pradesh	2	2004	1	468	1.55	462	1.53	236094	0.00309715	76210007	277	61	51	6

Andhra Pradesh	2	2005	0	740	2.74	738	2.73	236094	0.00309715	76210007	277	61	51	2
Andhra Pradesh	2	2006	0	566	2.09	507	1.87	236094	0.00309715	76210007	277	61	51	2
Andhra Pradesh	2	2007	5	777	2.84	767	2.8	236094	0.00309715	76210007	277	61	51	5.5
Andhra Pradesh	2	2008	1	756	2.62	753	2.61	236094	0.00309715	76210007	277	61	51	4
Andhra Pradesh	2	2009	0	855	3.08	851	3.07	236094	0.00309715	76210007	277	61	51	1.5
Andhra Pradesh	2	2010	0	857	3.04	794	2.82	236094	0.003097	76210007	277	61	51	2
Andhra Pradesh	2	2011	0	1110	3.88	1048	3.66	236094	0.003097	76210007	277	61	51	2
Andhra Pradesh	2	2012	0	1309	5.22	1270	5.06	236094	0.003097	76210007	277	61	51	2
Arunachal Pradesh	3	1999						2987	0.00272048	1097968	13	55	44	4
Arunachal Pradesh	3	2000	0	8	1.86	6	1.39	2987	0.00272048	1097968	13	55	44	2
Arunachal Pradesh	3	2001	0	6	1.34	6	1.34	2987	0.00272048	1097968	13	55	44	2
Arunachal Pradesh	3	2002	0	3	0.68	2	0.46	2987	0.00272048	1097968	13	55	44	2
Arunachal Pradesh	3	2004	0	6	1.23	6	1.23	2987	0.00272048	1097968	13	55	44	5
Arunachal Pradesh	3	2005	0	7	1.41	7	1.41	2987	0.00272048	1097968	13	55	44	2
Arunachal Pradesh	3	2006	0	12	2.42	7	1.41	2987	0.00272048	1097968	13	55	44	2
Arunachal Pradesh	3	2007	0	39	7.85	39	7.85	2987	0.00272048	1097968	13	55	44	2
Arunachal Pradesh	3	2008	0	48	9.38	48	9.38	2987	0.00272048	1097968	13	55	44	3.5
Arunachal Pradesh	3	2009	0	24	4.55	24	4.55	2987	0.00272048	1097968	13	55	44	1.5
Arunachal Pradesh	3	2010	0	15	2.75	12	2.2	2987	0.00272	1097968	13	55	44	2
Arunachal Pradesh	3	2011	0	37	6.57	34	6.04	2987	0.00272	1097968	13	55	44	2
Arunachal Pradesh	3	2012	0	36	6.47	35	6.29	2987	0.00272	1097968	13	55	44	2
Assam	4	1999						57543	0.00215876	26655528	340	64	56	6
Assam	4	2000	0	156	1.46	151	1.42	57543	0.00215876	26655528	340	64	56	2
Assam	4	2001	1	149	1.43	144	1.39	57543	0.00215876	26655528	340	64	56	2
Assam	4	2002	0	145	1.29	144	1.28	57543	0.00215876	26655528	340	64	56	2
Assam	4	2003	1	145	1.36	125	1.17	57543	0.00215876	26655528	340	64	56	2
Assam	4	2004	0	190	1.8	196	1.8	57543	0.00215876	26655528	340	64	56	6

Assam	4	2005	0	285	2.57	283	2.55	57543	0.00215876	26655528	340	64	56	2
Assam	4	2006	2	360	3.1	315	2.71	57543	0.00215876	26655528	340	64	56	4
Assam	4	2007	0	536	4.5	535	4.49	57543	0.00215876	26655528	340	64	56	3.5
Assam	4	2008	1	475	3.9	470	3.87	57543	0.00215876	26655528	340	64	56	5.5
Assam	4	2009	0	542	4.41	539	4.39	57543	0.00215876	26655528	340	64	56	2.5
Assam	4	2010	0	429	3.45	404	3.25	57543	0.002159	26655528	340	64	56	2
Assam	4	2011	0	470	3.72	462	3.65	57543	0.002159	26655528	340	64	56	2
Assam	4	2012	0	586	4.74	580	4.69	57543	0.002159	26655528	340	64	56	2
Bihar	5	1999						79682	0.00096004	82998509	881	48	34	6
Bihar	5	2000	50	1444	3.46	1279	3.07	79682	0.00096004	82998509	881	48	34	4
Bihar	5	2001	27	711	2.14	646	1.95	79682	0.00096004	82998509	881	48	34	3
Bihar	5	2002	121	874	2.57	659	1.94	79682	0.00096004	82998509	881	48	34	4
Bihar	5	2003	17	800	2.3	644	1.85	79682	0.00096004	82998509	881	48	34	
Bihar	5	2004	39	2183	6.15	2059	5.78	79682	0.00096004	82998509	881	48	34	6
Bihar	5	2005	30	5246	14.39	5110	14.02	79682	0.00096004	82998509	881	48	34	8
Bihar	5	2006	57	7087	18.99	6075	16.28	79682	0.00096004	82998509	881	48	34	7.5
Bihar	5	2007	503	10387	27.18	9723	25.44	79682	0.00096004	82998509	881	48	34	10.5
Bihar	5	2008	233	11659	29.67	11201	28.51	79682	0.00096004	82998509	881	48	34	10.5
Bihar	5	2009	117	13510	33.45	13206	32.7	79682	0.00096004	82998509	881	48	34	9.3
Bihar	5	2010	9	15585	37.53	14548	35.27	79682	0.00096	82998509	881	48	34	8
Bihar	5	2011	0	17616	41.27	17175	40.23	79682	0.00096	82998509	881	48	34	8
Bihar	5	2012	0	15874	37.42	15559	36.68	79682	0.00096	82998509	881	48	34	7
Chandigarh	6	1999						9872	0.0109611	900635	7900	82	77	4
Chandigarh	6	2000	1	8	2.49	7	2.18	9872	0.0109611	900635	7900	82	77	3
Chandigarh	6	2001	0	12	3.36	12	3.36	9872	0.0109611	900635	7900	82	77	2

Chandigarh	6	2002	1	14	3.77	12	3.23	9872	0.0109611	900635	7900	82	77	2
Chandigarh	6	2003	0	3	0.78	3	0.78	9872	0.0109611	900635	7900	82	77	
Chandigarh	6	2004	0	12	3	12	3	9872	0.0109611	900635	7900	82	77	5
Chandigarh	6	2005	0	9	2.17	9	2.17	9872	0.0109611	900635	7900	82	77	3
Chandigarh	6	2006	1	19	4.43	16	3.73	9872	0.0109611	900635	7900	82	77	4
Chandigarh	6	2007	0	14	3.16	14	3.16	9872	0.0109611	900635	7900	82	77	3.5
Chandigarh	6	2008	0	15	3.28	15	3.28	9872	0.0109611	900635	7900	82	77	5.5
Chandigarh	6	2009	0	24	4.52	24	4.52	9872	0.0109611	900635	7900	82	77	5.5
Chandigarh	6	2010	0	21	3.19	20	3.03	9872	0.010961	900635	7900	82		2
Chandigarh	6	2011	0	38	6.48	37	6.31	9872	0.010961	900635	7900	82		2
Chandigarh	6	2012	0	58	13.65	58	13.65	9872	0.010961	900635	7900	82	77	2
Chhattisgarh	7	1999						51921	0.002492	20833803	154	65	52	6
Chhattisgarh	7	2000	0	0	0	0	0	51921	0.002492	20833803	154	65	52	3
Chhattisgarh	7	2001	0	127	1.43	124	1.4	51921	0.002492	20833803	154	65	52	2
Chhattisgarh	7	2002	1	165	1.95	161	1.9	51921	0.002492	20833803	154	65	52	2
Chhattisgarh	7	2003	0	213	2.47	176	2.04	51921	0.002492	20833803	154	65	52	
Chhattisgarh	7	2004	0	234	2.67	228	2.6	51921	0.002492	20833803	154	65	52	5
Chhattisgarh	7	2005	0	507	5.67	497	5.56	51921	0.002492	20833803	154	65	52	2
Chhattisgarh	7	2006	0	331	3.64	294	3.23	51921	0.002492	20833803	154	65	52	2
Chhattisgarh	7	2007	0	482	5.2	480	5.18	51921	0.002492	20833803	154	65	52	3.5
Chhattisgarh	7	2008	0	497	5.27	493	5.2	51921	0.002492	20833803	154	65	52	4.5
Chhattisgarh	7	2009	0	519	5.41	518	5.4	51921	0.002492	20833803	154	65	52	1.5
Chhattisgarh	7	2010	0	374	3.08	302	3.08	51921	0.002492	20833803	154	65	52	2
Chhattisgarh	7	2011	0	319	3.38	279	2.95	51921	0.002492	20833803	154	65	52	3
Chhattisgarh	7	2012	0	618	6.22	557	5.61	51921	0.002492	20833803	154	65	52	2
Dadra & Nagar Haveli	8	1999								220490	449	60	43	6
Dadra & Nagar Haveli	8	2000	0	1	1.44	1	1.44			220490	449	60	43	3

Dadra & Nagar Haveli	8	2001	0	1	1.14	1	1.14	220490	449	60	43	2
Dadra & Nagar Haveli	8	2002	0	1	1.11	1	1.11	220490	449	60	43	2
Dadra & Nagar Haveli	8	2003	0	0	0	0	0	220490	449	60	43	
Dadra & Nagar Haveli	8	2004	0	1	0.95	1	0.95	220490	449	60	43	6
Dadra & Nagar Haveli	8	2005	0	1	0.91	1	0.91	220490	449	60	43	4
Dadra & Nagar Haveli	8	2006	0	3	2.61	3	2.61	220490	449	60	43	4
Dadra & Nagar Haveli	8	2007	0	3	2.61	3	2.61	220490	449	60	43	3.5
Dadra & Nagar Haveli	8	2008	0	1	0.87	1	0.87	220490	449	60	43	3.5
Dadra & Nagar Haveli	8	2009	0	5	4.31	5	4.31	220490	449	60	43	1.5
Dadra & Nagar Haveli	8	2010	0	7	5.88	7	5.88	220490	449	60	43	2
Dadra & Nagar Haveli	8	2011	0	4	2.82	4	2.82	220490	449	60	43	2
Dadra & Nagar Haveli	8	2012	0	9	13.04	9	13.04	220490	449	60	43	2
Daman & Diu	9	1999						158204	1413	81	70	6
Daman & Diu	9	2000	0	1	1.99	1	1.99	158204	1413	81	70	3
Daman & Diu	9	2001	0	2	3.13	2	3.13	158204	1413	81	70	2
Daman & Diu	9	2002	0	1	1.54	1	1.54	158204	1413	81	70	2
Daman & Diu	9	2003	0	3	4.41	3	4.41	158204	1413	81	70	
Daman & Diu	9	2004	0	0	0	0	0	158204	1413	81	70	6

Daman & Diu	9	2005	0	1	1.25	1	1.25			158204	1413	81	70	4
Daman & Diu	9	2006	0	2	2.33	1	1.16			158204	1413	81	70	4
Daman & Diu	9	2007	0	4	4.4	4	4.4			158204	1413	81	70	3.5
Daman & Diu	9	2008	0	1	1.03	1	1.03			158204	1413	81	70	3.5
Daman & Diu	9	2009	0	3	2.91	3	2.91			158204	1413	81	70	1.5
Daman & Diu	9	2010	0	5	4.59	5	4.59			158204	1413	81	70	2
Daman & Diu	9	2011	0	6	5.35	6	5.35			158204	1413	81	70	2
Daman & Diu	9	2012	0	2	5.88	2	5.88			158204	1413	81	70	2
Delhi	10	1999						105385	0.0076087	13850507	9340	82	75	
Delhi	10	2000	3	110	2.17	98	1.93	105385	0.0076087	13850507	9340	82	75	3
Delhi	10	2001	3	104	1.89	94	1.71	105385	0.0076087	13850507	9340	82	75	3
Delhi	10	2002	24	121	2.1	88	1.53	105385	0.0076087	13850507	9340	82	75	2
Delhi	10	2003	3	97	1.61	84	1.39	105385	0.0076087	13850507	9340	82	75	
Delhi	10	2004	2	114	1.81	112	1.77	105385	0.0076087	13850507	9340	82	75	6
Delhi	10	2005	1	167	2.53	165	2.5	105385	0.0076087	13850507	9340	82	75	8
Delhi	10	2006	6	219	3.17	177	2.56	105385	0.0076087	13850507	9340	82	75	6.5
Delhi	10	2007	2	265	3.66	261	3.61	105385	0.0076087	13850507	9340	82	75	9.5
Delhi	10	2008	5	264	3.49	257	3.4	105385	0.0076087	13850507	9340	82	75	9.5
Delhi	10	2009	4	311	4.42	305	4.33	105385	0.0076087	13850507	9340	82	75	9.5
Delhi	10	2010	0	430	5.99	359	5.14	105385	0.007609	13850507	9340	82	75	8
Delhi	10	2011	0	707	8.57	675	8.18	105385	0.007609	13850507	9340	82	75	10
Delhi	10	2012	0	771	11.28	771	10.65	105385	0.007609	13850507	9340	82	75	7
Goa	11	1999						12400	0.009201	1347668	364	82	76	4
Goa	11	2000	0	19	3.29	18	3.12	12400	0.009201	1347668	364	82	76	2
Goa	11	2001	0	7	1.58	7	1.58	12400	0.009201	1347668	364	82	76	2
Goa	11	2002	0	5	1.12	5	1.12	12400	0.009201	1347668	364	82	76	2
Goa	11	2003	0	7	1.55	7	1.55	12400	0.009201	1347668	364	82	76	
Goa	11	2004	0	10	2.16	10	2.16	12400	0.009201	1347668	364	82	76	5
Goa	11	2005	0	15	3.21	15	3.21	12400	0.009201	1347668	364	82	76	2
Goa	11	2006	0	8	1.68	7	1.47	12400	0.009201	1347668	364	82	76	2

Goa	11	2007	0	32	6.67	32	6.67	12400	0.009201	1347668	364	82	76	2
Goa	11	2008	0	23	4.74	23	4.74	12400	0.009201	1347668	364	82	76	3.5
Goa	11	2009	0	13	2.63	13	2.63	12400	0.009201	1347668	364	82	76	1.5
Goa	11	2010	0	25	5.01	23	4.51	12400	0.009201	1347668	364	82	76	2
Goa	11	2011	0	26	6.65	24	6.14	12400	0.009201	1347668	364	82	76	2
Goa	11	2012	0	18	4.58	17	4.33	12400	0.009201	1347668	364	82	76	2
Gujarat	12	1999						216651	0.0042756	50671017	258	70	59	6
Gujarat	12	2000	2	313	1.83	286	1.67	216651	0.0042756	50671017	258	70	59	3
Gujarat	12	2001	1	306	1.51	298	1.47	216651	0.0042756	50671017	258	70	59	2.5
Gujarat	12	2002	24	348	1.7	310	1.51	216651	0.0042756	50671017	258	70	59	2
Gujarat	12	2003	3	378	1.8	323	1.54	216651	0.0042756	50671017	258	70	59	
Gujarat	12	2004	0	432	1.97	431	1.97	216651	0.0042756	50671017	258	70	59	6
Gujarat	12	2005	1	565	2.53	557	2.49	216651	0.0042756	50671017	258	70	59	3
Gujarat	12	2006	4	563	2.49	513	2.27	216651	0.0042756	50671017	258	70	59	4
Gujarat	12	2007	1	844	4.2	838	4.17	216651	0.0042756	50671017	258	70	59	4.5
Gujarat	12	2008	0	699	3.4	698	3.4	216651	0.0042756	50671017	258	70	59	3.5
Gujarat	12	2009	0	793	3.78	792	3.77	216651	0.0042756	50671017	258	70	59	1.5
Gujarat	12	2010	0	908	4.23	849	3.96	216651	0.004276	50671017	258	70	59	2
Gujarat	12	2011	0	1031	4.71	1013	4.63	216651	0.004276	50671017	258	70	59	2
Gujarat	12	2012	0	938	4.36	910	4.23	216651	0.004276	50671017	258	70	59	
Haryana	13	1999						106385	0.005031	21144564	478	69	56	4
Haryana	13	2000	4	194	2.46	176	2.23	106385	0.005031	21144564	478	69	56	3
Haryana	13	2001	5	220	2.64	206	2.47	106385	0.005031	21144564	478	69	56	2
Haryana	13	2002	37	273	3.18	218	2.54	106385	0.005031	21144564	478	69	56	2
Haryana	13	2003	3	247	2.8	223	2.53	106385	0.005031	21144564	478	69	56	
Haryana	13	2004	2	315	3.43	309	3.41	106385	0.005031	21144564	478	69	56	6
Haryana	13	2005	1	423	4.55	417	4.49	106385	0.005031	21144564	478	69	56	5
Haryana	13	2006	18	439	4.57	362	3.76	106385	0.005031	21144564	478	69	56	5.25
Haryana	13	2007	6	554	5.61	538	5.44	106385	0.005031	21144564	478	69	56	5.5
Haryana	13	2008	2	568	5.59	559	5.5	106385	0.005031	21144564	478	69	56	7.25

Haryana	13	2009	4	680	6.91	669	6.8	106385	0.005031	21144564	478	69	56	5.5
Haryana	13	2010	1	661	6.61	591	5.91	106385	0.005031	21144564	478	69	56	4
Haryana	13	2011	0	996	9.79	929	9.14	106385	0.005031	21144564	478	69	56	4.6
Haryana	13	2012	0	1379	13.48	1335	13.05	106385	0.005031	21144564	478	69	56	
Himachal Pradesh	14	1999						25435	0.004184	6077900	109	77	68	4
Himachal Pradesh	14	2000	0	59	2.44	58	2.4	25435	0.004184	6077900	109	77	68	2
Himachal Pradesh	14	2001	0	44	1.86	44	1.86	25435	0.004184	6077900	109	77	68	2
Himachal Pradesh	14	2002	0	37	1.52	37	1.52	25435	0.004184	6077900	109	77	68	2
Himachal Pradesh	14	2003	0	30	1.22	27	1.1	25435	0.004184	6077900	109	77	68	
Himachal Pradesh	14	2004	0	48	1.92	48	1.92	25435	0.004184	6077900	109	77	68	5
Himachal Pradesh	14	2005	0	48	1.89	46	1.8	25435	0.004184	6077900	109	77	68	2
Himachal Pradesh	14	2006	1	61	2.36	51	1.97	25435	0.004184	6077900	109	77	68	3
Himachal Pradesh	14	2007	0	95	3.6	95	3.61	25435	0.004184	6077900	109	77	68	2
Himachal Pradesh	14	2008	0	91	3.4	90	3.36	25435	0.004184	6077900	109	77	68	3.5
Himachal Pradesh	14	2009	1	103	4.77	102	4.72	25435	0.004184	6077900	109	77	68	1.5
Himachal Pradesh	14	2010	0	142	6.47	135	6.15	25435	0.004184	6077900	109	77	68	3
Himachal Pradesh	14	2011	0	141	6.32	134	6	25435	0.004184	6077900	109	77	68	2
Himachal Pradesh	14	2012	0	178	8.37	175	8.23	25435	0.004184	6077900	109	77	68	2
Jammu & Kashmir	15	1999						24265	0.00239212	10143700	46	54	41	4
Jammu & Kashmir	15	2000	0	80	2.21	79	2.18	24265	0.00239212	10143700	46	54	41	2
Jammu & Kashmir	15	2001	0	109	2.88	107	2.82	24265	0.00239212	10143700	46	54	41	2
Jammu & Kashmir	15	2002	1	77	1.85	76	1.82	24265	0.00239212	10143700	46	54	41	2
Jammu & Kashmir	15	2003	0	84	1.99	82	1.95	24265	0.00239212	10143700	46	54	41	
Jammu & Kashmir	15	2004	0	90	2.09	90	2.09	24265	0.00239212	10143700	46	54	41	5
Jammu & Kashmir	15	2005	0	107	2.39	107	2.39	24265	0.00239212	10143700	46	54	41	2
Jammu & Kashmir	15	2006	1	146	3.2	140	3.07	24265	0.00239212	10143700	46	54	41	2
Jammu & Kashmir	15	2007	0	174	3.73	174	3.73	24265	0.00239212	10143700	46	54	41	2
Jammu & Kashmir	15	2008	0	140	2.93	140	2.93	24265	0.00239212	10143700	46	54	41	3.5
Jammu & Kashmir	15	2009	0	178	3.59	178	3.59	24265	0.00239212	10143700	46	54	41	1.5
Jammu & Kashmir	15	2010	1	191	3.72	189	3.68	24265	0.002392	10143700	46	54	41	4

Jammu & Kashmir	15	2011	0	239	4.53	237	4.49	24265	0.002392	10143700	46	54	41	2
Jammu & Kashmir	15	2012	0	268	5.34	267	5.32	24265	0.002392	10143700	46	54	41	2
Jharkhand	16	1999						62950	0.0023361	26945829	338	54	39	
Jharkhand	16	2000	0	0	0	0	0	62950	0.0023361	26945829	338	54	39	4
Jharkhand	16	2001	2	241	1.99	221	1.82	62950	0.0023361	26945829	338	54	39	2.5
Jharkhand	16	2002	12	281	2.62	252	2.35	62950	0.0023361	26945829	338	54	39	2
Jharkhand	16	2003	0	214	1.86	189	1.64	62950	0.0023361	26945829	338	54	39	
Jharkhand	16	2004	0	395	2.48	386	3.4	62950	0.0023361	26945829	338	54	39	6
Jharkhand	16	2005	2	917	7.77	893	7.56	62950	0.0023361	26945829	338	54	39	4
Jharkhand	16	2006	1	912	7.55	835	6.92	62950	0.0023361	26945829	338	54	39	4
Jharkhand	16	2007	0	1368	11.1	1357	11.1	62950	0.0023361	26945829	338	54	39	4.5
Jharkhand	16	2008	0	1532	12.07	1522	12	62950	0.0023361	26945829	338	54	39	3.5
Jharkhand	16	2009	2	1493	11.38	1485	11.32	62950	0.0023361	26945829	338	54	39	1.5
Jharkhand	16	2010	8	1324	10.36	1170	9.15	62950	0.002336	26945829	338	54	39	5.33
Jharkhand	16	2011	0	1529	11.37	1465	10.9	62950	0.002336	26945829	338	54	39	6
Jharkhand	16	2012	0	1497	10.96	1418	10.4	62950	0.002336	26945829	338	54	39	
Karnataka	17	1999						170741	0.00323	52850562	276	67	57	4
Karnataka	17	2000	8	317	1.7	283	1.52	170741	0.00323	52850562	276	67	57	2
Karnataka	17	2001	0	339	1.65	331	1.61	170741	0.00323	52850562	276	67	57	2.5
Karnataka	17	2002	0	318	1.52	315	1.5	170741	0.00323	52850562	276	67	57	2
Karnataka	17	2003	34	426	2.03	343	1.63	170741	0.00323	52850562	276	67	57	3
Karnataka	17	2004	1	503	2.32	497	2.29	170741	0.00323	52850562	276	67	57	6
Karnataka	17	2005	0	742	3.36	736	3.33	170741	0.00323	52850562	276	67	57	2
Karnataka	17	2006	0	595	2.62	536	2.36	170741	0.00323	52850562	276	67	57	3
Karnataka	17	2007	1	811	3.56	810	3.55	170741	0.00323	52850562	276	67	57	2.75
Karnataka	17	2008	0	751	4.01	750	4.01	170741	0.00323	52850562	276	67	57	3.5
Karnataka	17	2009	0	773	4.27	773	4.27	170741	0.00323	52850562	276	67	57	1.5
Karnataka		2010	0	841	4.41	749	3.93	170741	0.00323	52850562	276	67	57	2
Karnataka	17	2011	0	912	4.7	872	4.49	170741	0.00323	52850562	276	67	57	2
Karnataka	17	2012	0	995	5.27	954	5.05	170741	0.00323	52850562	276	67	57	2

Kerala	18	1999						118998	0.003737	31841374	819	91	88	4
Kerala	18	2000	1	96	1.02	93	0.99	118998	0.003737	31841374	819	91	88	2
Kerala	18	2001	0	123	1.29	118	1.24	118998	0.003737	31841374	819	91	88	2
Kerala	18	2002	0	142	1.55	142	1.55	118998	0.003737	31841374	819	91	88	2
Kerala	18	2003	0	117	1.28	111	1.22	118998	0.003737	31841374	819	91	88	
Kerala	18	2004	0	206	2.26	206	2.26	118998	0.003737	31841374	819	91	88	5
Kerala	18	2005	0	218	2.3	217	2.29	118998	0.003737	31841374	819	91	88	2
Kerala	18	2006	0	226	2.36	206	2.15	118998	0.003737	31841374	819	91	88	2
Kerala	18	2007	0	229	2.28	229	2.28	118998	0.003737	31841374	819	91	88	2
Kerala	18	2008	0	292	2.88	292	2.88	118998	0.003737	31841374	819	91	88	3.5
Kerala	18	2009	0	326	3.83	326	3.83	118998	0.003737	31841374	819	91	88	1.5
Kerala	18	2010	0	350	3.87	320	3.54	118998	0.003737	31841374	819	91	88	2
Kerala	18	2011	0	395	4.25	377	4.01	118998	0.003737	31841374	819	91	88	2
Kerala	18	2012	0	328	3.93	323	3.87	118998	0.003737	31841374	819	91	88	2
Lakshadweep	19	1999								60650	1895	88	82	4
Lakshadweep	19	2000	0	0	0	0	0			60650	1895	88	82	2
Lakshadweep	19	2001	0	0	0	0	0			60650	1895	88	82	2
Lakshadweep	19	2002	0	1	4.55	1	4.55			60650	1895	88	82	2
Lakshadweep	19	2003	0	0	0	0	0			60650	1895	88	82	
Lakshadweep	19	2004	0	1	4.55	1	4.55			60650	1895	88	82	5
Lakshadweep	19	2005	0	1	4.17	1	4.17			60650	1895	88	82	2
Lakshadweep	19	2006	0	0	0	0	0			60650	1895	88	82	2
Lakshadweep	19	2007	0	1	4.17	1	4.17			60650	1895	88	82	2
Lakshadweep	19	2008	0	0	0	0	0			60650	1895	88	82	3.5
Lakshadweep	19	2009	0	0	0	0	0			60650	1895	88	82	1.5
Lakshadweep	19	2010	0	0	0	0	0			60650	1895	88	82	2
Lakshadweep	19	2011	0	0	0	0	0			60650	1895	88	82	2
Lakshadweep	19	2012	0	1	5.56	1	5.56			60650	1895	88	82	2
Madhya Pradesh	20	1999						116322	0.001927	60348023	196	64	50	6
Madhya Pradesh	20	2000	2	634	2.01	608	1.93	116322	0.001927	60348023	196	64	50	3

Madhya Pradesh	20	2001	0	383	1.59	365	1.51	116322	0.001927	60348023	196	64	50	2.5
Madhya Pradesh	20	2002	21	497	2.02	452	1.84	116322	0.001927	60348023	196	64	50	2
Madhya Pradesh	20	2003	11	532	2.1	436	1.72	116322	0.001927	60348023	196	64	50	2
Madhya Pradesh	20	2004	0	772	2.98	747	2.88	116322	0.001927	60348023	196	64	50	6
Madhya Pradesh	20	2005	0	1141	4.3	1127	4.25	116322	0.001927	60348023	196	64	50	4.66
Madhya Pradesh	20	2006	3	1273	4.69	1071	3.95	116322	0.001927	60348023	196	64	50	6.33
Madhya Pradesh	20	2007	0	2145	7.74	2135	7.7	116322	0.001927	60348023	196	64	50	5.125
Madhya Pradesh	20	2008	1	2284	7.9	2274	7.86	116322	0.001927	60348023	196	64	50	6.5
Madhya Pradesh	20	2009	0	2722	9.41	2719	9.4	116322	0.001927	60348023	196	64	50	3.5
Madhya Pradesh	20	2010	0	2737	9.27	2477	8.39	116322	0.001927	60348023	196	64	50	4
Madhya Pradesh	20	2011	0	2814	9.33	2741	9.09	116322	0.001927	60348023	196	64	50	4
Madhya Pradesh	20	2012	0	2933	9.9	2835	9.57	116322	0.001927	60348023	196	64	50	
Maharashtra	21	1999						432413	0.004463	96878627	315	77	68	4
Maharashtra	21	2000	7	598	1.84	562	1.73	432413	0.004463	96878627	315	77	68	2
Maharashtra	21	2001	4	601	1.8	579	1.73	432413	0.004463	96878627	315	77	68	2.5
Maharashtra	21	2002	6	592	1.73	571	1.67	432413	0.004463	96878627	315	77	68	3
Maharashtra	21	2003	3	710	2.04	634	1.82	432413	0.004463	96878627	315	77	68	2.5
Maharashtra	21	2004	3	818	2.3	808	2.28	432413	0.004463	96878627	315	77	68	5
Maharashtra	21	2005	0	1205	3.34	1200	3.33	432413	0.004463	96878627	315	77	68	4.66
Maharashtra	21	2006	5	1294	3.53	1119	3.05	432413	0.004463	96878627	315	77	68	5.25
Maharashtra	21	2007	2	1881	5.05	1873	5.03	432413	0.004463	96878627	315	77	68	5
Maharashtra	21	2008	2	1915	5.05	1908	5.05	432413	0.004463	96878627	315	77	68	5.5
Maharashtra	21	2009	0	2255	5.86	2255	5.86	432413	0.004463	96878627	315	77	68	5.5
Maharashtra	21	2010	5	2499	6.52	2318	6.05	432413	0.004463	96878627	315	77	68	6
Maharashtra	21	2011	0	2791	7.18	2711	6.97	432413	0.004463	96878627	315	77	68	5
Maharashtra	21	2012	0	3065	7.78	2980	7.56	432413	0.004463	96878627	315	77	68	
Manipur	22	1999						5714	0.002637	2166788	97	69	60	4
Manipur	22	2000	0	16	1.76	14	1.54	5714	0.002637	2166788	97	69	60	2
Manipur	22	2001	0	14	1.37	14	1.37	5714	0.002637	2166788	97	69	60	2
Manipur	22	2002	0	9	0.95	9	0.95	5714	0.002637	2166788	97	69	60	2

Manipur	22	2003	0	8	0.84	7	0.74	5714	0.002637	2166788	97	69	60	
Manipur	22	2004	0	12	1.22	12	1.22	5714	0.002637	2166788	97	69	60	5
Manipur	22	2005	0	19	1.97	19	1.97	5714	0.002637	2166788	97	69	60	2
Manipur	22	2006	0	14	1.42	12	1.22	5714	0.002637	2166788	97	69	60	2
Manipur	22	2007	0	22	2.21	22	2.21	5714	0.002637	2166788	97	69	60	2
Manipur	22	2008	0	24	2.39	24	2.39	5714	0.002637	2166788	97	69	60	3.5
Manipur	22	2009	0	21	2.05	21	2.05	5714	0.002637	2166788	97	69	60	1.5
Manipur	22	2010	0	18	1.73	17	1.63	5714	0.002637	2166788	97	69	60	2
Manipur	22	2011	0	19	1.79	19	1.79	5714	0.002637	2166788	97	69	60	2
Manipur	22	2012	0	33	3.06	33	3.06	5714	0.002637	2166788	97	69	60	2
Meghalaya	23	1999						6470	0.00279	2318822	103	63	60	4
Meghalaya	23	2000	0	9	1.02	7	0.79	6470	0.00279	2318822	103	63	60	2
Meghalaya	23	2001	0	18	1.97	18	1.97	6470	0.00279	2318822	103	63	60	2
Meghalaya	23	2002	0	14	1.48	14	1.48	6470	0.00279	2318822	103	63	60	2
Meghalaya	23	2003	0	11	1.07	10	0.97	6470	0.00279	2318822	103	63	60	2
Meghalaya	23	2004	0	17	1.69	17	1.69	6470	0.00279	2318822	103	63	60	5
Meghalaya	23	2005	0	24	2.09	24	2.09	6470	0.00279	2318822	103	63	60	2
Meghalaya	23	2006	0	21	2.03	20	1.93	6470	0.00279	2318822	103	63	60	2
Meghalaya	23	2007	0	42	3.94	42	3.94	6470	0.00279	2318822	103	63	60	2
Meghalaya	23	2008	0	38	3.51	38	3.51	6470	0.00279	2318822	103	63	60	3.5
Meghalaya	23	2009	0	33	2.96	33	2.96	6470	0.00279	2318822	103	63	60	1.5
Meghalaya	23	2010	0	28	2.39	27	2.3	6470	0.00279	2318822	103	63	60	2
Meghalaya	23	2011	0	29	2.41	29	2.41	6470	0.00279	2318822	103	63	60	2
Meghalaya	23	2012	0	42	3.47	41	3.39	6470	0.00279	2318822	103	63	60	2
Mizoram	24	1999						2697	0.003035	888573	42	88	86	
Mizoram	24	2000	0	11	3.19	11	3.19	2697	0.003035	888573	42	88	86	2
Mizoram	24	2001	0	4	1.14	4	1.14	2697	0.003035	888573	42	88	86	2
Mizoram	24	2002	0	4	1.2	4	1.2	2697	0.003035	888573	42	88	86	2
Mizoram	24	2003	0	2	0.59	2	0.59	2697	0.003035	888573	42	88	86	
Mizoram	24	2004	0	0	0	0	0	2697	0.003035	888573	42	88	86	5

Mizoram	24	2005	0	6	1.74	6	1.74	2697	0.003035	888573	42	88	86	2
Mizoram	24	2006	0	8	2.28	6	1.71	2697	0.003035	888573	42	88	86	2
Mizoram	24	2007	0	14	3.8	14	3.8	2697	0.003035	888573	42	88	86	2
Mizoram	24	2008	0	7	1.74	7	1.74	2697	0.003035	888573	42	88	86	3.5
Mizoram	24	2009	0	8	1.94	8	1.94	2697	0.003035	888573	42	88	86	1.5
Mizoram	24	2010	0	4	0.95	4	0.95	2697	0.003035	888573	42	88	86	2
Mizoram	24	2011	0	5	1.17	5	1.17	2697	0.003035	888573	42	88	86	2
Mizoram	24	2012	0	16	3.69	15	3.46	2697	0.003035	888573	42	88	86	2
Nagaland	25	1999						5346	0.00268638	1990036	120	67	62	
Nagaland	25	2000	0	8	1.31	8	1.31	5346	0.00268638	1990036	120	67	62	2
Nagaland	25	2001	0	6	0.75	6	0.75	5346	0.00268638	1990036	120	67	62	2
Nagaland	25	2002	0	2	0.26	2	0.26	5346	0.00268638	1990036	120	67	62	2
Nagaland	25	2003	0	1	0.12	1	0.12	5346	0.00268638	1990036	120	67	62	
Nagaland	25	2004	0	3	0.34	3	0.34	5346	0.00268638	1990036	120	67	62	5
Nagaland	25	2005	0	11	1.23	11	1.23	5346	0.00268638	1990036	120	67	62	2
Nagaland	25	2006	0	4	0.4	4	0.4	5346	0.00268638	1990036	120	67	62	2
Nagaland	25	2007	0	23	2.21	23	2.21	5346	0.00268638	1990036	120	67	62	2
Nagaland	25	2008	0	18	1.64	18	1.64	5346	0.00268638	1990036	120	67	62	3.5
Nagaland	25	2009	0	27	2.33	27	2.33	5346	0.00268638	1990036	120	67	62	1.5
Nagaland	25	2010	0	31	2.56	31	2.56	5346	0.002686	1990036	120	67	62	2
Nagaland	25	2011	0	34	4.18	33	4.05	5346	0.002686	1990036	120	67	62	2
Nagaland	25	2012	0	29	4.07	29	4.07	5346	0.002686	1990036	120	67	62	2
Orissa	26	1999						78536	0.00213386	36804660	236	64	51	3
Orissa	26	2000	0	273	2.1	259	1.99	78536	0.00213386	36804660	236	64	51	2
Orissa	26	2001	0	312	2.14	304	2.09	78536	0.00213386	36804660	236	64	51	2
Orissa	26	2002	4	267	1.83	262	1.8	78536	0.00213386	36804660	236	64	51	2
Orissa	26	2003	2	265	1.82	240	1.65	78536	0.00213386	36804660	236	64	51	2
Orissa	26	2004	0	284	1.9	278	1.85	78536	0.00213386	36804660	236	64	51	5
Orissa	26	2005	0	679	4.34	677	4.33	78536	0.00213386	36804660	236	64	51	2
Orissa	26	2006	0	850	5.35	730	4.59	78536	0.00213386	36804660	236	64	51	2

Orissa	26	2007	1	1023	6.41	1017	6.37	78536	0.00213386	36804660	236	64	51	4.5
Orissa	26	2008	2	1227	7.59	1216	7.52	78536	0.00213386	36804660	236	64	51	4.5
Orissa	26	2009	0	1481	10.91	1473	10.85	78536	0.00213386	36804660	236	64	51	1.5
Orissa	26	2010	0	1506	10.96	1342	9.7	78536	0.002134	36804660	236	64	51	2
Orissa	26	2011	0	1157	8.32	1125	8.09	78536	0.002134	36804660	236	64	51	2
Orissa	26	2012	0	1996	14.18	1925	13.67	78536	0.002134	36804660	236	64	51	2
Pondicherry	27	1999						5700	0.00585	974345	2034	81	74	2
Pondicherry	27	2000	0	5	1.24	5	1.24	5700	0.00585	974345	2034	81	74	2
Pondicherry	27	2001	0	6	1.58	6	1.58	5700	0.00585	974345	2034	81	74	2
Pondicherry	27	2002	0	7	2.37	7	2.37	5700	0.00585	974345	2034	81	74	2
Pondicherry	27	2003	0	5	1.68	4	1.35	5700	0.00585	974345	2034	81	74	
Pondicherry	27	2004	0	6	1.98	6	1.98	5700	0.00585	974345	2034	81	74	5
Pondicherry	27	2005	0	18	5.84	18	5.84	5700	0.00585	974345	2034	81	74	2
Pondicherry	27	2006	0	6	1.92	6	1.92	5700	0.00585	974345	2034	81	74	2
Pondicherry	27	2007	0	11	3.44	10	3.13	5700	0.00585	974345	2034	81	74	2
Pondicherry	27	2008	0	19	5.81	19	5.81	5700	0.00585	974345	2034	81	74	3.5
Pondicherry	27	2009	0	16	4.8	16	4.8	5700	0.00585	974345	2034	81	74	1.5
Pondicherry	27	2010	0	14	4.13	14	4.13	5700	0.00585	974345	2034	81	74	2
Pondicherry	27	2011	0	13	3.77	13	3.77	5700	0.00585	974345	2034	81	74	2
Pondicherry	27	2012	0	15	4.26	15	4.26	5700	0.00585	974345	2034	81	74	2
Punjab	28	1999						109735	0.00450491	24358999	484	70	64	
Punjab	28	2000	0	214	2.59	203	2.46	109735	0.00450491	24358999	484	70	64	2
Punjab	28	2001	5	197	2.33	185	2.19	109735	0.00450491	24358999	484	70	64	2
Punjab	28	2002	2	175	2.03	169	1.96	109735	0.00450491	24358999	484	70	64	2
Punjab	28	2003	1	154	1.75	141	1.6	109735	0.00450491	24358999	484	70	64	
Punjab	28	2004	0	215	2.4	213	2.38	109735	0.00450491	24358999	484	70	64	5
Punjab	28	2005	1	263	2.88	260	2.84	109735	0.00450491	24358999	484	70	64	2.5
Punjab	28	2006	8	238	2.55	208	2.23	109735	0.00450491	24358999	484	70	64	5.25
Punjab	28	2007	1	371	3.89	368	3.86	109735	0.00450491	24358999	484	70	64	4.5
Punjab	28	2008	2	389	4	383	3.94	109735	0.00450491	24358999	484	70	64	4.5

Punjab	28	2009	4	457	4.61	450	4.53	109735	0.00450491	24358999	484	70	64	3.5
Punjab	28	2010	0	357	4.32	329	3.98	109735	0.004505	24358999	484	70	64	3
Punjab	28	2011	0	576	6.74	547	6.4	109735	0.004505	24358999	484	70	64	2
Punjab	28	2012	0	730	9.45	703	9.1	109735	0.004505	24358999	484	70	64	
Rajasthan	29	1999						124224	0.00219837	56507188	165	61	44	3
Rajasthan	29	2000	0	536	2.42	504	2.27	124224	0.00219837	56507188	165	61	44	2
Rajasthan	29	2001	0	451	1.9	435	1.83	124224	0.00219837	56507188	165	61	44	2
Rajasthan	29	2002	41	466	2.01	402	1.73	124224	0.00219837	56507188	165	61	44	2
Rajasthan	29	2003	4	440	1.85	383	1.61	124224	0.00219837	56507188	165	61	44	
Rajasthan	29	2004	0	624	2.59	613	2.54	124224	0.00219837	56507188	165	61	44	6
Rajasthan	29	2005	0	931	3.76	919	3.71	124224	0.00219837	56507188	165	61	44	4
Rajasthan	29	2006	1	1003	3.95	834	3.29	124224	0.00219837	56507188	165	61	44	5.25
Rajasthan	29	2007	3	1336	5.19	1323	5.14	124224	0.00219837	56507188	165	61	44	4.6
Rajasthan	29	2008	2	1353	5.08	1342	5.04	124224	0.00219837	56507188	165	61	44	6.5
Rajasthan	29	2009	3	1439	5.34	1430	5.3	124224	0.00219837	56507188	165	61	44	5.5
Rajasthan	29	2010						124224	0.002198	56507188	165	61	44	4
Rajasthan	29	2011	0	1823	6.47	1753	6.22	124224	0.002198	56507188	165	61	44	4.6
Rajasthan	29	2012	0	2053	7.36	1949	6.99	124224	0.002198	56507188	165	61	44	
Sikkim	30	1999						1803	0.00333363	540851	76	70	61	2
Sikkim	30	2000	0	12	5.95	12	5.95	1803	0.00333363	540851	76	70	61	2
Sikkim	30	2001	0	4	1.84	4	1.84	1803	0.00333363	540851	76	70	61	2
Sikkim	30	2002	0	1	0.45	1	0.45	1803	0.00333363	540851	76	70	61	2
Sikkim	30	2003	0	3	1.32	3	1.32	1803	0.00333363	540851	76	70	61	
Sikkim	30	2004	0	2	0.85	2	0.85	1803	0.00333363	540851	76	70	61	5
Sikkim	30	2005	0	2	0.82	2	0.82	1803	0.00333363	540851	76	70	61	2
Sikkim	30	2006	0	2	0.79	1	0.4	1803	0.00333363	540851	76	70	61	2
Sikkim	30	2007	0	6	2.31	6	2.31	1803	0.00333363	540851	76	70	61	2
Sikkim	30	2008	0	5	2.08	5	2.08	1803	0.00333363	540851	76	70	61	3.5
Sikkim	30	2009	0	3	1.22	3	1.22	1803	0.00333363	540851	76	70	61	1.5
Sikkim	30	2010	0	7	2.76	6	2.36	1803	0.003334	540851	76	70	61	2

Sikkim	30	2011	0	8	3.05	8	3.05	1803	0.003334	540851	76	70	61	2
Sikkim	30	2012	0	7	3.26	7	3.26	1803	0.003334	540851	76	70	61	2
Tamil Nadu	31	1999						223528	0.00358185	62405679	480	73	65	2
Tamil Nadu	31	2000	0	292	1.55	275	1.46	223528	0.00358185	62405679	480	73	65	2
Tamil Nadu	31	2001	0	302	1.57	294	1.53	223528	0.00358185	62405679	480	73	65	2
Tamil Nadu	31	2002	0	287	1.55	286	1.54	223528	0.00358185	62405679	480	73	65	2
Tamil Nadu	31	2003	2	310	1.66	267	1.43	223528	0.00358185	62405679	480	73	65	
Tamil Nadu	31	2004	1	398	2.1	395	2.09	223528	0.00358185	62405679	480	73	65	5
Tamil Nadu	31	2005	0	539	3.05	537	3.04	223528	0.00358185	62405679	480	73	65	2
Tamil Nadu	31	2006	0	423	2.37	376	2.11	223528	0.00358185	62405679	480	73	65	2
Tamil Nadu	31	2007	0	545	3.02	544	3.02	223528	0.00358185	62405679	480	73	65	2
Tamil Nadu	31	2008	0	557	3.06	557	3.06	223528	0.00358185	62405679	480	73	65	3.5
Tamil Nadu	31	2009	0	604	3.28	604	3.28	223528	0.00358185	62405679	480	73	65	1.5
Tamil Nadu	31	2010	0	602	3.55	570	3.45	223528	0.003582	62405679	480	73	65	2
Tamil Nadu	31	2011	0	622	3.76	607	3.67	223528	0.003582	62405679	480	73	65	2
Tamil Nadu	31	2012	0	655	3.72	630	3.58	223528	0.003582	62405679	480	73	65	2
Tripura	32	1999						9124	0.00285196	3199203	305	74	65	2
Tripura	32	2000	0	19	1.39	18	1.31	9124	0.00285196	3199203	305	74	65	2
Tripura	32	2001	0	20	1.57	20	1.57	9124	0.00285196	3199203	305	74	65	2
Tripura	32	2002	0	15	1.16	15	1.16	9124	0.00285196	3199203	305	74	65	2
Tripura	32	2003	0	8	0.61	6	0.46	9124	0.00285196	3199203	305	74	65	
Tripura	32	2004	0	21	1.58	52	4.83	9124	0.00285196	3199203	305	74	65	5
Tripura	32	2005	2	54	5.01	52	4.83	9124	0.00285196	3199203	305	74	65	2
Tripura	32	2006	0	53	4.85	41	3.75	9124	0.00285196	3199203	305	74	65	4
Tripura	32	2007	0	79	5.84	79	5.84	9124	0.00285196	3199203	305	74	65	2
Tripura	32	2008	0	60	4.37	60	4.37	9124	0.00285196	3199203	305	74	65	3.5
Tripura	32	2009	0	60	4.22	60	4.22	9124	0.00285196	3199203	305	74	65	1.5
Tripura	32	2010	0	87	5.95	82	5.61	9124	0.002852	3199203	305	74	65	2
Tripura	32	2011	0	58	3.91	58	3.91	9124	0.002852	3199203	305	74	65	2
Tripura	32	2012	0	91	6.28	90	6.21	9124	0.002852	3199203	305	74	65	2

Uttar Pradesh	33	1999						279762	0.00168331	166197921	690	57	43	4
Uttar Pradesh	33	2000	178	1847	2.64	1461	2.09	279762	0.00168331	166197921	690	57	43	3
Uttar Pradesh	33	2001	216	1871	2.82	1478	2.23	279762	0.00168331	166197921	690	57	43	4
Uttar Pradesh	33	2002	1242	3515	5.18	1845	2.72	279762	0.00168331	166197921	690	57	43	4
Uttar Pradesh	33	2003	83	1971	2.84	1562	2.25	279762	0.00168331	166197921	690	57	43	
Uttar Pradesh	33	2004	82	4058	5.72	3789	5.34	279762	0.00168331	166197921	690	57	43	6
Uttar Pradesh	33	2005	29	1026 4	14.14	10055	13.83	279762	0.00168331	166197921	690	57	43	9
Uttar Pradesh	33	2006	519	1219 2	16.42	10271	13.83	279762	0.00168331	166197921	690	57	43	7.5
Uttar Pradesh	33	2007	341	1488 5	19.59	14343	18.88	279762	0.00168331	166197921	690	57	43	10.5
Uttar Pradesh	33	2008	305	1764 9	22.71	17108	22.01	279762	0.00168331	166197921	690	57	43	10.5
Uttar Pradesh	33	2009	602	1878 5	23.63	17931	22.56	279762	0.00168331	166197921	690	57	43	8.4
Uttar Pradesh	33	2010	10	2142 3	26.26	19453	23.85	279762	0.001683	166197921	690	57	43	8
Uttar Pradesh	33	2011	0	2237 4	26.82	21635	25.93	279762	0.001683	166197921	690	57	43	8
Uttar Pradesh	33	2012	0	2096 8	25.79	20560	25.29	279762	0.001683	166197921	690	57	43	7
Uttarakhand	34	1999						25776	0.00303627	8489349	159	72	60	4
Uttarakhand	34	2000	0	0	0	0	0	25776	0.00303627	8489349	159	72	60	2
Uttarakhand	34	2001	3	68	2	60	1.77	25776	0.00303627	8489349	159	72	60	2
Uttarakhand	34	2002	14	98	2.84	81	2.34	25776	0.00303627	8489349	159	72	60	4
Uttarakhand	34	2003	0	87	2.59	67	1.99	25776	0.00303627	8489349	159	72	60	
Uttarakhand	34	2004	1	114	3.21	110	3.1	25776	0.00303627	8489349	159	72	60	5.5
Uttarakhand	34	2005	1	266	7.42	260	7.25	25776	0.00303627	8489349	159	72	60	5
Uttarakhand	34	2006	13	246	6.75	203	5.576	25776	0.00303627	8489349	159	72	60	5.25
Uttarakhand	34	2007	6	268	7.18	260	6.97	25776	0.00303627	8489349	159	72	60	4.7

Uttarakhand	34	2008	1	372	9.79	368	9.68	25776	0.00303627	8489349	159	72	60	6.5
Uttarakhand	34	2009	4	347	8.98	339	8.77	25776	0.00303627	8489349	159	72	60	5.5
Uttarakhand	34	2010	0	352	9.03	331	8.49	25776	0.003036	8489349	159	72	60	4
Uttarakhand	34	2011	0	365	9.19	361	9.09	25776	0.003036	8489349	159	72	60	4
Uttarakhand	34	2012	0	423	10.27	410	9.95	25776	0.003036	8489349	159	72	60	
West Bengal	35	1999						236044	0.00294407	80176197	903	69	60	4
West Bengal	35	2000	8	451	1.55	410	1.41	236044	0.00294407	80176197	903	69	60	3
West Bengal	35	2001	1	409	1.41	393	1.35	236044	0.00294407	80176197	903	69	60	3
West Bengal	35	2002	49	579	1.94	506	1.7	236044	0.00294407	80176197	903	69	60	3
West Bengal	35	2003	28	511	1.83	423	1.51	236044	0.00294407	80176197	903	69	60	
West Bengal	35	2004	2	711	2.5	697	2.45	236044	0.00294407	80176197	903	69	60	6
West Bengal	35	2005	0	1628	5.7	1619	5.66	236044	0.00294407	80176197	903	69	60	5.5
West Bengal	35	2006	1	1895	6.48	1756	6	236044	0.00294407	80176197	903	69	60	6.33
West Bengal	35	2007	2	2253	7.53	2239	7.47	236044	0.00294407	80176197	903	69	60	2.75
West Bengal	35	2008	2	1853	6.07	1844	6.04	236044	0.00294407	80176197	903	69	60	6.5
West Bengal	35	2009	0	1995	6.42	1988	6.4	236044	0.00294407	80176197	903	69	60	1.5
West Bengal	35	2010	8	2084	6.31	1942	5.88	236044	0.002944	80176197	903	69	60	6
West Bengal	35	2011	1	2515	7.47	2446	7.24	236044	0.002944	80176197	903	69	60	6
West Bengal	35	2012	0	3147	9.95	3095	9.79	236044	0.002944	80176197	903	69	60	