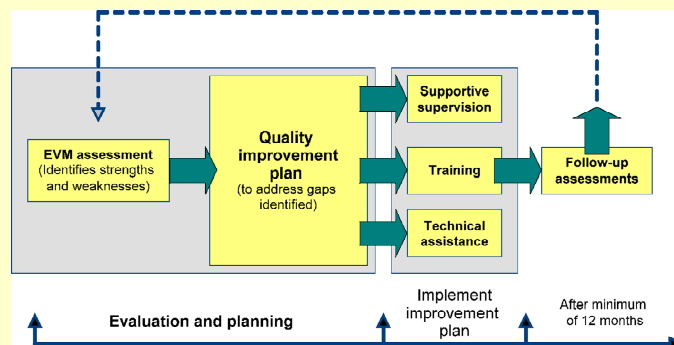




## Effective Vaccine Management (EVM)– A continuous process of quality improvement

Health care facilities and programmes rely on efficient and effective supply chain systems to store, transport and distribute healthcare products and commodities. This ensures that the right products are available at the right place, at the right time and in the right condition in order to provide health services to the community. Experience shows that a high quality vaccine supply chain is one of the most crucial elements of an immunization program. Maintaining high standards of performance in vaccine management can only be achieved if all the links in the vaccine supply chain are effectively monitored, assessed and improved based on good storage and distribution practice. WHO-UNICEF Effective Vaccine Management Initiative developed an EVM tool to help countries to monitor, assess and improve their vaccine management structures and procedures in depth, and on a continuing basis.



During the period 6-18 April 2011 an EVM Assessment was conducted in Bangladesh with the assistance of an external consultant. Five assessment teams consisting of the external consultant, five national EPI staff, six WHO staff, and one UNICEF staff conducted the assessment. Four districts (Naogaon, Khulna, Noakhali and Moulvibazar Districts) and one city corporation (Dhaka City Corporation) with varying immunization coverage and geographical (urban versus rural) attributes were included in the EVM assessment. Nineteen vaccine stores including the Central EPI Store were assessed.

The assessment focused on 9 global criteria for effective vaccine management. The satisfactory performance level is to reach 80% for each of the criteria. The final scoring of each criterion during the assessment period (Jan 2010–Dec 2010) is shown in the table below.

Criteria	Central Store	District Stores	Upazila Stores
Preshipment and vaccine arrival procedures	77%	N/A	N/A
Vaccine storage temperature	50%	67%	75%
Cold and dry storage capacity	67%	81%	95%
Buildings, cold chain equipment, transport system	97%	79%	80%
Maintenance of buildings, equipment and vehicles	72%	58%	63%
Stock management	77%	67%	74%
Distribution of vaccines and logistics	89%	72%	86%
Vaccine management policies	65%	69%	76%
MIS and supportive functions	66%	35%	62%

Surveillance Summary												
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011 <sup>1</sup>	
Number of AFP cases	1287	1365	1128	1301	1458	1619	1844	1790	1502	1537	720	
No. of compatible cases according to virologic classification system	36	0	0	2	0	2	0	0	0	0	0	
No. of cases with isolation of wild poliovirus	0	0	0	0	0	18	0	0	0	0	0	
No. of discarded polio cases (i.e., non-polio AFP)	1251	1365	1128	1299	1458	1599	1844	1790	1502	1537	549	
No. of cases pending classification	0	0	0	0	0	0	0	0	0	0	171	
Expected annual number of non-polio AFP cases (2/100,000 children <15 yr)*	533	549	556	563	1094	1114	1135	1153	1151	1203	1220	
AFP Surveillance Performance Indicators												
Indicators	Target	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011 <sup>1</sup>
01 Annual Non-Polio AFP rate in children < 15 years old	≥ 2.0	2.34	2.49	2.03	2.31	2.66	2.87	3.25	3.10	2.61	2.63	1.93
02 Completeness of passive reporting from facilities	≥ 90%	65%	62%	67%	82%	91%	89%	90%	93%	91%	91%	93%
03 Timeliness of passive reporting from facilities	≥ 80%	38%	36%	62%	75%	84%	83%	85%	87%	86%	84%	84%
04 Suspected AFP cases investigated within 48 hours of notification	≥ 80%	96%	96%	98%	98%	99%	100%	99%	99%	99%	99%	99%
05 Confirmed AFP cases with 2 stool specimens collected within 14 days after paralysis onset	≥ 80%	80%	89%	90%	90%	92%	93%	92%	92%	94%	95%	95%
06 Stool specimens arriving at laboratory within 3 days after collection	≥ 80%	97%	98%	99%	99%	98%	99%	100%	100%	100%	100%	100%
07 Stool specimens arriving at laboratory in "good" condition "good" = 1. Presence of unmelting ice or temperature <8°C 2. Adequate volume (≥ 8 grams or size of ½ thumb) 3. No evidence of leakage 4. No evidence of desiccation (drying)	≥ 90%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
08 Confirmed AFP cases receiving a follow-up exam at least 60 days after paralysis onset	≥ 80%	93%	99%	100%	98%	99%	100%	100%	99%	99%	99%	93% <sup>2</sup>
09 Stool specimens with laboratory results:												
- Within 28 days after specimen receipt (old algorithm)	≥ 80%	99%	100%	100%	100%	100%	98%	100%	-	-	-	-
- Within 14 days after specimen receipt (new algorithm)	≥ 80%							80%	93%	95%	96%	94%
10 Stool specimens from which non-polio enterovirus (NPEV) was isolated	≥ 10%	29%	28%	23%	20%	20%	15%	15%	23%	19%	19%	17%

<sup>1</sup> Data as of June 25, 2011; <sup>2</sup> among cases occurring up to April 10, 2011; \* Prior to 2005 NPAFP rate calculated as 1/100,000 under 15 children

Please provide your feedback and comments to Dr. Md. Tawheed Hassan, DPM-EPI or Dr. Md. Shamsul Ashraf Khan, Program Manager,  
Child Health & Limited Curative Care, EPI Bhaban, Mohakhali, Dhaka 1212 Telephone: 9880530 or 9898797  
Chief Advisor to the Editorial Board: Dr. A.B.M. Jahangir Alam, Director, PHC & Line Director-ESD, DGHS, Mohakhali Dhaka.

**AFP Surveillance Performance Indicators, 2010 - 2011**

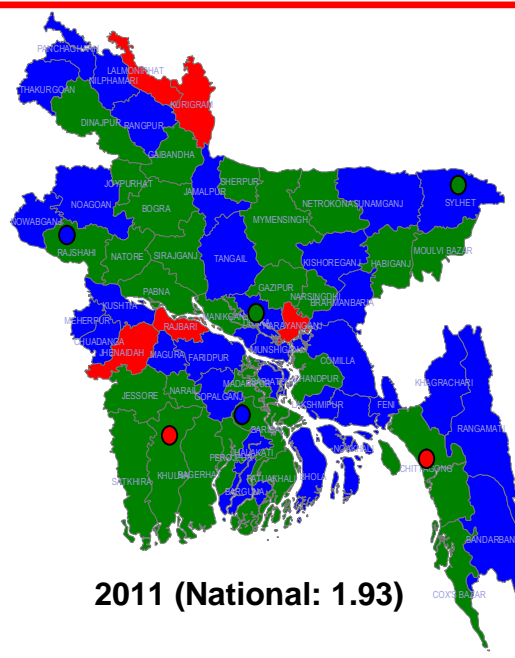
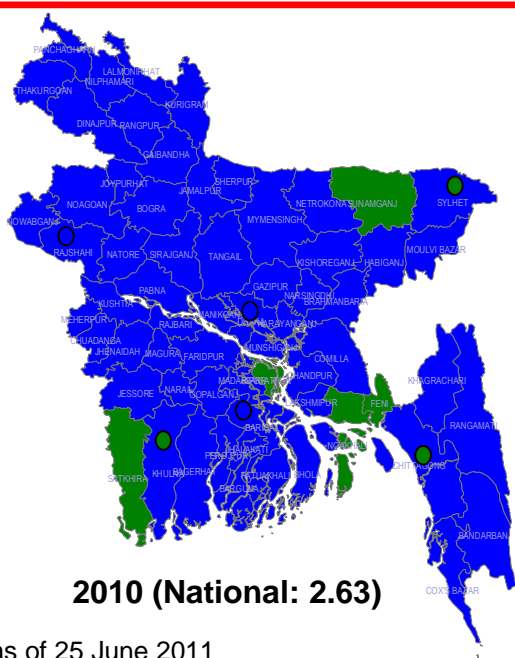
District	Minimum operational target of non-polio AFP		Total # AFP <sup>1</sup>		Wild polio-virus isolated		# Compatible cases		Non- Polio AFP cases <sup>1</sup>		Pending final classif. <sup>1</sup>		Annualized Non-polio AFP Rate <sup>1</sup>		Notification within 10 d after paralysis onset <sup>1</sup>		Investigation within 48 h after notification <sup>1</sup>		% with 2 stools within 14 days <sup>1</sup>		Stool sample arriving to lab within 72 hrs <sup>1</sup>		% with 60-day follow-up <sup>2</sup>	
	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011
Barisal Division																								
Barguna	8	9	8	5					8	5	0	0	2.01	2.58	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Barisal (non BCC)	21	21	29	9					29	6	0	3	2.90	1.23	100%	100%	100%	100%	97%	100%	100%	100%	100%	100%
BCC only	3	3	4	2					4	2	0	0	3.78	3.87	100%	100%	100%	100%	100%	100%	100%	100%	100%	NA
Bhola	17	17	25	13					25	10	0	3	3.12	2.56	96%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Jhalakati	7	7	11	7					11	7	0	0	3.37	4.40	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Patuakhali	14	15	15	8					15	6	0	2	2.17	1.78	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Peropjur	11	11	19	11					19	5	0	6	3.67	1.98	100%	100%	100%	100%	100%	91%	100%	95%	100%	NA
Total BAR	81	83	111	55	0	0	0	0	111	41	0	14	2.89	2.19	99%	100%	100%	100%	99%	98%	100%	99%	100%	100%
Chittagong Division																								
Bandarban	3	3	5	2					5	2	0	0	3.53	2.89	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Brahmanbaria	23	23	30	17					30	13	0	4	2.68	2.38	100%	100%	100%	100%	97%	100%	98%	94%	100%	100%
Chandpur	22	22	23	12					23	8	0	4	2.18	1.55	91%	75%	100%	100%	91%	83%	100%	100%	100%	100%
Chittagong (non CCC)	42	42	42	23					42	20	0	3	2.04	1.99	83%	96%	100%	96%	83%	87%	100%	100%	100%	100%
CCC only	21	21	18	6					18	3	0	3	1.76	0.60	94%	100%	100%	100%	94%	83%	100%	100%	100%	NA
Comilla	44	44	63	24					63	22	0	2	2.91	2.09	97%	100%	100%	100%	97%	100%	100%	100%	100%	100%
Cox's Bazar	17	17	20	11					20	8	0	3	2.41	1.98	95%	100%	100%	100%	95%	100%	100%	100%	100%	100%
Feni	12	12	7	13					7	9	0	4	1.23	3.25	100%	100%	86%	100%	100%	100%	100%	100%	100%	100%
Khagrachari	5	5	8	4					8	3	0	1	3.29	2.53	88%	75%	100%	100%	88%	75%	100%	100%	100%	100%
Lakshmipur	15	15	17	9					17	9	0	0	2.43	2.63	94%	100%	100%	100%	94%	100%	100%	100%	100%	100%
Noakhali	25	25	17	20					17	12	0	8	1.40	2.03	100%	90%	71%	95%	100%	95%	100%	100%	100%	100%
Rangamati	5	6	7	4					7	3	0	1	2.83	2.49	100%	100%	100%	100%	100%	100%	100%	100%	NA	NA
Total-CTG	234	235	257	145	0	0	0	0	257	112	0	33	2.26	2.02	94%	95%	98%	99%	94%	94%	100%	99%	100%	100%
Dhaka Division																								
Dhaka (non DCC)	24	24	45	24					45	15	0	9	3.84	2.63	93%	92%	100%	100%	98%	88%	99%	98%	100%	100%
DCC only	58	59	70	24					70	21	0	3	2.42	1.49	96%	100%	100%	100%	94%	100%	100%	98%	100%	80%
Faridpur	17	17	17	11					17	9	0	2	2.07	2.25	94%	91%	100%	100%	94%	100%	100%	100%	100%	100%
Gazipur	20	20	27	9					27	7	0	2	2.83	1.51	100%	89%	100%	100%	96%	89%	100%	100%	80%	100%
Gopalganj	11	12	16	10					16	8	0	2	2.95	3.02	88%	100%	100%	100%	88%	100%	100%	100%	100%	NA
Jamalpur	20	21	36	17					36	12	0	5	3.63	2.48	100%	100%	100%	94%	100%	100%	100%	100%	100%	NA
Kishoreganj	25	25	42	17					42	12	0	5	3.49	2.04	90%	94%	93%	100%	93%	82%	100%	100%	92%	100%
Madaripur	11	11	12	6					12	5	0	1	2.25	1.93	100%	100%	92%	100%	100%	100%	100%	100%	100%	NA
Manikganj	13	13	23	8					23	5	0	3	3.75	1.67	100%	88%	100%	100%	100%	88%	98%	100%	100%	0%
Munshiganj	13	13	20	6					20	6	0	0	3.29	2.03	100%	100%	100%	100%	95%	100%	100%	92%	100%	100%
Mymensingh	43	43	48	22					48	14	0	8	2.28	1.37	88%	86%	100%	100%	96%	91%	100%	100%	100%	100%
Narayanganj	21	21	24	10					24	4	0	6	2.35	0.80	100%	90%	100%	100%	96%	90%	100%	100%	100%	0%
Narsingdhi	18	19	25	9					25	8	0	1	2.79	1.83	92%	100%	100%	100%	100%	100%	100%	100%	100%	0%
Netrokona	19	19	31	9					31	8	0	1	3.34	1.77	87%	89%	100%	89%	94%	89%	100%	100%	100%	100%
Rajbari	9	10	11	5					11	1	0	4	2.45	0.46	91%	100%	100%	100%	91%	80%	100%	100%	100%	NA
Sariatpur	11	11	10	5					10	5	0	0	1.96	2.01	90%	100%	100%	100%	90%	100%	100%	100%	100%	100%
Sherpur	12	13	15	3					15	3	0	0	2.51	1.03	87%	100%	100%	100%	93%	100%	100%	100%	100%	NA
Tangail	31	32	35	19					35	18	0	1	2.28	2.40	97%	84%	100%	100%	91%	95%	100%	100%	100%	100%
Total-DHAKA	376	383	507	214	0	0	0	0	507	161	0	53	2.76	1.80	94%	93%	99%	99%	95%	93%	100%	100%	98%	83%
Khulna Division																								
Bagerhat	15	15	16	4					16	4	0	0	2.24	1.15	100%	100%	100%	100%	100%	100%	100%	100%	100%	NA
Chuadanga	10	10	20	9					20	8	0	1	4.22	3.46	100%	100%	90%	89%	85%	100%	100%	100%	100%	100%
Jessore	24	24	33	15					33	11	0	4	2.84	1.94	94%	93%	100%	100%	97%	93%	100%	100%	100%	100%
Jhenaidah	15	15	18	3					18	3	0	0	2.44	0.83	89%	100%	100%	100%	89%	100%	100%	100%	100%	100%
Khulna (non KCC)	14	15	22	8					22	4	0	4	3.18	1.18	100%	100%	100%	100%	100%	100%	100%	100%	100%	NA
KCC only	9	9	8	1					8	1	0	0	1.91	0.49	100%	100%	100%	100%	100%	100%	100%	100%	100%	NA
Kushtia	17	17	17	12					17	10	0	2	2.08	2.51	100%	100%	88%	100%	88%	100%	100%	100%	100%	0%
Magura	8	8	10	5					10	4	0	1	2.58	2.12	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Meherpur	6	6	10	5					10	4	0	1	3.61	2.96	90%	100%	100%	100%	70%	100%	100%	100%	100%	NA
Narail	7	7	7	5					7	3	0	2	2.14	1.88	86%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Satkhira	18	18	17	9					17	5	0	4	1.96	1.18	100%	89%	100%	100%	94%	89%	100%	100%	100%	100%
Total-KHU	143	144	178	76	0	0	0	0	178	57	0	19	2.59	1.70	97%	97%	98%	99%	93%	97%	100%	100%	100%	89%
Rajshahi Division																								
Bogra	29	29	29	13					29	12	0	1	2.04	1.73	100%	92%	100%	100%	100%	100%	100%	100%	100%	NA
Joypurhat	9	9	11	7					11	3	0	4	2.73	1.52	91%	100%	91%	100%	91%	100%	100%	100%	100%	100%
Natore	15	15	31	8					31	5	0	3	4.34	1.43	97%	100%	100%	100%	97%	100%	100%	100%	100%	NA

**Disease Surveillance, 2010 - 2011**

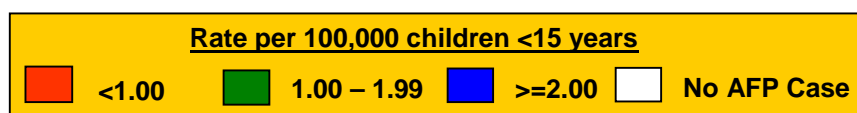
District	Neonatal Tetanus						Measles								AEFI	
	# of case reported by Active Surveillance		# of case reported by Passive Surveillance		# of case Investigated		# of case reported by Active Surveillance		# of case reported by Passive Surveillance		Outbreak*				# of case Reported	
											Number of Outbreak (% Investigated)		# of cases			
	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011
<b>Barisal Division</b>																
Barguna			1				1	18	8	30		1 (100%)		9	10	1
Barisal (non BCC)	2	1	3	2		1		3	4	1					64	10
BCC only							2	1	2	1					4	
Bhola	2		4		3			9	2	8					2	2
Jhalakhati							1	5	1	4					30	2
Patuakhali	4		3		4		1	20	7	6		2 (100%)		30	1	2
Pirojpur							1	10	13	3					13	8
<b>Total-Barisal</b>	<b>8</b>	<b>1</b>	<b>11</b>	<b>2</b>	<b>7</b>	<b>1</b>	<b>6</b>	<b>66</b>	<b>37</b>	<b>53</b>		<b>3 (100%)</b>	<b>0</b>	<b>39</b>	<b>124</b>	<b>25</b>
<b>CTG Division</b>																
Bandarban								1	1	2		3 (100%)		109	2	1
Brahmanbaria	4	1	2		1			1	11	3					13	4
Chandpur	2		1		2		3	4	44	5	1 (100%)	2 (100%)	18	27	16	6
Chittagong (non CCC)			1				2	6	9	8					11	1
CCC only	6		5		6		9	20	3	7		4 (100%)		172	1	
Comilla	4				5		1	1	29	6		1 (100%)		29	13	2
Cox's Bazar	1	1	1		1		1	2	7	4					2	
Feni	4		3		4			5	2	11					6	1
Khagrachari							2	10	10	8		1 (100%)		6	4	
Laxmipur	5	1	11	1	6	1	2	5	47	29		3 (100%)		53	16	7
Noakhali	4		4		5	1		6	5	24					9	1
Rangamati							5	8	15	11					6	
<b>Total-Chittagong</b>	<b>30</b>	<b>3</b>	<b>28</b>	<b>1</b>	<b>30</b>	<b>2</b>	<b>25</b>	<b>69</b>	<b>183</b>	<b>118</b>	<b>1 (100%)</b>	<b>14 (100%)</b>	<b>18</b>	<b>396</b>	<b>99</b>	<b>23</b>
<b>Dhaka Division</b>																
Dhaka (non DCC)	3		1		4		1	66	39	22	1 (100%)	1 (100%)	87	8	29	
DCC only	4	1	2		3	1	19	173	230	133		6 (100%)		206	36	10
Faridpur	4		7	1	3				6	3					59	11
Gazipur	1	1	1		1	1	6	9	28	11					21	10
Gopalganj		2		3			2	2	1	2		1 (100%)		27	18	3
Jamalur	2		1		1				109	38					19	6
Kishoreganj	5	1	8	4	5	2	1	1	56	13					22	2
Madaripur		3		4			2	2	6			1 (100%)		7	52	15
Manikganj								3	15	11		1 (100%)		6	24	5
Munshiganj		1		1		1	2	4	91	30	1 (100%)		46		28	3
Mymensingh	4	5	9	6	3	5	4	12	45	36		1 (100%)		5	52	14
Narayanganj	1	1			1	1	1	4	23	5		1 (100%)		5	27	5
Narsingdhi								1	15	19					41	18
Netrokona	1	1	4	1		1			36	17		1 (100%)		13	3	2
Rajbari	1		1		1				10	11		1 (100%)		6	30	16
Shariatpur			1					2	21	9					22	5
Sherpur			3					1	21	15					12	1
Tangail	4	1	3		4	1	11	6	20	17					58	21
<b>Total-Dhaka</b>	<b>30</b>	<b>17</b>	<b>41</b>	<b>20</b>	<b>26</b>	<b>13</b>	<b>49</b>	<b>286</b>	<b>772</b>	<b>392</b>	<b>2 (100%)</b>	<b>14 (100%)</b>	<b>133</b>	<b>283</b>	<b>553</b>	<b>147</b>
<b>Khulna Division</b>																
Bagerhat	2	1	3	1	2				7	3	1(100%)	2(100%)	12	16	97	12
Chuadanga	2		2		1			1	3	11					10	4
Jessore	2	1	2		2		5	4	21	22					32	4
Jhenaidah	1		1		1		2	33	7	16		1(100%)		13	9	3
Khulna (non KCC)		2		3				1	19	7					43	17
KCC only	1		1	1	1			1	1	3					24	4
Kushtia	1	1		1	1		2	5	16	9		1(100%)		27	10	5
Magura		2		1				4	10	8					21	7
Meherpur							2	5	20	8					2	2
Narail	1		3		1		1	13	15	9		1(100%)		5	6	5
Satkhira	1		1		1		2	1	10	3					28	5
<b>Total-Khulna</b>	<b>11</b>	<b>7</b>	<b>13</b>	<b>7</b>	<b>10</b>	<b>0</b>	<b>14</b>	<b>68</b>	<b>129</b>	<b>99</b>	<b>1(100%)</b>	<b>5(100%)</b>	<b>12</b>	<b>61</b>	<b>282</b>	<b>68</b>
<b>Rajshahi Division</b>																
Bogra	2	1	1	1	2	1	3	4	36	25		1(100%)		7	125	21
Joypurhat								7	1	16					27	10
Natore	1		1		1		1		39	25		1(100%)		6	28	8
Noagoan		1			1	11	24	41	40			6(100%)		63	51	6
Nowabganj	1		1		1		2	1	20	19		1(100%)		10	7	9
Pabna	1	1	1		1	1	3	1	113	64		2(100%)		25	24	6
Rajshahi (non RCC)	2		1		2		3	1	14	14	1(100%)	1(100%)	57	8	37	10
RCC only							4	17	22	17	1(100%)	11(100%)	40	168	42	3
Sirajganj	1	1			1	1	1		1	1		3(100%)		25	9	
<b>Total-Rajshahi</b>	<b>8</b>	<b>4</b>	<b>5</b>	<b>1</b>	<b>7</b>	<b>4</b>	<b>28</b>	<b>55</b>	<b>287</b>	<b>221</b>	<b>2(100%)</b>	<b>26(100%)</b>	<b>97</b>	<b>312</b>	<b>350</b>	<b>73</b>
<b>Rangpur Division</b>																
Dinajpur	1		2		1		1	5	25	83		2(100%)		12	51	18
Gaibandha	1	1	1	1	1	1		3	4	7					28	5
Kurigram	2				2		1	3	1	1					12	2
Lalmonirhat								6	1	3					24	7
Nilphamari					1		1	1	1	3		1(100%)		4	32	3
Panchagarh							1	2	3	3					17	7
Rangpur	1		1		1					5					7	9
Thakurgaon							4		16	31					22	6
<b>Total-Rangpur</b>	<b>5</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>6</b>	<b>1</b>	<b>8</b>	<b>20</b>	<b>51</b>	<b>136</b>		<b>3 (100%)</b>	<b>0</b>	<b>16</b>	<b>193</b>	<b>57</b>
<b>Sylhet Division</b>																
Habiganj	7	3	7	4	2		5	1	9	3					6	2
Maulvibazar	2	1	3	2	1		18	6	24	11					4	1
Sunamganj	5		4	1	5		6	19	6	27		2 (100%)		118	21	
Sylhet (non SCC)							19	8	29	24		1 (100%)		5	2	2
SCC only							16	1	9	5						1
<b>Total-Sylhet</b>	<b>14</b>	<b>4</b>	<b>14</b>	<b>7</b>	<b>8</b>	<b>0</b>	<b>64</b>	<b>35</b>	<b>77</b>	<b>70</b>		<b>3 (100%)</b>	<b>0</b>	<b>123</b>	<b>33</b>	<b>6</b>
<b>National</b>	<b>106</b>	<b>37</b>	<b>116</b>	<b>39</b>	<b>94</b>	<b>21</b>	<b>194</b>	<b>599</b>	<b>1,536</b>	<b>1,089</b>	<b>6(100%)</b>	<b>68 (100%)</b>	<b>260</b>	<b>1,230</b>	<b>1,634</b>	<b>399</b>

Data as of 30 June 2011, \* Only Lab Confirmed Measles and Mixed Type outbreak Cases

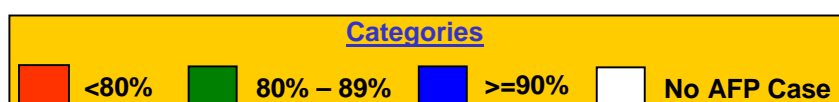
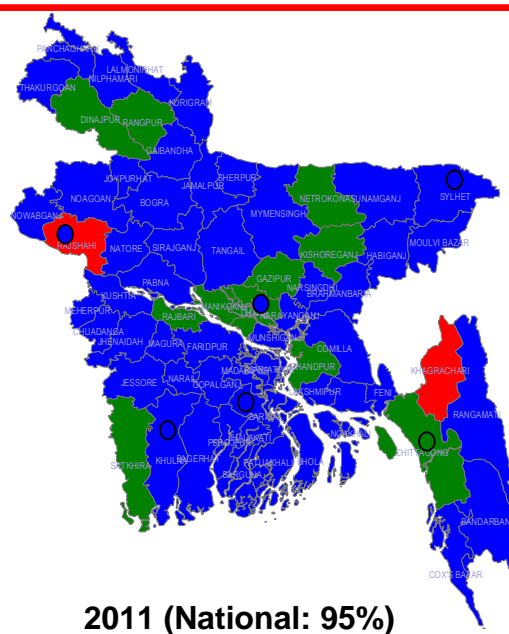
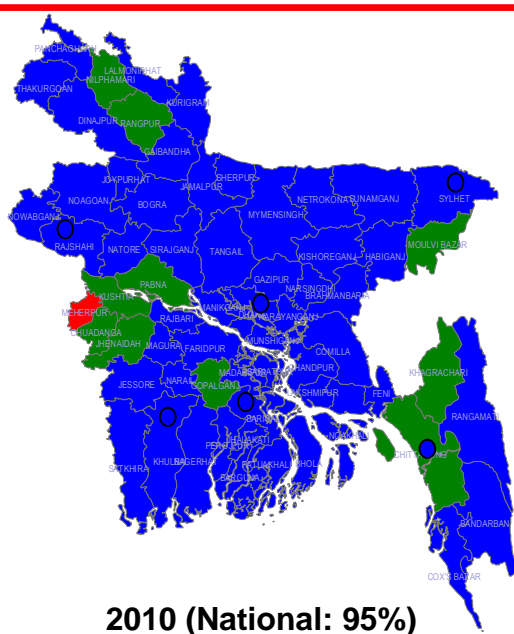
## Annualized Non-Polio AFP Rate, by District, Bangladesh 2010-2011\*



\*Data as of 25 June 2011



## Percentage of AFP Cases with Two Stool Samples Collected within 14 days of Paralysis Onset, by District, Bangladesh 2010-2011\*



\*Data as of 25 June 2011

International Developmental Partners for Polio Eradication in Bangladesh include Centers for Disease Control and Prevention, Atlanta, Governments of Japan, the Netherlands, USAID, Rotary International, U.K. DFID, UN Foundation, UNICEF and WHO