



Introduction of MR Vaccine and Incorporating Case Based 'Congenital Rubella Syndrome' (CRS) Surveillance

In 2003, Bangladesh intensified Measles surveillance by integrating to AFP surveillance. Operational definition of Measles outbreak was redefined in 2008. Bangladesh started Measles case based surveillance in all passive facilities with laboratory support since 2008. All suspected Measles outbreaks have been investigated with laboratory testing of a serum sample from 5-10 suspected measles cases. Country also conducted Measles Catch-up campaign in 2005-06 targeting >35 million children aged between 9 months to <10yrs followed by Measles Follow-up campaign in 2010 targeting >18 million children aged between 9 months to <5yrs, as key strategy for sustainable measles mortality reduction. Since, rubella and measles are indistinguishable clinically; all the suspected measles outbreaks with negative laboratory results were also tested for rubella and found positive in alarmingly high number. Through this process many rubella outbreaks were confirmed i.e. 193, 89 and 66 outbreaks in 2010, 2011 and 2012 respectively. The rubella incidence was 8.74, 3.35 and 1.87 per 100,000 population in 2010, 2011 and 2012 respectively. High incidence of rubella can lead to an assumption that Congenital Rubella Syndrome is a public health problem in Bangladesh.

To combat the situation, EPI-Bangladesh has introduced a combined MR (Measles and Rubella) and Measles Second Dose (MSD) in order to protect children and adolescent girls or women of child bearing age (WCBA). Through implementation of rubella vaccination strategies the incidence of rubella has been substantially reduced in many countries. Countries that had achieved high rubella vaccine coverage had reduced incidence of CRS.

Rubella infection during early pregnancy may result in abortion, miscarriage, foetal death or birth of a child with serious congenital defects known as congenital rubella syndrome (CRS). CRS is an important cause of blindness, deafness, congenital heart disease and mental retardation. **Suspected CRS case:** is defined as any infant <1 yr of age in whom a health worker suspects: 1) when an infant's mother has a history of suspected or confirmed rubella during pregnancy, even when the infant shows no sign of CRS. 2) when an infant aged 0-11 months presents with heart disease and/or suspicion of deafness and/or one or more of the following eye signs: white pupil (cataract), diminished vision, pendular movement of the eyes (nystagmus), squint, smaller eyeball (microphthalmus) or larger eyeball (congenital glaucoma). **Clinically Confirmed CRS case:** An infant <1 yr of age in whom a qualified physician detects at least two of the complications listed in group (A) or one in group (A) and one in group (B).

- (A) Cataract(s), Congenital Glaucoma, Congenital Heart Disease, Loss of Hearing, Pigmentary Retinopathy.
- (B) Purpura, Splenomegaly, Microcephaly, Mental retardation, Meningoencephalitis, Radiolucent Bone Disease, Jaundice that begins within 24 hours after birth.

Laboratory Confirmed CRS: An infant <1 yr of age with clinically confirmed CRS, who has a positive blood test for rubella-specific IgM. All suspected CRS cases need to be examined by a physician and all clinically confirmed CRS cases need to be tested for laboratory confirmation by collecting 1ml blood sample in selected health facilities.

Since November 2012, sentinel surveillance for congenital rubella syndrome (CRS) initiated in all active surveillance sites and specialized health facilities that are likely to identify and report CRS cases. These facilities include neonatology, paediatric, ENT, cardiology, ophthalmology units. Since integration till 31 March '13 a total of 17 clinically confirmed CRS cases were reported. Among those blood samples were collected from 15 cases of which 4 were serologically confirmed. Hence so far four laboratory confirmed and 13 clinically confirmed CRS cases have been identified. Along with introduction of MR vaccine in routine vaccination programme, incorporation of case based CRS surveillance, GoB also planned to hold MR vaccination campaign towards the end of this year in order to stop transmission chain. These combined efforts represent an important step forward in saving lives and preventing serious congenital defects resulting from rubella infection in early pregnancy.

Surveillance Summary

Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013 ¹
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Number of AFP cases	1287	1365	1128	1301	1458	1619	1844	1790	1502	1537	1610	1565	331
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No. of compatible cases according to virologic classification system	36	0	0	2	0	2	0	0	0	0	0	0	0
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No. of cases with isolation of wild poliovirus	0	0	0	0	0	18	0	0	0	0	0	0	0
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No. of discarded polio cases (i.e., non-polio AFP)	1251	1365	1128	1299	1458	1599	1844	1790	1502	1537	1610	1553	195
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No. of cases pending classification	0	0	0	0	0	0	0	0	0	0	0	12	136
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Expected annual number of non-polio AFP cases (2/100,000 children <15 yr)*	533	549	556	563	1094	1114	1135	1153	1151	1203	1075	1085	1099
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AFP Surveillance Performance Indicators

Indicators	Target	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013 ¹
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	2.72	2.96	1.46
02 Completeness of passive reporting from facilities	≥ 90%	65%	62%	67%	82%	91%	89%	90%	93%	91%	91%	92%	92%	97%
03 Timeliness of passive reporting from facilities	≥ 80%	38%	36%	62%	75%	84%	83%	85%	87%	86%	84%	86%	86%	90%
04 Suspected AFP cases investigated within 48 hours of notification	≥ 80%	96%	96%	98%	98%	99%	100%	99%	99%	99%	99%	99%	98%	98%
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%	96%	96%
06 Stool specimens arriving at laboratory within 3 days after collection	≥ 80%	97%	98%	99%	99%	98%	99%	100%	100%	100%	100%	100%	100%	99%
07 Stool specimens arriving at laboratory in "good" condition "good" = 1. Presence of unmelted 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%	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%	100%	99%	50% ²
09 Stool specimens with laboratory results: - Within 28 days after specimen receipt (old algorithm)	≥ 80%	99%	100%	100%	100%	98%	100%	-	-	-	-	-	-	-
	≥ 80%	80%	93%	95%	96%	97%	98%	80%	93%	95%	96%	91%	84%	96%
10 Stool specimens from which non-polio enterovirus (NPEV) was isolated	≥ 10%	29%	28%	23%	20%	20%	15%	15%	23%	19%	19%	18%	14%	8%

¹ Data as of March 30, 2013; ² among cases occurring up to January 12, 2013; * Prior to 2005 NPAPP rate calculated as 1/100,000 under 15 children

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AFP Surveillance Performance Indicators, 2012 - 2013

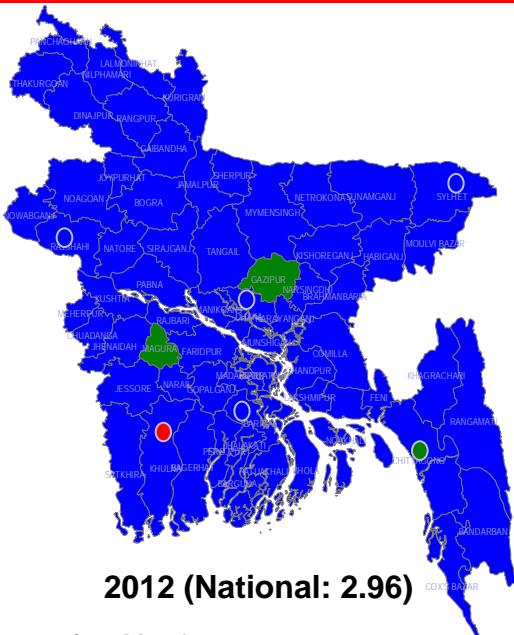
District	Minimum operational target of non-polio AFP		Total # AFP ¹		Wild polio-virus isolated		# Compatible cases		Non- Polio AFP cases ¹		Pending final classif. ¹		Annualized Non-polio AFP Rate ¹		Notification within 10 d after paralysis onset ¹		Investigation within 48 h after notification ¹		% with 2 stools within 14 days ¹		Stool sample arriving to lab within 72 hrs ¹		% with 60-day follow-up ²		
	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013	
Barisal Division																									
Barguna	7	7	10	0					10	0	0	0	3.07	0.00	100%	NA	100%	NA	90%	NA	100%	NA	100%	NA	
Barisal (non BCC)	15	15	26	5					26	3	0	2	3.57	1.63	96%	100%	100%	96%	100%	100%	100%	100%	100%	100%	NA
BCC only	3	3	3	5					3	1	0	4	2.51	3.30	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	NA
Bhola	13	14	39	11					39	5	0	6	6.02	3.05	100%	91%	100%	97%	91%	100%	100%	100%	100%	100%	100%
Jhalakati	5	6	11	0					11	0	0	0	4.42	0.00	91%	NA	100%	NA	100%	NA	100%	NA	100%	NA	
Patuakhali	12	12	18	1					18	0	0	1	3.22	0.00	89%	100%	100%	100%	100%	100%	100%	100%	100%	100%	NA
Perojpur	9	9	14	4					14	3	0	1	3.45	2.92	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	NA
Total-BAR	64	66	121	26	0	0	0	0	121	12	0	14	3.99	1.56	97%	96%	100%	100%	98%	96%	100%	98%	100%	100%	
Chittagong Division																									
Bandarban	3	3	5	1					5	0	0	1	3.53	0.00	80%	100%	100%	100%	80%	100%	100%	100%	100%	100%	NA
Brahmanbaria	21	21	30	4					30	2	0	2	2.90	0.76	93%	100%	100%	100%	90%	100%	100%	100%	100%	100%	NA
Chandpur	18	18	45	7					45	3	0	4	5.10	1.34	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%
Chittagong (non CCC)	37	38	51	10					51	5	0	5	2.79	1.08	98%	100%	100%	100%	98%	100%	100%	100%	100%	100%	NA
CCC only	19	20	17	6					17	4	0	2	1.80	1.67	100%	100%	100%	100%	83%	100%	100%	100%	100%	100%	NA
Comilla	40	40	51	11					51	7	0	4	2.60	1.41	96%	100%	94%	100%	100%	100%	100%	100%	100%	100%	0%
Cox's Bazar	17	17	22	3					22	2	0	1	2.63	0.94	95%	100%	91%	100%	95%	100%	100%	83%	100%	NA	
Feni	11	11	21	1					21	1	0	0	4.00	0.75	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	NA
Khagrachari	5	5	11	0					11	0	0	0	4.91	0.00	100%	NA	82%	NA	100%	NA	100%	NA	100%	NA	
Lakshmipur	13	13	22	3					22	2	0	1	3.49	1.25	100%	67%	100%	100%	67%	100%	100%	100%	100%	100%	NA
Noakhali	23	23	38	5					38	3	0	2	3.35	1.04	100%	97%	100%	100%	100%	100%	100%	100%	100%	100%	NA
Rangamati	5	5	7	1					7	0	0	1	3.22	0.00	86%	100%	100%	100%	86%	100%	100%	100%	100%	100%	NA
Total-CTG	212	214	320	52	0	0	0	0	320	29	0	23	3.09	1.10	98%	98%	98%	98%	97%	98%	100%	99%	99%	0%	
Dhaka Division																									
Dhaka (non DCC)	37	38	37	9					37	4	0	5	2.03	0.86	97%	100%	97%	100%	100%	89%	100%	100%	100%	100%	NA
DCC only	52	52	71	19					71	12	0	7	2.77	1.85	92%	89%	100%	100%	92%	84%	99%	100%	100%	100%	NA
Faridpur	14	15	19	7					19	4	0	3	2.72	2.26	95%	100%	95%	100%	95%	100%	97%	100%	100%	100%	NA
Gazipur	25	26	22	7					22	6	0	1	1.77	1.90	95%	86%	91%	100%	95%	100%	95%	100%	100%	100%	NA
Gopalganj	9	9	13	1					13	1	0	0	3.04	0.92	92%	100%	100%	100%	92%	100%	100%	100%	100%	100%	NA
Jamalpur	17	17	25	2					25	0	0	2	2.99	0.00	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	NA
Kishoreganj	22	22	36	5					36	2	0	3	3.39	0.74	97%	100%	97%	100%	100%	97%	100%	100%	100%	100%	NA
Madaripur	9	9	11	4					11	4	0	0	2.59	3.71	100%	100%	100%	100%	91%	100%	100%	88%	100%	NA	
Manikganj	11	11	16	3					16	1	0	2	3.15	0.78	94%	100%	100%	100%	100%	100%	94%	100%	100%	NA	
Munshiganj	11	11	15	2					15	2	0	0	2.85	1.50	100%	100%	100%	100%	100%	100%	100%	100%	100%	NA	
Mymensingh	38	38	43	6					42	3	1	3	2.25	0.64	88%	100%	98%	100%	91%	100%	97%	100%	100%	NA	
Narayanganj	22	22	24	8					23	5	1	3	2.13	1.83	88%	100%	100%	100%	92%	100%	100%	83%	NA		
Narsingdi	17	17	19	2					19	0	0	2	2.34	0.00	79%	100%	100%	100%	89%	100%	100%	100%	100%	NA	
Netrokona	17	17	25	4					25	1	0	3	3.08	0.49	100%	50%	96%	100%	96%	75%	96%	100%	100%	0%	
Rajbari	8	8	12	4					12	3	0	1	3.14	3.09	92%	100%	92%	100%	100%	100%	100%	100%	100%	NA	
Sariatpur	9	9	16	4					16	2	0	2	3.80	1.87	94%	100%	100%	100%	100%	100%	100%	100%	100%	NA	
Sherpur	10	11	18	2					18	1	0	1	3.63	0.80	89%	100%	100%	100%	100%	100%	100%	100%	100%	NA	
Tangail	27	27	35	8					34	4	1	4	2.59	1.20	97%	88%	91%	100%	97%	100%	100%	100%	100%	NA	
Total-DHAKA	355	359	457	97	0	0	0	0	454	55	3	42	2.62	1.25	94%	93%	98%	100%	96%	95%	99%	99%	0%		
Khulna Division																									
Bagerhat	11	11	18	7					18	5	0	2	3.35	3.67	94%	100%	100%	100%	94%	86%	100%	100%	100%	NA	
Chuadanga	9	9	13	1					13	0	0	1	3.15	0.00	77%	100%	100%	100%	77%	100%	100%	100%	100%	NA	
Jessore	21	21	25	7					23	5	2	2	2.28	1.96	92%	86%	100%	71%	88%	86%	100%	100%	NA		
Jhenaidah	13	14	22	5					22	3	0	2	3.40	1.83	95%	100%	100%	100%	100%	100%	100%	100%	80%	NA	
Khulna (non KCC)	12	12	18	1					17	0	1	2	2.98	0.00	89%	100%	89%	100%	83%	100%	94%	100%	67%	NA	
KCC only	6	6	2	0					2	0	0	0	0.73	0.00	100%	NA	100%	NA	100%	NA	100%	NA	NA		
Kushthia	15	15	23	7					23	6	0	1	3.24	3.34	87%	100%	100%	100%	96%	100%	100%	100%	100%	NA	
Magura	7	7	6	3					5	3	1	0	1.49	3.53	83%	100%	100%	100%	67%	100%	100%	100%	100%	NA	
Meherpur	5	5	7	3					7	2	0	1	2.93	3.30	100%	100%	100%	100%	100%	100%	100%	100%	100%	NA	
Narail	6	6	7	1					7	0	0	1	2.66	0.00	100%	100%	100%	100%	86%	100%	100%	100%	100%	NA	
Satkhira	15</td																								

Disease Surveillance, 2012 - 2013

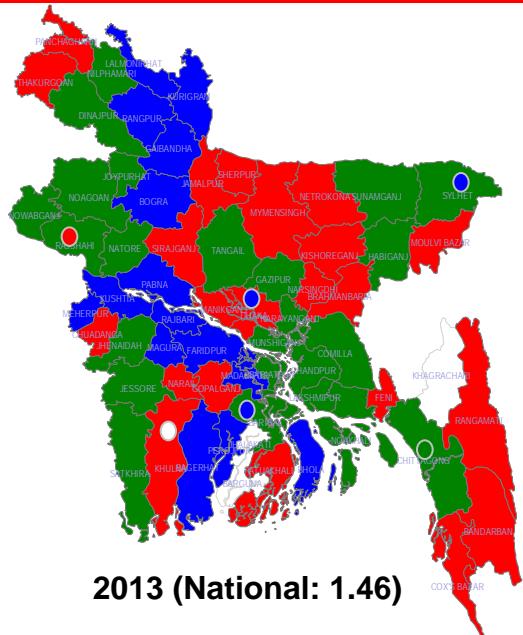
District	Neonatal Tetanus						Measles						AEFI				
	# of case reported by Active Surveillance		# of case reported by Passive Surveillance		# of case Investigated		# of case reported by Active Surveillance		# of case reported by Passive Surveillance		Number of Outbreak		Outbreak*		# of case Reported		
	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013	
Barisal Division																	
Barguna							5	22	2						5	9	
Barisal (non BCC)							3	3							23	9	
BCC only							1	1		1					1	1	
Bhola							2	6	1	1		25			5	6	
Jhalakhati	1	1	1	1	1	1	1	7	1						14	2	
Patuakhali	2	1	2	21	3	18	2	1		46					7	1	
Pirojpur	1	1	1	5	1	22	2								18		
Total-Barisal	4	0	3	0	4	0	38	5	78	9	2	0	71	0	73	28	
CTG Division																	
Bandarban							2	4	5						34	9	
Brahmanbaria	3	1	2	3	3	1	3	1	10	13	1		12		23	5	
Chandpur	1			2		1		24	2						161	27	
Chittagong (non CCC)							2	7	15						31	102	
CCC only	1						1	1							9	9	
Comilla	3	1	3	1	1	1	14	9	1						42	14	
Cox's Bazar	4	2	4	3	3		8	4	1			222			17	14	
Feni	4	4	5	4			18								22	7	
Khagrachari							2	9	2						38	15	
Laxmipur	2	1	2	3			31	1	1			12			22	4	
Noakhali	11	1	11	12	1	10	26	4							170	29	
Rangamati							1	1							11	2	
Total-Chittagong	29	2	21	4	32	2	33	2	152	56	4	0	281	0	580	237	
Dhaka Division																	
Dhaka (non DCC)	2						2	31	1	29	2				9	57	6
DCC only	5	1	5	139	9	187	22	5	1	102	11				42	12	
Faridpur	4	2	3	1	4	2	1	15	2						44	9	
Gazipur	2	1	2	7			44	2							31	6	
Gopalganj	2						2	2							8	11	
Jamalpur							71	10							16	3	
Kishoreganj	2	1	7	2	2	1	2	17	7						26	2	
Madaripur	1	1	1	1	1	1	7	3							47	19	
Manikganj	1						4	18	7	1	9				34	7	
Munshiganj	1						1	9							17		
Mymensingh	2			2	9	3	33	12	1		36				23	20	
Narayanganj					8	5	17	3							34	5	
Narsinghdi						5	12	2	1		67				24	2	
Netrokona	1	2	2	1			1	9	4						6	2	
Rajbari							1	22	2						50	9	
Shariatpur							2	18	4	2		72			20	4	
Sherpur							2	8	2						5	1	
Tangail	1	1		1	5	3	58	5							61	17	
Total-Dhaka	22	5	17	3	24	5	219	23	576	91	10	2	286	20	545	135	
Khulna Division																	
Bagerhat	4		4	4		1		28	3						248	38	
Chuadanga	1	1	1	2	1	1		14							18		
Jessore							23	71	19	1		17			13	3	
Jhenaidah	2	2	2	35			80	2	2			35			11	3	
Khulna (non KCC)	2	1	2	3	1	33	12	1				46			57	15	
KCC only	1	1	1	6			16								31	1	
Kushtia	1	1	1	11			64	2	1			45			30	4	
Magura	1	1	1	1		1	29	2							18	3	
Meherpur	2	2	2	7			11								4	1	
Narail				5			17	3							3	3	
Satkhira							4	36							53	3	
Total-Khulna	14	1	15	2	14	1	96	2	399	43	5	0	143	0	486	74	
Rajshahi Division																	
Bogra	2	3	2	4	1	28	1								54	12	
Joypurhat						10		17	5						24		
Natore						1		37	3						34		
Noagoan	2	2	2	28	4	47	13	3				76			89	8	
Nowabganj				3		22	1								20	13	
Pabna							102	8	1			37			24	6	
Rajshahi (non RCC)	3	3	3	1			29	14	2			56			59	17	
RCC only	1	1	1	14	1	28	4					0			33	5	
Sirajganj	2	2	2	3		18		2				55			13	9	
Total-Rajshahi	10	0	11	0	10	0	64	6	328	49	8	0	224	0	350	70	
Rangpur Division																	
Dinajpur	1			1	1		37	4							11	5	
Gaibandha	1	1	1	1			15		1			8			35	8	
Kurigram	1	1	1	1	7	1	15	4							15	3	
Lalmirhat							3	2	3	7					44	14	
Nilphamari									7						38	5	
Panchagarh							3	2							7	3	
Rangpur	1			1	6	1	1					1			30	4	
Thakurgaon							16	1	14	2					16		
Total-Rangpur	3	2	2	0	3	2	37	5	94	17	2	0	15	0	196	42	
Sylhet Division																	
Habiganj	2	2	2	1	2	2	6								7	7	
Maulvibazar	1						1	15							4	6	
Sunamganj	4	3	5	4			6		1			18			17	9	
Sylhet (non SCC)	1	2	1	1	1	1	22	3				54			25	13	
SCC only								1							6	1	
Total-Sylhet	7	3	7	1	8	3	26	1	77	4	2	0	72	0	59	36	
National	89	13	76	10	95	13	513	44	1704	269	33	2	1092	20	2289	622	

Data as of 31 March 2013, * Only Lab Confirmed Measles

Annualized Non-Polio AFP Rate, by District, Bangladesh 2012-2013*



2012 (National: 2.96)



2013 (National: 1.46)

*Data as of 30 March 2013

Rate per 100,000 children <15 years

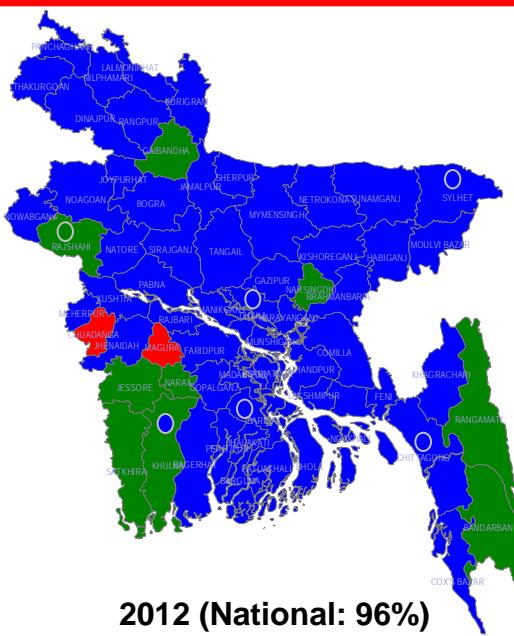
<1.00

1.00 – 1.99

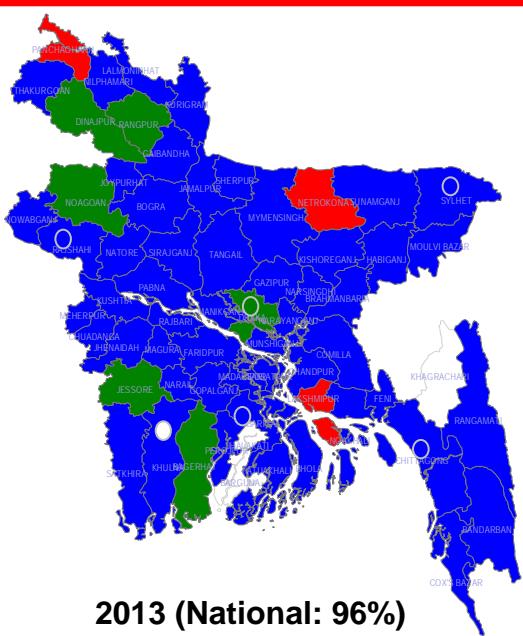
>=2.00

No AFP Case

Percentage of AFP Cases with Two Stool Samples Collected within 14 days of Paralysis Onset, by District, Bangladesh 2012-2013*



2012 (National: 96%)



2013 (National: 96%)

Categories

<80%

80% – 89%

>=90%

No AFP Case

*Data as of 30 March 2013

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