World Health Organization
REGIONAL OFFICE FOR South-East Asia

Immunization and Vaccine Development South-East Asia Region

FACTSHEET 2019
INDIA

EXPANDED PROGRAMME ON IMMUNIZATION (EPI)

EPI HISTORY

- EPI launched in 1978 with DPT, OPV, BCG and typhoid vaccines
- TT immunization of pregnant women introduced in 1983
- MCV introduced in 1985
- HepB piloted in 2002 and made universal in 2011
- MCV2 introduced 2010 onward
- Pentavalent (introduced in two states in 2011 and gradually expanded to all states by 2015
- First dose of JE vaccine at 9 to 12 months introduced in 2006 and second dose at 16 to 24 months introduced in 2013 in JE endemic districts
- Multi-dose vial policy for vaccines introduced in 2013
- IPV introduced in six states in 2015 and expanded to all states in 2016
- Rotavirus vaccine introduced in four states in 2016, nationwide expansion in 2019
- tOPV to bOPV switched on 25 April 2016
- Rubella vaccine introduced at subnational level from February 2017
- PCV introduced in 3 states in 2017 (selected districts in Bihar and Uttar Pradesh and entire state of Himachal Pradesh and Haryanan). Now expanded to entire state of Madhya Pradesh and selected districts in Rajasthan and Uttar Pradesh (subnational)

Source: cMYP 2018-2022 and EPI/MoHFW

Table 1: Basic information[1] 2018

Total population[1]	1,358,652,115
Live births[1]	27,161,398
Children <1 year[1]	26,262,540
Children <5 years[1]	147,826,667
Children <15 years[1]	443,480,000
Pregnant women[1]	29,000,000
Women of child bearing age[1] (15-49 years)	251,600,000
Neonatal mortality rate[2]	24.0 (per 1,000 LB)
Infant mortality rate[2]	32.0 (per 1,000 LB)
Under-five mortality rate[2]	39.4 (per 1,000 LB)
Maternal mortality ratio[2]	174 (per 100,000 LB)
Division/Province/State/Region	36
District	704
Block	5,948
Population density[1] (per sq. km)	382
Population living in urban areas[2]	33.6%
Population using at least basic drinking-water services[2]	88%
Population using at least basic sanitation services[2]	44%
Total expenditure on health as % of GDP[2]	3.9%
Births attended by skilled health personnel[2]	81.4%
Neonates protected at birth NT[2]	87%

1 *SEAR annual EPI reporting form, 2018*
2 *WHO, Global Health Observatory (GHO) data http://apps.who.int/gho/data accessed on 19 May 2019*

Table 2: Immunization schedule, 2018

Vaccine	Age of administration
BCG	Birth
HepB	Birth
OPV	Birth, 6 weeks, 10 weeks, 14 weeks and 16 to 24 months
IPV	6 weeks and 14 weeks
DTP-Hib-HepB	6 weeks, 10 weeks and 14 weeks
DTP	16 to 24 months and 5 years
Measles	9 to 12 months and 16 to 24 months
MR	9 to 12 months and 16 to 24 months (sub national)
JE_live_Atd	9 to 12 months and 16 to 24 months (JE endemic districts)
TT	10 years, 16 years and 2 doses/booster for pregnant women
Vitamin A	9 months, 18 months and 6 months interval till age 5 years
Pneumococcal conjugate vaccine	6 weeks, 14 weeks and 9 months (sub national)
Rotavirus	6 weeks, 10 weeks and 14 weeks (sub national)

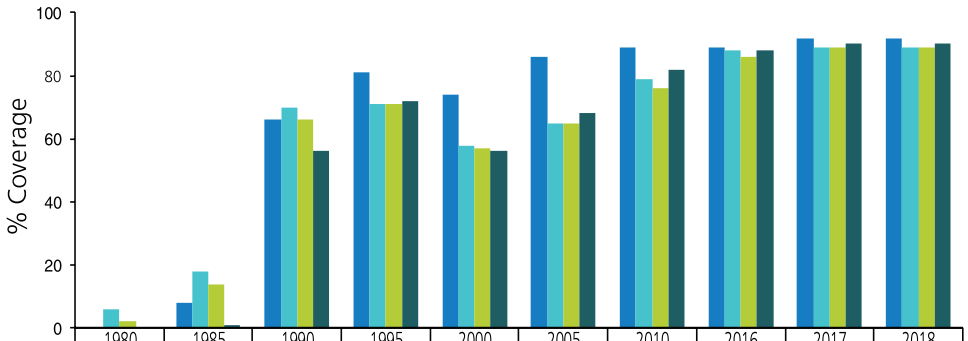
Source: WHO/UNICEF JRF 2017

Table 3: Immunization system highlights

cMYP for immunization	2018-2022
NTAGI	fully functional
Spending on vaccines financed by the government	89%
Spending on routine immunization programme financed by the government	90%
Updated micro-plans that include activities to improve immunization coverage	704 districts (100%)
National policy for health care waste management including waste from immunization activities	in place
National system to monitor AEFI	in place
Most recent EPI CES	National Family Health Survey-4 2015
≥80% coverage for DTP-Hib-HepB3	445 districts (63%)
≥90% coverage for MCV1	220 districts (31%)
≥10% drop-out rate for DTP-Hib-HepB1 to DTP-Hib-HepB3	70 districts (10%)
Polio vaccination policy for travelers to and from polio endemic/infected countries introduced	2014
Mission Indradhanush to immunize all children against seven VPDs ongoing since	Dec 2014

Source: WHO/UNICEF JRF, 2018

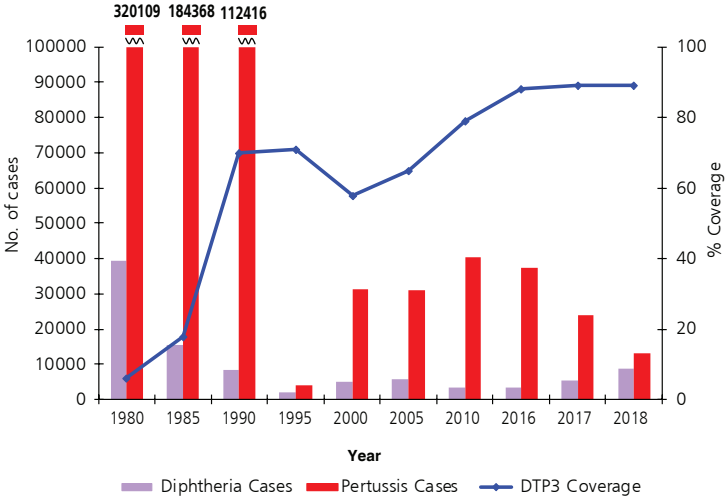
Figure 1: National immunization coverage, 1980-2018



	1980	1985	1990	1995	2000	2005	2010	2016	2017	2018
BCG		8	66	81	74	86	89	89	92	92
DTP3	6	18	70	71	58	65	79	88	89	89
OPV3	2	14	66	71	57	65	76	86	89	89
MCV1		1	56	72	56	68	82	88	90	90

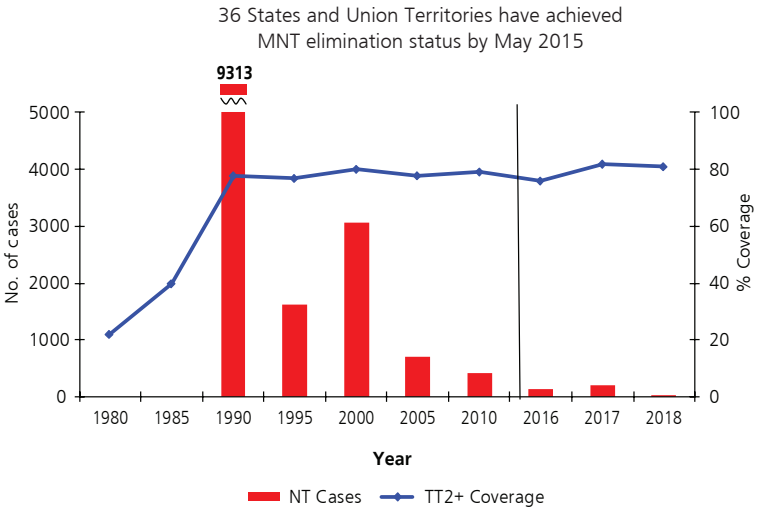
Source: WHO and UNICEF estimates of immunization coverage, July 2019 revision

Figure 2: **DTP3 coverage[1], diphtheria and pertussis cases[2], 1980-2018**



[1] *WHO and UNICEF estimates of immunization coverage, July 2019 revision*
[2] *WHO vaccine-preventable diseases: monitoring system 2019*

Figure 3: **TT2+ coverage[1] and NT cases[2], 1980-2018**



[1] *Country official estimates, 1980-2018*
[2] *WHO vaccine-preventable diseases: monitoring system 2019*

DTP-Hib-HepB3 coverage by state

Figure 4: **2017**

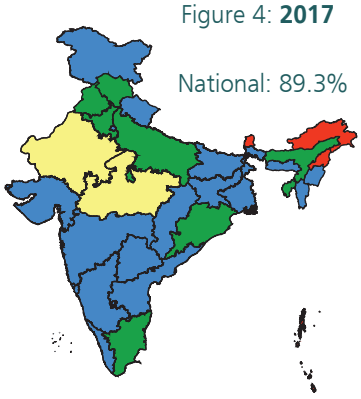
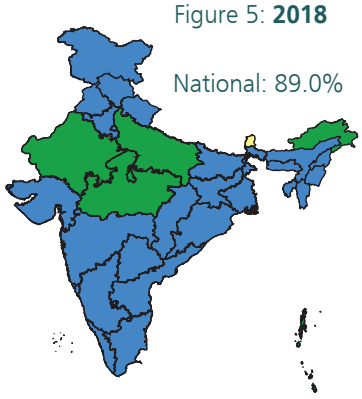


Figure 5: **2018**



Source: SEAR annual EPI reporting form, 2017 and 2018 (administrative data)

Table 4: Reported cases of vaccine preventable diseases, 2013-2018

Year	Polio	Diphtheria	Pertussis	NT (% of all tetanus)	Measles	Rubella	Mumps	JE	CRS
2013	0[a]	3,133	31,089	415 (15%)	13,822	3,698	ND	1,078	ND
2014	0[b]	6,094	46,706	492(10%)	24,977	4,870	ND	1,657	ND
2015	0[c]	2,365	25,206	491 (22%)	25,488	3,252	ND	1,620	ND
2016	0[d]	3,380	37,274	227 (6%)	18,663	11,027	ND	1,627	25
2017	0	5,293	23,766	295 (6%)	13,401	2,856	ND	2,043	76
2018	0	8,788	13,208	129 (2%)	19,474	2,328	ND	1,707	ND

[a] *Excludes five type 2 VDPV*
[b] *Excludes three type 2 VDPV*
[c] *Excludes two type 2 VDPV*
[d] *Excludes one type 2 VDPV*

Source: WHO/UNICEF JRF (multiple years) and EPI/MOHFW *ND=No data*

Table 5: AFP surveillance performance indicators, 2013-2018

The last polio case due to WPV was reported on 13 January 2011 from West Bengal.

Indicator	2013	2014	2015	2016	2017	2018
AFP cases	54,632	53,933	46,970	46,500	39,128	35,990
Wild poliovirus confirmed cases	0	0	0	0	0	0
Compatible cases	33	20	11	15	37	12
Non-polio AFP rate[1]	12.50	10.77	10.78	10.60	8.92	8.11
Adequate stool specimen collection percentage[2]	86%	87%	86%	87%	86%	86%
Total stool samples collected	110,420	105,939	91,868	91,031	72,555	70,510
% NPEV isolation	19	18	15	15	16	15
% Timeliness of primary result reported[3]	95	97	97	97	94	98

[1] *Number of discarded AFP cases per 100,000 children under 15 years of age.*
[2] *Percent with 2 specimens, 24 hours apart and within 14 days of paralysis onset.*
[3] *Results reported within 14 days of sample received at laboratory.*

Non-polio AFP rate by district

Figure 6: **2017**

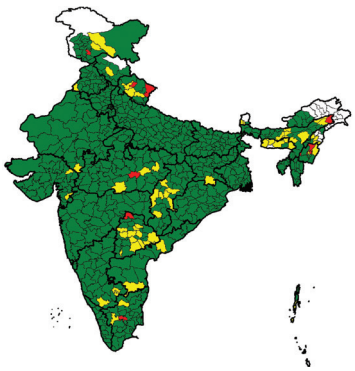
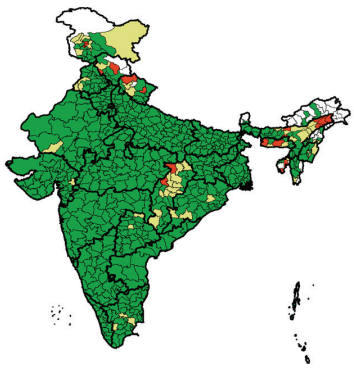


Figure 7: **2018**



% of Adequate stool specimen collection by district

Figure 8: **2017**

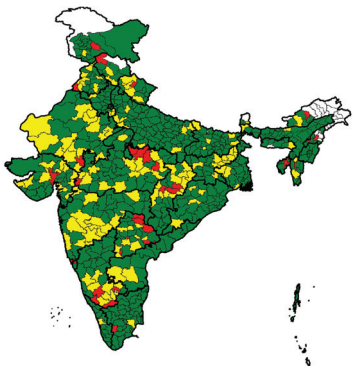
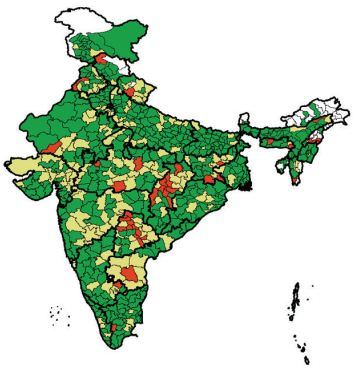


Figure 9: **2018**



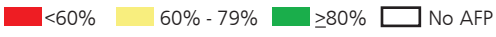
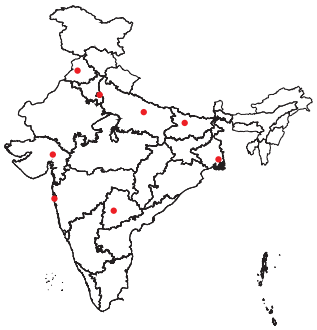


Table 6: OPV SIAs

Year	Antigen	Geographic coverage	Target age	Target population		Coverage (%)	
				Round 1	Round 2	Round 1	Round 2
2015	OPV	NID	<5 years	167,393,125	168,041,923	97	97
2015	OPV	SNID	<5 years	71,249,633	49,182,923	99	98
2015	OPV	SNID	<5 years	22,481,343	21,594,303	98	98
2016	tOPV	NID	<5 years	166,295,895	166,701,651	97	97
2016	tOPV	Mop up and SNID	<5 years	1,868,674	45,348,418	94	96
2016	bOPV	SNID	<5 years	70,836,203	6,9849,220	98	98
2017	bOPV	NID	<5 years	170,000,000	170,000,000	97	97
2017	bOPV	SNID	<5 years	70,600,000	70,600,000	98	98
2018	bOPV	NID	<5 years	164,333,904	166,963,605	98	98
2018	bOPV	SNID	<5 years	69,984,609	30,640,071	98	98

Source: WHO/UNICEF JRF (multiple years) and EPI/MOHFW

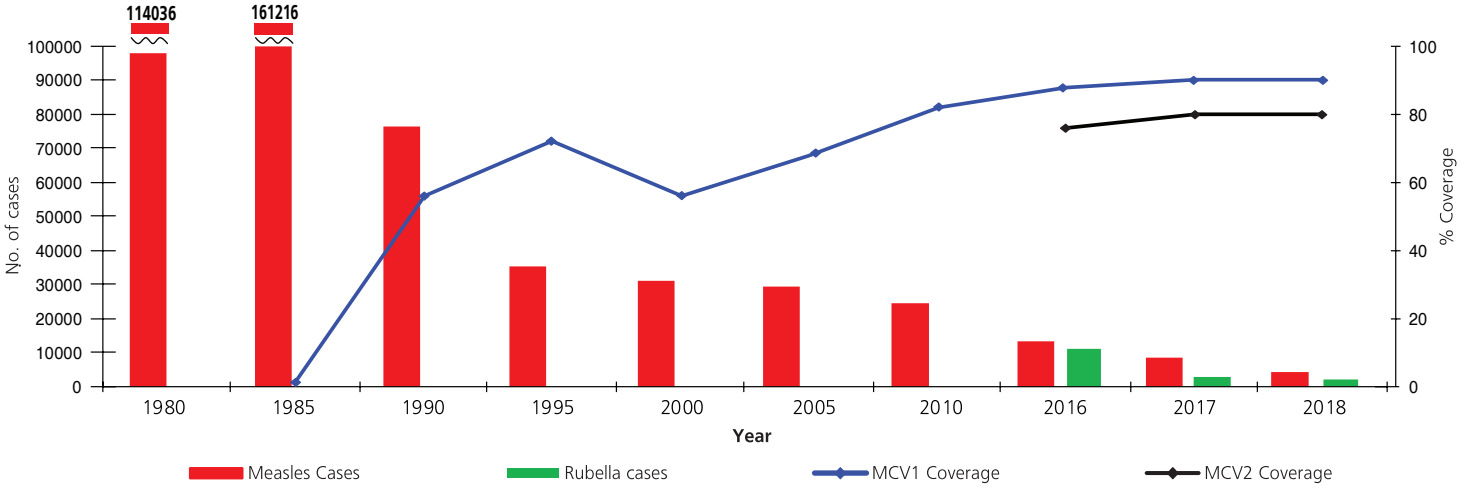
Figure 10: **Environmental surveillance sites for polio detection in 2018**



# Provinces	# sites	# samples tested	Isolation								
			SL1	SL3	SL1 + SL3	SL2	SL1 + SL3	SL1 +SL2+ SL3	SL2 + SL3	VDPV	NPEV
8	46	1496	78	430	301	9	1	1	4	1	577

Note : SL1: Sabin like type 1; SL2: Sabin like type 2; SL3: Sabin like type 3; VDPV: Vaccine Derived Polio Virus; NPEV: Non Polio Entero Virus; SL2 was isolated due to contamination of bOPV

Figure 11: **MCV1 & MCV2 coverage[1] and measles, rubella cases[2], 1980-2018**



[1] *WHO and UNICEF estimates of immunization coverage, July 2019 revision*
[2] *WHO vaccine-preventable diseases: monitoring system 2019*

MCV1 coverage by state

Figure 12: **2017**

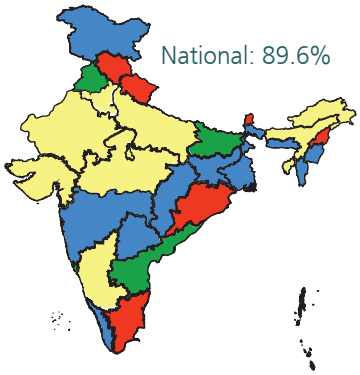
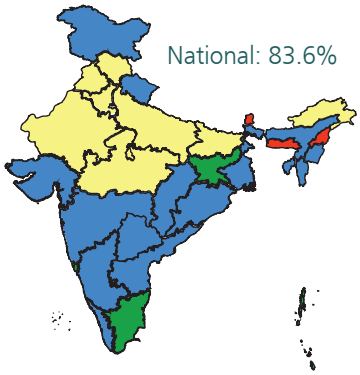


Figure 13: **2018**



MCV2 coverage by district

Figure 14: **2017**

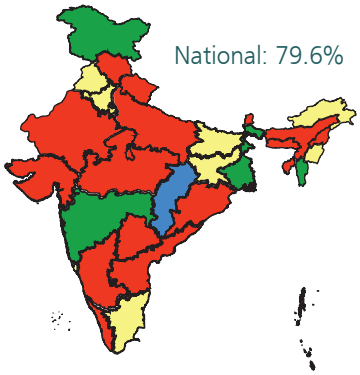
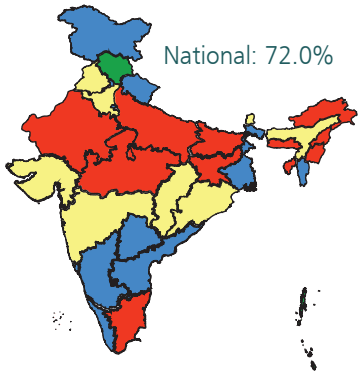


Figure 15: **2018**



Source: SEAR annual EPI reporting form, 2017 and 2018 (administrative data)

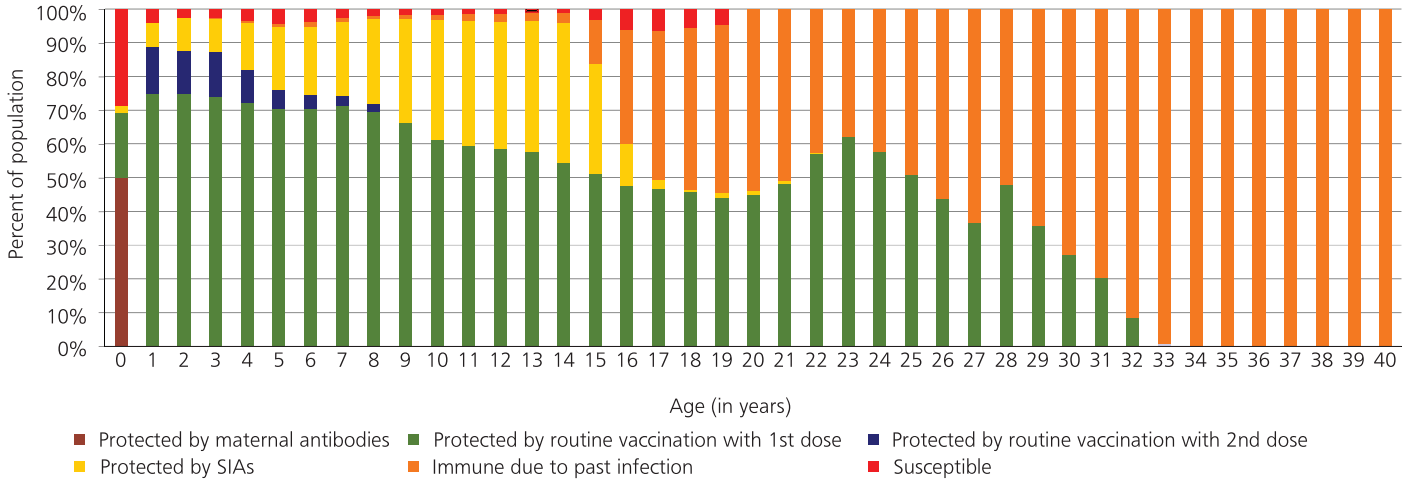
Table 7: MCV SIAs

Year	Antigen	Geographic Coverage	Target group	Target	Coverage %
2010	MCV	subnational	9 months to 10 years	13,845,686	87%
2011	MCV	subnational	9 months to 10 years	40,167,580	90%
2012	MCV	subnational	9 months to 10 years	76,730,639	92%
2015*	MCV	subnational	1 to 15 years	890,070	
2017	MCV	subnational	9 months to 15 years	60,223,836	98%
2018	MR	subnational	9 months to 15 years	183,848,000	96%

**as a part of emergency health response to floods in Tamil Nadu*

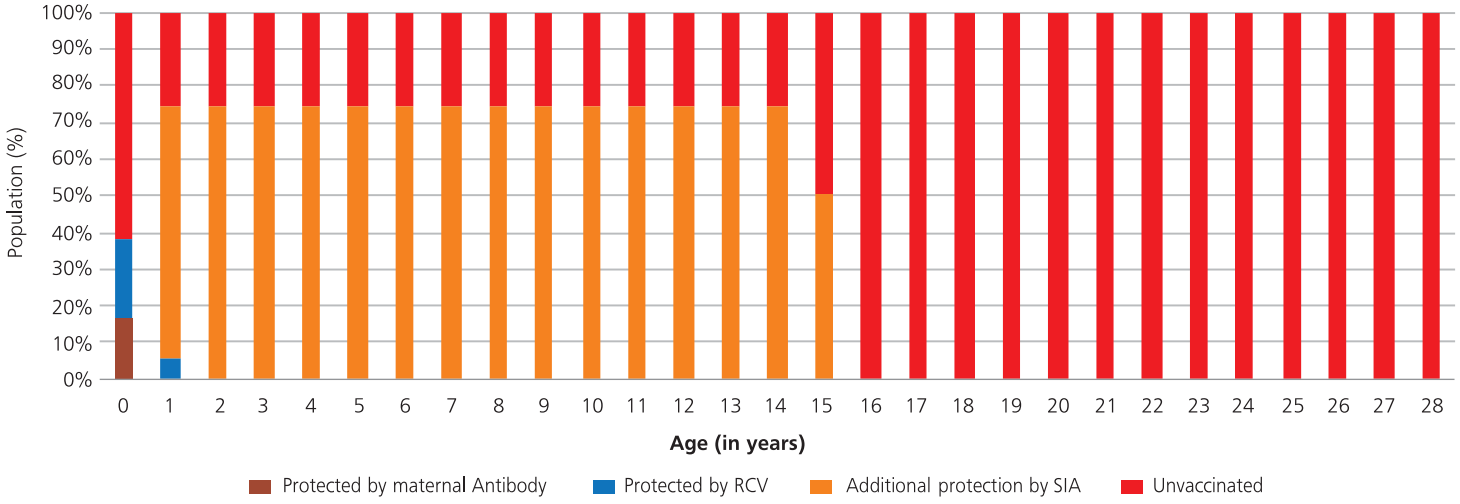
Source: WHO/UNICEF JRF (multiple years)

Figure 16: **Immunity against measles - immunity profile by age in 2018***



Modeled using MSP tool ver 2

Figure 17: **Immunity against rubella through vaccination - immunity profile by age in 2018***



Modeled using WHO and UNICEF estimates and JRF (multiple years) and does not include immunity due to natural infection

Figure 18: **Sub-national risk assessment - measles and rubella**

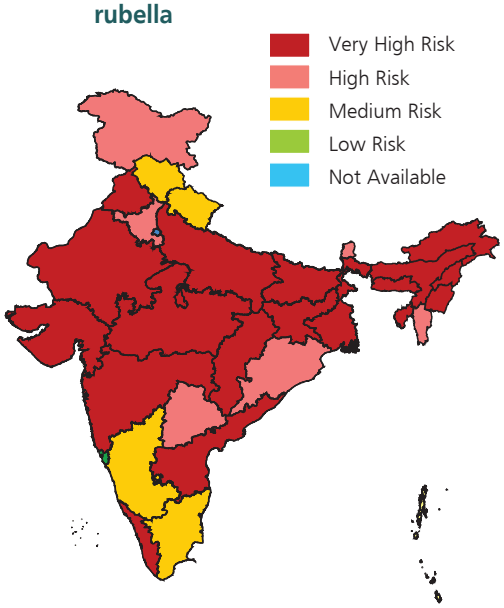
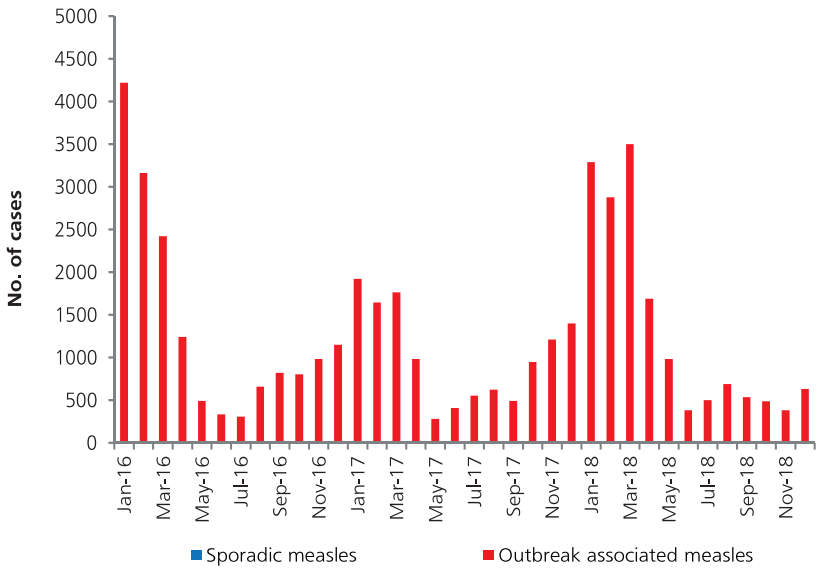
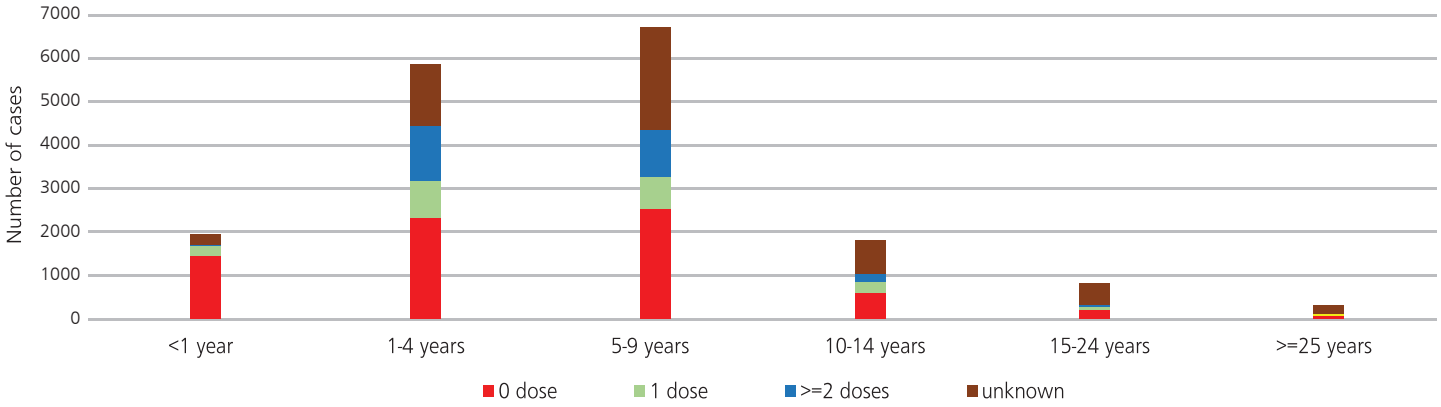


Figure 19: **Outbreak associated measles cases* by month 2016-2018**



** Includes laboratory confirmed and epidemiologically linked cases* *Source: SEAR Monthly VPD reports*

Figure 20: **Vaccination status of confirmed (laboratory, epi-linked and clinically compatible) measles cases, by age in 2018**



Source: SEAR measles case-based data

Table 8: Surveillance performance indicator for measles and rubella, 2013-2018

Year	No. of Suspected Measles	Case classification (number)						Indicators					
		Measles			Rubella		Discarded non-measles non-rubella cases	Annual incidence of confirmed Measles cases per million total population	Annual incidence of confirmed Rubella cases per million total population	Proportion of all suspected measles and rubella cases that have had an adequate investigation initiated within 48 hours of notification	Discarded non-measles non-rubella incidence per 100,000 total population	Proportion of provinces reporting at least two discarded non-measles non-rubella cases per 100,000 total population	Proportion of sub-national surveillance units reporting to the national level on time
		Lab-confirmed	Epi-Linked	Clinically-confirmed	Lab-confirmed	Epi-Linked							
Target →								-	-	*80%*	*2*	*80%*	*80%*
2013	20,383	910	7,375	0	373	2,916	1,849	6.6	2.6	ND	0.1	ND	93.9
2014	31,970	3,408	23,052	70	557	5,159	3,840	20.8	4.5	ND	0.3	ND	94.9
2015	38,752	4,808	24,897	463	715	5,135	5,902	23.2	4.5	ND	0.5	ND	92.2
2016	36,447	3,476	13,070	704	1,351	8,960	4,107	13.1	7.8	ND	0.5	ND	90
2017	45,773	3,467	9,003	931	833	2,023	1,711	10.0	2.1	83.5	0.1	ND	91.6
2018	52,308	4,914	13,147	1,413	924	1,404	7,209	14.3	1.7	81	0.5	ND	93

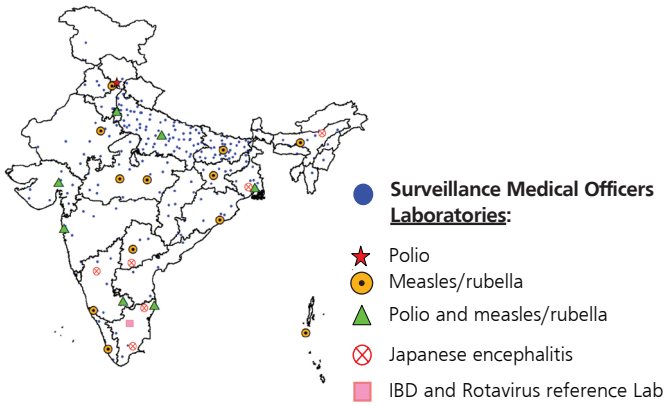
Source: SEAR Annual EPI Reporting Form (multiple years) *ND=No data*

Table 10: Performance of laboratory surveillance, 2013-2018

Year	Serum specimen collected from suspected measles cases	Serum specimen received in laboratory within 5 days of collection	Specimen positive for measles IgM		Specimen positive for rubella IgM		% Results within 4 days of receipt	Genotypes detected	
	No (%)	No (%)	No.	%	No.	%		Measles	Rubella
2013	1,564 (4.6)	1,564 (100)	910	58.18	373	23.85	88	D8	2B
2014	47,48 (7.0)	4,748 (100)	3,408	71.78	557	11.73	76	D4,D8,B3	ND
2015	7,227 (9.0)	7,227 (100)	4,808	66.53	715	9.89	81	D4,D8,B3	ND
2016	7,763 (11.1)	7,763 (100)	3,476	44.78	1,351	17.4	56	D4,D8,B3	2B
2017	6,483 (14.1)	6,483 (100)	3,425	53	914	14.1	81	D4,D8	2B
2018	11,073 (21.2)	10,155 (92)	5,271	48	961	8.7	31	D4,D8	2B

Source: SEAR Annual EPI Reporting Form (multiple years) *ND=No data*

Figure 21: **Network of WHO supported Surveillance Medical Officers and laboratories for VPD surveillance**



Source: WHO/NPSP

For contact or feedback:
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