

Immunization Services and Surveillance Network in Bhutanese Refugee Camps

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Introduction

There are about 109,135 Bhutanese refugees registered in six camps in Jhapa District and one camp in Morang District, Nepal. Jhapa and Morang districts are the easternmost districts of Nepal and lie in the fertile Terai plains. Jhapa borders Ilam District in the north, Morang district in the west, the Indian state of Bihar in the south, and the Indian state of West Bengal in the east.

Bhutanese refugees began entering Nepal in late 1990; the influx peaked in the first half of 1992. Since the beginning of 1998 no new arrivals have been accepted by the Government of Nepal (GON). The camps are managed by the United Nations High Commissioner for Refugees (UNHCR). The Government of Nepal established a Refugee Coordination Unit (RCU) under the Home Ministry. The

Current population of Bhutanese Refugee Camps

Camp	<1 yr	<5 yr	>5 yr	Total
Beldangi I	346	1575	17039	18614
Beldangi II	364	1565	21021	22586
Beldangi III	183	960	10639	11583
Goldhaph	190	764	8881	9645
Timai	200	901	9473	10374
Khudunabari	213	949	12230	13179
Sanischare	356	1679	19667	21331
Total	1852	8393	98950	107312

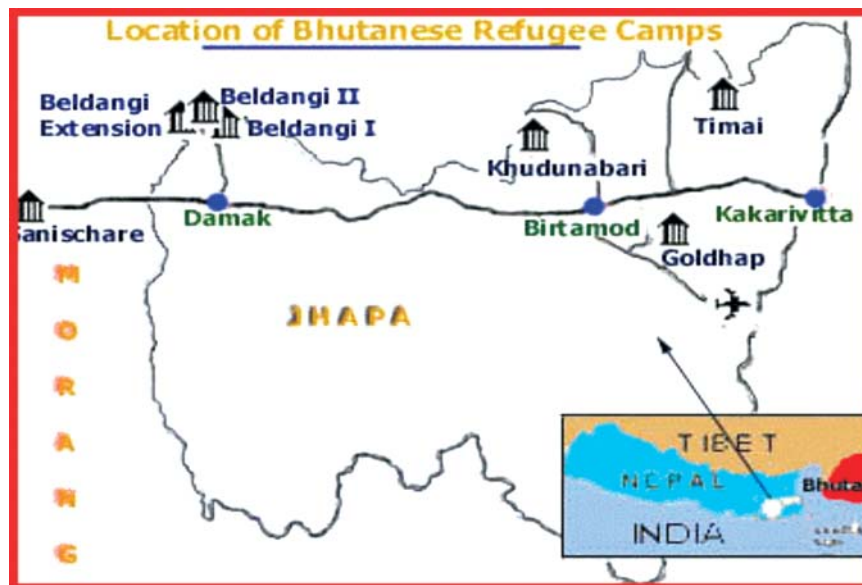
Source: AMDA, PHCP for BR, Birtamod

Health Delivery System in Bhutanese Refugee Camps

All health activities of the camps are conducted by the AMDA Primary Health Care Project for Bhutanese refugees. There are two health centres each in Beldangi I, Beldangi II and Sanischare, and one health centre in the remaining camps. Altogether there are 10 health centres. Each health centre consists of about 10/11 staff, including Health Program Officer (HPO), Health Assistants (HA), Community Medical Auxiliary (CMA), Staff Nurse, and Auxiliary Nurse Midwife (ANM). Each centre has one in-charge (HPO). The referral system is perfectly arranged in the camps. The difficult and serious patients are referred to AMDA Hospital, Damak.

Community health programs are organized by Community Health Supervisors (one in each camp), who supervise community health worker

supervisors (about 26 in number). About 90 community health workers serve as the grassroots level health personnel and work during immunization campaigns, Vitamin A/de-worming campaigns and other community-oriented health programs.



RCU looks after the administrative and law and order provisions related to refugee camps. Recently, the International Organization for Migration (IOM) signed a Memorandum of Understanding with the GON to implement migration of refugees to other countries.

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Routine Immunization Program

Routine immunization is conducted by Auxiliary Nurse Midwife (ANM) in Maternal and Child Health clinic in the health centre. The schedule of immunization sessions is prepared yearly, although the days are not fixed due to the uncertainty of holidays. The following is the schedule for 2008:

Week of the month	Campwise Routine Immunization Schedule
1st and 2nd	Timai and Goldhap
2nd and 3rd	Khudunabari and Beldangi I
3rd and 4th	Sanischare, Beldangi II and Beldangi III

Based upon data from DPHO Jhapa, the overall percentage of fully immunized¹ children was 93% in 2007, and ranged from 76-100%.



Camp wise Routine Immunization Coverage in 2007
Target Children

Camp	Target Children	Routine OPV3 ²	Routine measles ³	Fully vaccinated children (%)
Beldangi I	364	335	335	92
Beldangi II	425	417	417	98
Beldangi III	261	256	256	98
Sanischare	350	350	350	100
Goldhap	180	160	160	89
Timai	203	171	171	84
Khudunabari	202	154	154	76
Total	1985	1843	1843	92

Supplementary Immunization Activities (SIAs)

Prior to SIAs, the Health Program Officers (HPOs) are oriented by the District Public Health Office, Jhapa, which also supplies vaccines and other

required equipment. The HPOs then organize trainings for Community Health Supervisors (one in each camp), Community Health Worker Supervisors and Community Health Workers. The Community Health Workers are the main vaccinators during SIAs. The numbers of vaccination booths are arranged according to the population of each camp. Vaccines are distributed to the camps just one day prior to the immunization day. Supervision of the vaccination booths is done by the Community Health Worker Supervisors and Health Program Officers.

OPV coverage during recent National/Sub-National Immunization Days

Immunization coverage	10th NID (29-30 Dec 07)	10th NID (02-03 Feb 08)	SNID (15-16 March 08)	SNID (26-27 April 08)
Jhapa District	100%	100%	99%	100%
Bhutanese Refugees Camp	>99%	>99%	>99%	>95

Source DPHO 2008 data, Jhapa



Vaccine Preventable Disease Surveillance Network

There are no weekly “zero” reporting units or active surveillance sites in the refugee camps. The community health workers are grass-root level health workers in the camps. They participate in vaccination, nutrition, and maternal and child health programs. During their door-to-door visits for health awareness, they refer Acute Flaccid Paralysis (AFP) cases to the respective camp health centre where cases are investigated by the camp medical officer and referred to AMDA Hospital, Damak. The cases are admitted at the hospital and immediately notified to WHO Surveillance Medical Officer (SMO), who investigates and advises the hospital staff on the collection of two stool specimens, 24 hours apart, if the case fits the case definition for AFP. Acute Encephalitis Syndrome, Measles and Neonatal Tetanus Surveillance activities are also carried out actively and passively by the SMO in the camps.

Investigations conducted since 1999

Cases	Notification	Notified by	Camp	Diagnosis
AFP	11/23/1999	Active Surveillance	Khudunabari	Left sided hemiparesis
AFP	9/4/2000	AMDA	Beldangi II	Guillain Barre Syndrome
AFP	9/21/2000	AMDA	Beldangi II	Guillain Barre Syndrome
AFP	7/25/2001	AMDA	Beldangi II	Guillain Barre Syndrome
AFP	8/10/2006	AMDA	Goldhap	Viral Neuropathy
AFP	8/8/2007	AMDA	Sanischare	Guillain Barre Syndrome
Suspected Measles Outbreak	8/20/2007	AMDA	Sanischare	3 serum collected, found Rubella IgM

¹ A fully immunized child is a child who, by his or her first birthday, has received 1 dose of bacilli Calmette-Guerin vaccine; 3 doses of diphtheria, tetanus, and pertussis vaccine; 3 doses of oral poliovirus vaccine; and 1 dose of measles-containing vaccine.

² OPV3 = 3 doses of tOPV vaccine

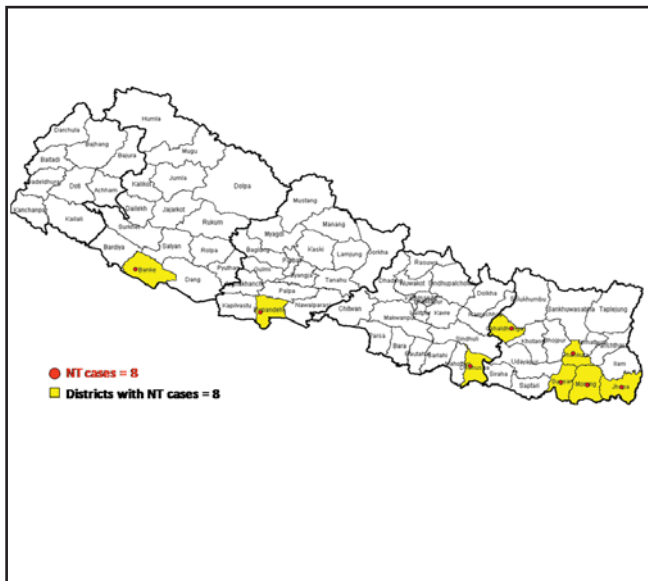
³ Given as the monovalent measles vaccine.



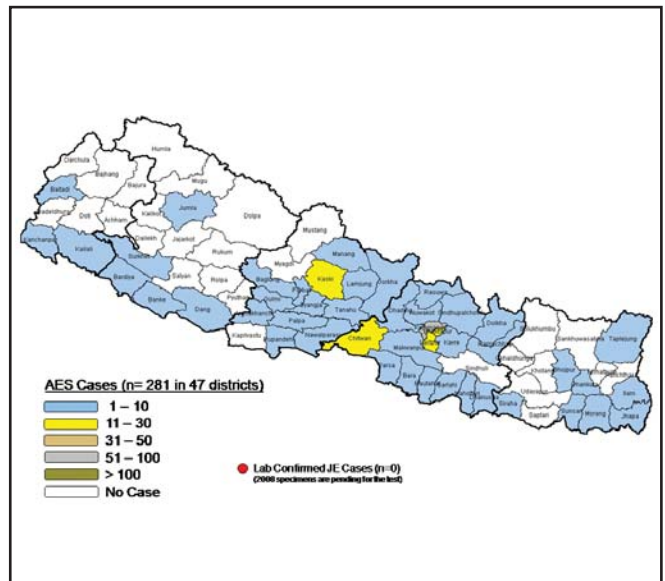
Suspected Measles Cases, Nepal, 2007-2008*

Region	2007									2008										
	Total cases	Classification								Total cases	Classification									
		Measles			Rubella						Clinically confirmed	Pending	Measles			Rubella				
		Lab-confirmed	Epi-linked	Clinically confirmed	Lab-confirmed	Epi-linked	Clinically confirmed	Clinically confirmed	Pending				Lab-confirmed	Epi-linked	Clinically confirmed	Lab-confirmed	Epi-linked	Clinically confirmed	Clinically confirmed	Pending
Eastern	106	0	0	24	10	37	1	34	0	98	0	0	15	19	40	0	23	1		
Central	218	5	2	49	31	4	12	115	0	191	6	30	29	26	23	4	55	18		
Western	148	2	14	57	14	46	5	10	0	96	0	0	15	23	27	4	25	2		
Mid-Western	65	14	0	13	10	1	3	24	0	120	0	0	0	17	93	0	10	0		
Far-Western	119	1	0	49	19	29	5	16	0	70	2	0	0	12	49	0	7	0		
National Total	656	22	16	192	84	117	26	199	0	575	8	30	59	97	232	8	120	21		

Distribution of Neonatal Tetanus (NT) Cases Nepal, 2008*



Distribution of Lab-confirmed Japanese Encephalitis (JE) Cases, Nepal, 2008*



*Data as of 05 June 2008

Table 1: AFP surveillance performance indicators, Nepal, 2007-2008

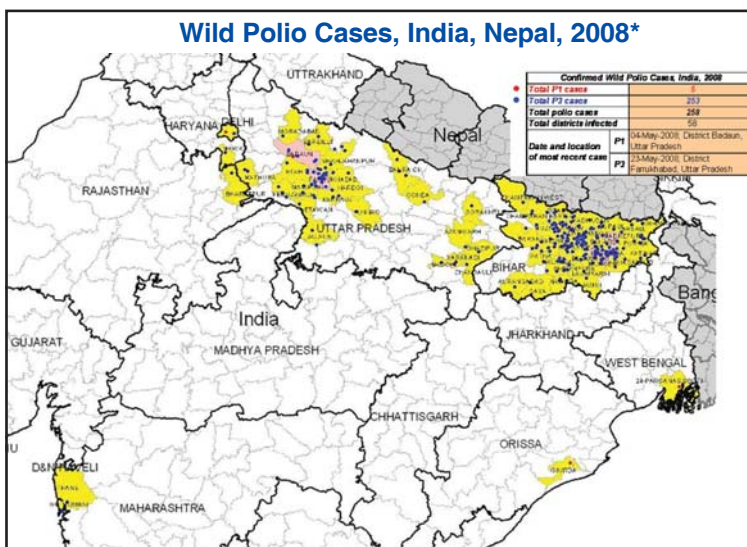
Region	2007										2008									
	AFP cases	Case Classification				Surveillance Indicators					AFP cases	Case Classification				Surveillance Indicators				
		Confirmed Polio	Compatible	Discarded (non-polio AFP)	Pending	AFP rate	Non-Polio AFP rate ¹	% Invest. w/in 48 hrs of notification	% 2 specimens coll. w/in 14 days ²	% 60 days F/up exam.		Confirmed Polio	Compatible	Discarded (non-polio AFP)	Pending	AFP rate	Non-Polio AFP rate ¹	% Invest. w/in 48 hrs of notification	% 2 specimens coll. w/in 14 days ²	% 60 days F/up exam.
Eastern	72	1	0	71	0	3.06	3.02	94	78	94	32	0	0	28	4	3.15	2.76	94	97	50
Central	151	4	0	147	0	4.25	4.14	97	80	89	51	3	0	41	7	3.32	2.67	96	90	60
Western	48	0	0	48	0	2.32	2.32	88	83	89	17	0	0	10	7	1.90	1.12	94	88	100
Mid-Western	38	0	0	38	0	2.67	2.67	97	97	100	20	0	0	20	0	3.25	3.25	100	90	100
Far-Western	34	0	0	34	0	3.25	3.25	91	88	75	13	0	0	12	1	2.87	2.65	62	92	100
National	343	5	0	338	0	3.29	3.24	94	83	89	133	3	0	111	19	2.95	2.46	92	92	73

1 Expected rate: At least 2 non-polio AFP case per 100,000 children aged <15 yrs.

2 Stool specimen collection: 2 adequate specimens within 14 days of paralysis onset from at least 80% of cases

Table 2: AFP surveillance performance indicators in South East Asia Region (SEAR) countries, 2007-2008*

Country	2007										2008									
	AFP					Surveillance Indicators					AFP					Surveillance Indicators				
	Case Classification					AFP Rate		Specimen			Case Classification					Annualized AFP Rate		Specimen		
	AFP cases	Confirmed Polio	Wild Poliovirus Cases	Compatible	Discarded (non-polio AFP)	Total Pending	AFP rate	Non-Polio AFP rate	% with 2 spec., 24 hrs apart, w/in 14 days	% with any specimen	AFP Cases	Confirmed Polio	Wild Poliovirus Cases	Compatible	Discarded (non-polio AFP)	Total Pending	AFP rate	Non-Polio AFP rate	% with 2 spec., 24 hrs apart, w/in 14 days	% with any specimen
Bangladesh	1844	0	0	0	1844	0	3.25	3.25	92	99	757	0	0	0	622	135	2.97	2.44	94	98
Bhutan	4	0	0	0	4	0	1.90	1.90	50	50	1	0	0	0	1	1.07	0.00	0	100	
DPR Korea	125	0	0	0	125	0	1.95	1.95	100	100	44	0	0	0	25	19	1.55	0.88	100	100
India	41534	873	873	440	40172	49	9.71	9.40	84	97	14251	258	258	5	11317	2671	7.42	5.90	85	97
Indonesia	1557	0	0	4	1553	0	2.52	2.52	85	97	663	0	0	0	559	104	2.45	2.06	87	99
Maldives	0	0	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0.00	0.00	0	0	
Myanmar	413	15	11	8	390	0	2.10	1.98	91	100	141	0	0	0	116	25	1.59	1.31	96	100
Nepal	343	5	5	0	338	0	3.29	3.24	83	96	142	3	3	0	116	23	3.01	2.46	90	100
Sri Lanka	87	0	0	0	87	0	1.56	1.56	87	99	41	0	0	0	22	19	1.67	0.89	73	83
Thailand	225	0	0	0	225	0	1.67	1.67	77	98	80	0	0	0	48	32	1.35	0.81	68	93
Timor-Leste	2	0	0	1	1	0	0.42	0.21	0	100	1	0	0	0	1	0.47	0.00	100	100	
Total	46134	893	889	453	44739	49	7.66	7.43	84	97	16121	261	261	5	12825	3030	5.98	4.75	86	97



Global case count

	Total cases	Year-to-date 2008	Year-to-2007	Total in 2007
Globally		522	190	1313
- in endemic countries:		497	161	1207
- in non-endemic countries:		25	29	106

Country	Year-to-date 2008	Year-to-date 2007	Total in 2007	Date of onset of most recent case
Pakistan	11	8	32	19 May 2008
India	251	60	873	14 May 2008
Afghanistan	8	2	17	14 May 2008
Nigeria	227	91	285	6 May 2008
Angola	6	1	8	15 April 2008
Niger	9	3	11	12 April 2008
CAR	1	0	0	6 April 2008
Ethiopia	1	0	0	4 April 2008
DRC	2	12	41	24 March 2008
Sudan	1	0	1	2 March 2008
Nepal	3	0	5	16 February 2008
Chad	2	0	21	3 February 2008
Myanmar	0	5	11	28 May 2007
Somalia	0	8	8	25 March 2007

*Source of data: WHO, as of 09 June 2008