

**Polio Eradication Initiative**  
**Epidemiological Investigation Report of NSL1, AFG/08/11/012**  
**District Daman, Kandahar province Southern Region – Afghanistan**

Epidemiological Investigations were carried out in response to the occurrence of NSL1 case from Daman district in Kandahar province which is the solitary case reported from the country this year. The date of onset of paralysis of the case is 11<sup>th</sup> January and is from Semerzai village of cluster No 9 that is about 25 Km from district centre and 65 Km from Provincial hospital. The index village is located on area bordering with Jaldak district of Zabul province, Arghistan and Kandahar districts of Kandahar province. The child was taken to Dr Ashiq Ullah working in Paediatric ward of Mirwais hospital Kandahar city, who reported the case as AFP on the same day to responsible PPO. Case was investigated and stool samples were collected and sent to NIH Islamabad in good condition. NSL1 was isolated from both the stool specimens of the case. Detailed analysis of Surveillance, SIAs and campaign data was carried out in an attempt to identify the possible source of infection and assess the immunity barrier in preventing establishment of poliovirus circulation to suggest and implement appropriate corrective measures.

**Background:** The district reported 1 AFP case in 2011 so far from whose stool specimens NSL1 was isolated and is the 1<sup>st</sup> polio case not only from Southern region but also from Afghanistan. The district reported one confirmed polio case each in 2009 (NSL1) and 2001 whereas 2 NSL1 cases were reported in 1999 and 1 NSL3 case in 1998. However no polio case was reported in the period 2002 to 2008. In the field investigation it was revealed that the case has received 4 OPV doses through SIAs, and the vaccination coverage of the target children in the index and surrounding villages is suboptimal and unsatisfactory due to insecurity and managements reasons.

**General description of the area:** Daman district of Kandahar Province is close to provincial capital and consists of two parts Daman and Shaga with a target population of 18,317 children less than 5 years and has a total of 13 clusters (9 clusters in Daman and 4 clusters in Shaga.) Daman district has borders with district Kandahar city (with 2 NSL1 in 2010), Shahwalikot (having 3 NSL1 cases in 2010), Spin Boldak (having 1 NSL1 in 2010 with date of onset as 11<sup>th</sup> November), Arghistan of Kandahar province and district Jaldak of Zabul province. The district usually reports 4 % of the target children being missed in every campaign after June 2010 mainly from the different part of the district due to insecurity or refusal by parents. The area is mainly located in the North Eastern part of the district that is security compromised as such the teams are not freely working in the area. The case is from cluster 9<sup>th</sup> and the index village is about 40 Km from the Mandhisar CHC, though there is Nahri Rabat BHC at a distance of 20 Km from the index village which has been burnt by AGE and is not functioning since November 2009. The quality of campaign is suboptimal in the district as vaccination teams are working in a fearful environment and campaigns are poorly supervised. The routine vaccination coverage in the index village is 8 % (at least one OPV dose received and SIAs coverage in the last 4 campaigns prior to the date of onset in the index and surrounding villages is around 80% ranging from 0 to 100 % as assessed by PPO in the field investigations (**Table 2.**) The people of the district are mainly farmers, businessmen and animal herders. The sanitary conditions in the area are poor with no house having latrine facility and people use water of open well and stream water for drinking and cooking. There is one CHC (Mandihasar) one BHC (Shorandam) and one sub centre (Khoshab) managed by AHDS. In addition to that there is one Army hospital managed by ANA. In general the people of Daman have frequent movement to the neighbouring districts for business and family relations mainly Kandahar city, Boldak and other districts/provinces of the region as well. Campaign in the district is implemented by AHDS (BPHS NGO) since May 2009.

Most of the inhabitants of Daman district are Pashto speaking. The villages surrounding the index village are: Semerzai (index village) Qari Zangi, Sayed Abad, Abdullah, and Qader Jan.

**Case details:**

Particulars	Epid No;AFG/08/11/012
Name	Fauzia
Father Name	Hayat Khan
Age	38 months
Sex	Female
Date of onset of Paralysis	11 <sup>th</sup> January 2011
Date reported	23 <sup>rd</sup> January 2011
Date of Investigation	23 <sup>rd</sup> January 2011
Dates of Stool Specimen	23 <sup>rd</sup> and 24 <sup>th</sup> January 2011
OPV Doses	04 (0 in Routine & 04 in SIAs)
Date of last OPV	13/12/2010
Travel History	No
Growth developments	Normal
Sign & symptoms	Flaccid paralysis of left Leg with high grade fever

**Clinical History:** The 38 months old female child was absolutely in good health until 8<sup>th</sup> January 2011 when she developed fever and constipation for 3 days followed by flaccid paralysis of left leg on 11<sup>th</sup> January with decreased muscle tone and reflexes. The parents took their child to Dr Ashiq Ullah working in Paediatric ward of Mirwais provincial hospital for treatment on 23<sup>rd</sup> January who advised them to admit the child in Hospital for further treatment and stool samples collection. The parents were not willing to be admitted as such the responsible PPO investigated the child and made arrangements to collect stool samples from the child. Stool samples were collected on 23<sup>rd</sup> and 24<sup>th</sup> January and transported in good condition to NIH Islamabad. NSL1 was isolated from both stool specimens. There are three families living in the index house with a total of seven children under five years of age. The other six children have received  $\geq 2$  OPV doses through routine and SIAs. The family is accepting vaccination.

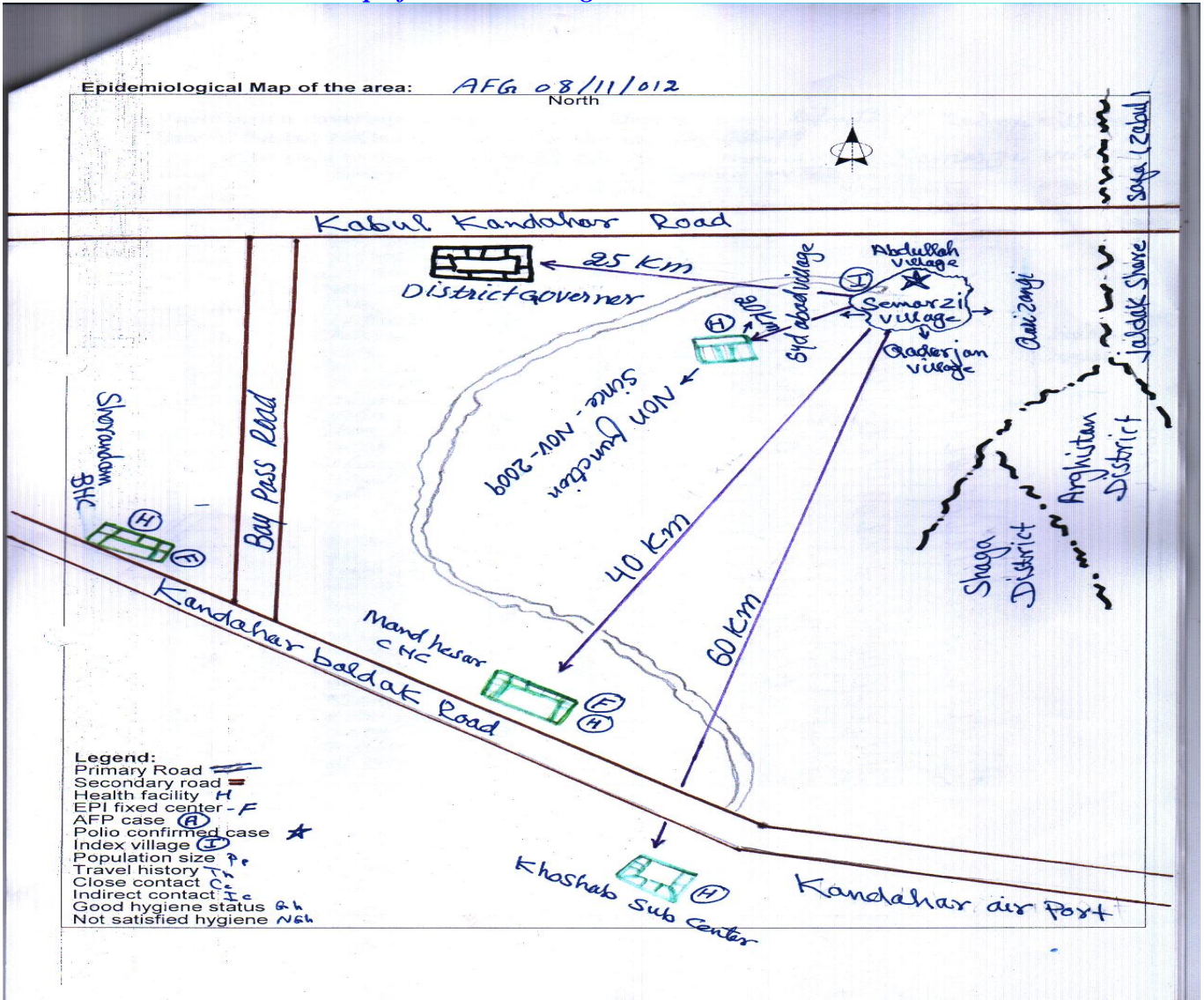
**Table 1: Characteristics of Confirmed case of Daman district in Kandahar province**

Name	Date Onset	Age	Sex	Doses	Fever	Site	Progress	Lab Result
Fauzia	11/01/2011	38	F	04	Yes	Left Leg	Rapid	NSL1

**Travel History/ Population Movement:** There is no travel history of the case within a month before onset, or someone from other areas visiting their houses. However there is population movement among the surrounding district especially during various social events, business and several other reasons that is un noticed by the community.

**Vaccination History:** The Female child has received 4 OPV doses through SIAs program. All the 7 children less than 5 years in the house are also vaccinated  $\geq 2$  OPV doses even three of them received one and more OPV doses via routine program.

Map of the index village Case AFG/08/11/012





95% in the last 4 campaigns. The analysis by age group reflects that coverage is more seriously affected among younger age group children (0-11 months) particularly in the last two campaigns.

**Table 3: OPV coverage in PCM by round and age group in Daman district in last 4 SIAs**

Campaign Month	District Daman			
	No: clusters Evaluated	Total clusters below 95%	No Clusters <95% by age group (months)	
			Among 0-11	Among 12-59
October 2010	9	3 (33%)	1 (11%)	3 (33%)
November 2010	9	2 (22%)	6 (67%)	2 (22%)
December 2010	9	3 (33%)	8 (89%)	0 (0%)
January 2011	9	3 (33%)	8 (89%)	1 (11%)

**AFP Surveillance Indicators:** The analysis of AFP surveillance data at provincial and district levels for 2009 and 2010 shows that the major surveillance indicators are meeting the international standards for both the years. The non Polio AFP rate is 9.7 for the province and 12.5 for the district whereas the stool adequacy rate is 78% at the provincial and 80% at the district level in 2010. However the early case detection needs further improvement. In the year 2009 the reporting of male cases versus female was (62:55) in the province and in district Daman it was (6:0), whereas in 2010 the proportion of male case versus female is (50:49) at the provincial level and 2:3 in Daman as evident in the **Table 4**. More sensitization sessions with the focal points, reporting sites, health care provider both formal and informal and community awareness are required to improve early case detection that will lead to subsequent improvements of other indicators and to sensitize the health care provider not to miss any female case. Comparison of median OPV doses of AFP cases in 2010 shows marked improvement as compared to 2009 at the provincial (from 7 in 2009 to 9 in 2010) as well as at district level (from 13 in 2009 to 16 in 2010), indicating improvement in quality of campaigns and accessibility to target children in the province and the district.

**Table 4: Comparison of Provincial and District Surveillance indicators 2009-2010**

Area	Expected AFP cases	AFP Reported		Annualized Non polio AFP Rate		Stool Adequacy		Early case detection		Male to Female ratio		EV Isolation rate		GBS Rate		Median OPV doses		Age Range 2010
		2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2010
<b>Year 2009-10</b>																		
Kandahar (Province)	9	117	99	10	9.7	76	78	62	69	62/55	50/49	23	22	26	18	7	9	4-168
Daman (District)	0.4	6	5	5	12.5	50	80	17	80	6/0	2/3	40	40	1	1	13	16	6-30

**Discussion and Conclusions:** The district reported 1 AFP case in 2011 that has been confirmed as Polio with date of onset as 11<sup>th</sup> January. The district reported one NSL1 case each in 2009 and 2001, two NSL1 cases in 1999 and 1 NSL3 case in 1998. However no polio case was reported in the period 2002 to 2008. District Daman has borders with district Boldak having (having 1 NSL1 in 2010 with date of onset as 11<sup>th</sup> November), Kandahar city (2 NSL1 in 2010), Shahwalikot (having 3 NSL1 cases in 2010), Arghistan Panjwai and Reg of Kandahar province and district Jaldak of Zabul province. In 2010 a total of 25 polio cases have been reported from the country out of which 19 are from Southern Region. Out of the 19 cases from Southern region, seven cases are NSL3 and twelve are NSL1. 5 NSL3 and 2 NSL1 are

from Helmand province while one NSL3 is from Zabul province and the rest eleven confirmed polio case are from Kandahar province. Out of the 12 NSL1 cases reported from the region in 2010, 2 are from Helmand and 10 from Kandahar province whereas out of the 7 NSL3 cases, 5 are from Helmand Province and one each from Kandahar province and Zabul province. All the NSL3 cases were reported in the 1<sup>st</sup> half of 2010 with the last NSL3 case having date of onset as 11<sup>th</sup> April from Maiwand/Ziarai district of Kandahar where as all the 12 NSL1 cases are reported later in 2010 with the 1<sup>st</sup> case having date of onset as 23<sup>rd</sup> May. The genomic sequencing results indicate that all the NSL3 cases in 2010 are from B1C5 genomic sub cluster except 1 from district Nade Ali/Marja which is from B1-C6A. Whereas Genomic sequencing results are available for 11 out of the 12 NSL1 and all are from A3-A1A genomic sub cluster. Genomic sequencing result for last NSL1 case reported from Bust district of Helmand is still pending. The district reported 4% of the target children being missed in last 5 campaigns. As far accessibility in Kandahar province is concerned there is a gradual decrease in the inaccessible target children that was brought down from 11 % & 19% of the provincial target in April & June 2009 campaigns to 3% in December 2009 campaign and maintained at that level till October 2010 when it rose again to 12% in October 2010 when a number of clusters were missed in Shah Wali Kot, Panjwai and Maiwand/Ziarai districts due to military and search operations in these areas. Several steps taken to bring down the inaccessible children number down that include: handing over campaign implementation to BPHS NGO, developing district specific plans, expansion of social mobilization & communication activities, approaching the Village elders & AGE leadership through various channels and mediation through ICRC. Overall campaign quality is suboptimal despite efforts made mainly due to insecurity that results in poor supervision, team selection and not adherence to the micro plans and national guidelines. Inaccessibility and poor campaign quality has resulted in pool of susceptible children who are not or under immunized allowing transmission of poliovirus to continue in the area/region. Keeping in view the inaccessibility and campaign quality due to limited movement of the supervisory staff and independent monitors, there is probability of few more NSL1 cases in the region especially in the inaccessible districts in the next few months before the immunity level of the target children is improved in the upcoming few rounds. The possible linkage of the virus could be the A3-A1A genomic sub cluster from spin Boldak or any other neighbouring district where NSL1 is circulating.

***Actions Taken/Planned:***

1. Concerned PPO did active AFP case search in the area and sensitize the practitioners in the area to report AFP cases. The importance of early reporting of all cases with any weakness that is flaccid that may be due to any cause was emphasized.
2. No additional campaign was planned as January 2011 SNIDs was already implemented with bOPV from 30<sup>th</sup> January to 1<sup>st</sup> February 2011 in the whole region including Daman. Another campaign is due from 13-15<sup>th</sup> March 2011 with bOPV during which special efforts will be made to improve access and campaign quality in the district.
3. Advocacy meetings through different channels using the Social mobilization and communication teams to raise community awareness were arranged with district Shura and elders and especially with the AGE to seek their support for an effective anti polio campaign.
4. A performance review meeting with the NGOs responsible for campaign implementation in certain critical districts including Daman district was already conducted to review their performance and do better planning for 2011 SIAs.