Middle-East Journal of Scientific Research 23 (8): 1868-1876, 2015
ISSN 1990-9233

DOI: 10.5829/idosi.mejsr.2015.23.08.9540

Surveillance of Acute Flaccid Paralysis (AFP) in Different Districts of Province Balochistan of Pakistan

[1]Nelofer Jamil, [2]Kaleemullah Khilji, [3]Zubia Masood, [4]Naila Gul, [1]Musarat Riaz and [1]Sana Ahmed

[1]Department of chemistry, SardarBahadur Khan Women's University, Quetta, Baluchistan, Pakistan
[2]Risk Consultant Pakistan,civil Secretariat Quetta, Pakistan
[3]Department of Zoology, University of Karachi-75270, Pakistan
[4]Department of Zoology, SardarBahadur Khan Women's University, Quetta, Baluchistan, Pakistan

ABSTRACT: Acute flaccid paralysis (AFP)is a clinical disorder described as a quick start of weakness, which includes (not as much of) weakness of the muscles of swallowing and respiration, progressing occurs to extreme severity from several days to weeks. AFP Surveillance is one the key strategy for eradication of Polio, timely detection of any confirmed Polio case is only possible through sensitive surveillance system. Non Polio AFP rate is high in every year which indicates the sensitive surveillance system in Balochistan. Moreover stool adequacy, detection, investigation, EV and Isolation indicators are also up to the requirement. Reported AFP case in high risk districts of Balochistan also more than expected which is indicating that we are not missing any AFP as well as confirmed Polio Cases. It evidently specifies that AFP occurrence bas been amplified in 2014 and the Quetta,Killi Abdullah, Pishin Nsirabad Districts are show more incidence of AFP Rate as compare to additional districts. The comparable is statement of WHO, that Pakistan has an ongoing explosive outbreak of poliomyelitis, but unfortunately Balochistan is contributing Non Polio AFP Rate (81.3) of confirmed cases reporting the highest Non Polio AFP Rate in any single year.The reasons behind disastrous increase of Non Polio AFP Rate are mainly the refusal families and awareness of community. The time to act is now and it is highly recommended to work on the above mentioned factors. We aimed to select the characteristics of patients reported with non-polio AFP and to estimate the performance of the AFP surveillance system with the help of parameters as recommended by the WHO. Our study summarizes the findings of the AFP surveillance conducted in different districts of Balochistan of Pakistan during 2010-2014.

Key words: Acute Flaccid Paralysis · Poliomylithus

INTRODUCTION

Acute flaccid paralysis (AFP) is a clinical disorder described as a quick start of weakness, which includes (not as much of) weakness of the muscles of swallowing and respiration, progressing occurs to extreme severity from several days to weeks [1]. The word "flaccid" shows the lack or total absence of spasticity (An increased attitude of a skeletal muscle with the paralysis) or other signs and symptoms of disruption of central nervous system motor tracts such as extensor plantar responses, clonus and hyperreflexia [2].AFP occurs usually below the age of 15 years [3]. It is caused by numerous conditions such as Transverse myelitis, Poliomyelitis, GuillainBarre Syndrome, metabolic neuropathies and toxins such as lead [4].

In May 1988, the World Health Assembly devoted World health organization (WHO) to eliminate poliomyelitis by the year 2000, the goal which than further extended to the year till 2005.The aim of WHO has accomplished significant success worldwide. Since 1988 Polio cases have decreased by 99.8%, from estimated 350,000 to 600 cases in 2001. Polio eradication policies mainly depend on two basic actions: immunization treatment and surveillance of acute flaccid paralysis cases [5].

Corresponding Author: Dr. Zubia Masood, Department of Zoology, University of Karachi-75270, Pakistan.

Surveillance is the assemblage, examination, explanation and distribution of information belonging to a particular health event. Health officials use the data obtained through surveillance to plan strategies and for health implementation and estimation programs [6]. Surveillance can be active or passive but always an energetic process because this is an important action for planning public health decisions and for successive activities regarding health problems, as energetic process surveillance regularly desires corrections. Calculation of surveillance is sensible on a cyclic basis and should be done quantitatively. Not a single surveillance is flawless but then again a grouping of campaigns can work beneficially [7].AFP surveillance is a vital strategy for monitoring the improvement of polio eradication process and is a key for identifying potential poliovirus infection and poliomyelitis cases [8]. Recent levels of surveillance have made it promising to document a considerable reduction in morbidity rate caused by poliomyelitis. To guarantee the achievement of the poliomyelitis eradication, it has become essential that surveillance should be increased so that the elimination of wild poliovirus can be proved with confidence in countries which are still not reporting confirmed cases of poliomyelitis. An essential certification by the WHO for polio eradication is that the local AFP surveillance system successively detects one case of non-polio (AFP) per 100 000 children under 15 years per annum and that no polio cases occur for three uninterrupted years [9].

AFP surveillance appropriateness and excellence is appraised by the following key performance signs as recommended by WHO:

- Relevant and complete total reporting, at least 80% of projected weekly AFP surveillance reports should be received punctually and this has to embrace zero reporting where no AFP cases are practiced [10]. Representativeness has to be careful of reporting centers in reputes of demographical and geographical characteristics of the district or whole country.
- Completeness of case analysis, all AFP incidents should have a comprehensive virological and clinical examination and at least 80% AFP cases with two sufficient stool samples with timing of (24–48 hours separately), these are collected for the study of enteroviruses within fourteen days of start of symptoms [11].
- Laboratory representation, all virological researches on AFP cases must be done in a laboratory which must be qualified by the Global Poliomyelitis Laboratory Network (GPLN).
- Understanding of surveillance, at least one case of AFP should be identified yearly per 100 000 population under the age of 15 years.
- Broadness of survey, at least 80% of non-polio AFP cases must have a follow up check for

Left over paralysis at 60 days after the start of paralysis [12].

We aimed to select the characteristics of patients reported with non-polio AFP and to estimate the performance of the AFP surveillance system with the help of parameters as recommended by the WHO. Our study summarizes the findings of the AFP surveillance conducted in different districts of Balochistan of Pakistan during 2010-2014.

MATERIALS AND METHODS

Here are Dynamic and paper zero observation locations by WHO. These locations are go to see by polio eradication officer weekly at weekly zero sites and frequently in energetic surveillance sites. Every district doctors are provided with exploration form. They can report of each polio patient whenever come across then. The doctor informs the staff member of WHO. Along with complete history of patients the eradication officer assembles two stool specimens of patient on the two sequential days. For the validation of polio virus the stools of patient are sent to NIH (National institute of health) [13]. After ratification of each polio case the officer gets detailed data of patient and sends the National surveillance. Students official visit the hospitals having active surveillance sites. The student questioned the polio eradication officer, senior surveillance officer and doctors. In children wards the officer assisted the students to visit polio patient and they interviewed the families and took the information of polio patients from different districts. We also get information about district wise proportion of AFP, Described means all the AFP (acute filicide paralysis). The questionnaire having information like Patient name.

Father name.
Sex,
Age,

Date of onest of paralysis,
Ethnic group,
Address,
Tehsil/District/Province
Is paralysis/Weakness
Routine vaccination,
EPI postcard,
SIA.Dose,
Fever,
Asymmetry,

The information was obtained in a way to have theoretical analysis of non-polio cases in different districts of Balochistan.

RESULTS AND DISCUSSIONS

The results of study are shown in tables. The table 1 showing AFP cases in Baluchistan by 2011 to 2015.From below graph we can easily see that reported AFP case in high risk districts of Balochistan also more than expected which is indicating that we are not missing any AFP as well as confirmed Polio Cases. Tabel 2-3 showing the main indicators of AFP surveillance we can easily see that almost in the entire district the main Indicators i.e NPAFP rate, stool adequacy, EV/SL isolation and 60 days follow-p are up to the mark. It evidently specifies that AFP occurrence bas been amplified in 2014 and the Quetta,Killi Abdullah, PishinNsirabadDistricts are show more incidence of AFP Rate as compare to additional districts. The comparable is statement of WHO, that Pakistan has an ongoing explosive outbreak of poliomyelitis, but unfortunately Balochistan is contributing Non Polio AFP Rate (81.3)of confirmed cases reporting the highest Non Polio AFP Rate in any single year since the establishment of the surveillance system in 1996 [14]. The reasons behind disastrous increase of Non Polio AFP Rate are mainly the refusal families.. The same reasons has also been worked out by Monis BolaniI[15]..Table 3 and 4 showing main indicators of AFP surveillance, through these tables we can see that Non Polio AFP rate is high in every year which indicates the sensitive surveillance system in Balochistan. Moreover stool adequacy, detection, investigation, EV and Isolation indicators are also up to the requirement. Table 6 Showing of AFP Cases Incomplete 2014 in Khuzdar and Nsirabad Districts action to be taken PEO will do the FUP, will be classified in PERC meeting. Statistical analysis of age group of all the patients show that median age group of children is 17 months indicating that most of children are very young effecting from AFP,this is shown in bar chart 7.

Table 1: AFP Cases reported in Baluchistan 2011- 2015

	2011	2012	2013	2014 WK 53	2015 WK 10
No of AFP Cases Reported	341	205	198	230	38
Confirmed WPV	73	4	0	25	3
cVDPV2	0	15	2	0	0
Well-suited AFP cases	2	0	2	0	0
Discarded	266	186	194	202	18
Incomplete	0	0	0	03	17

Non polio cases statedin 2011-2015

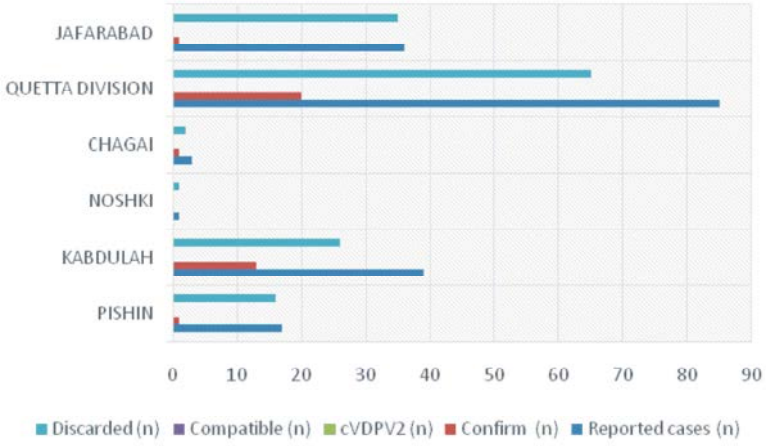


Table 2: AFP Investigation Indicators Division Wise 2014

District	Reported cases (n)	Confirm (n)	cVDPV2 (n)	Compatible (n)	Discarded (n)	Pending (n)
QUETTA	25	5	0	0	20	0
PISHIN	17	1	0	0	16	0
KABDULAH	39	13	0	0	26	0
NOSHKI	1	0	0	0	1	0
CHAGAI	3	1	0	0	2	0
QUETTA DIVISION	85	20	0	0	65	0
JAFARABAD	36	1	0	0	35	0
NASIRABAD	27	1	0	0	25	1
BOLAN/KACHI	3	0	0	0	3	0
JHALMAGSI	3	0	0	0	3	0
NSIRABAD DIVISION	69	2	0	0	66	1
MASTUNG	3	0	0	0	3	0
KHARAN	2	0	0	0	2	0
KALAT	3	0	0	0	3	0
KHUZDAR	7	1	0	0	5	1
LASBELA	6	0	0	0	6	0
AWARAN	1	0	0	0	1	0
WASHUK	4	0	0	0	4	0
KALAT DIVISION	26	1	0	0	24	1

AFP Surveillance Indicators Division Wise 2014

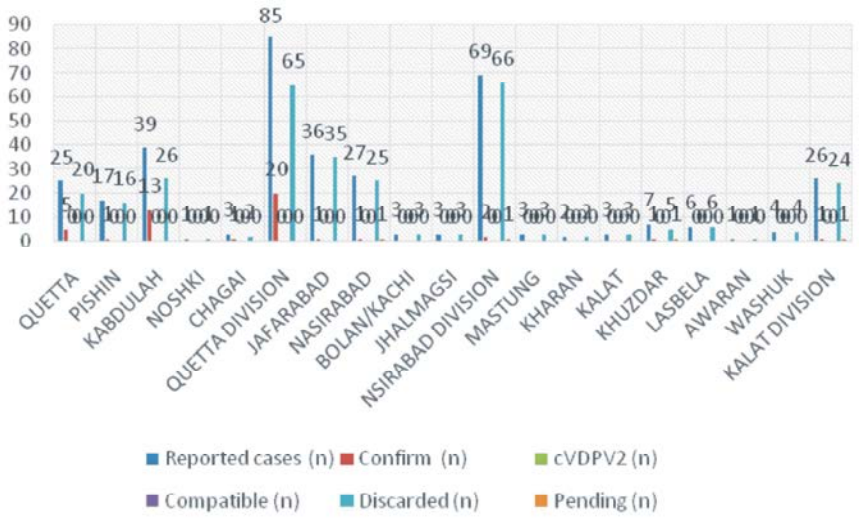


Table 3: Showing Division Wise AFP Observation Cursors in 2014

District	Non Polio AFP Rate	Adequate Stool %	Detected within 7 days %	EV Isolation %	SL Isolation %	60 Days FUP Done %
QUETTA	5.0	100	100	7	29	86
PISHIN	3.6	100	100	0	25	100
KABDULAH	9.4	50	67	18	0	67
NOSHKI	1.3	0	0	50	0	100
CHAGAI	4.0	100	100	0	0	100
QUETTA DIVISION	2.3	100	100	100	0	100
JAFARABAD	5.2	83	88	13	13	92

Table 3: Continued

District	Non Polio AFP Rate	Adequate Stool %	Detected within 7 days %	EV Isolation %	SL Isolation %	60 Days FUP Done %
NASIRABAD	10.2	89	89	17	11	100
BOLAN/KACHI	2.1	67	67	0	67	100
JHALMAGSI	2.1	100	100	50	50	100
NSIRABAD DIVISION	10.4	96	88	21	10	100
MASTUNG	1.7	0	0	0	0	100
KHARAN	3.3	75	75	17	13	100
KALAT	4.8	89	78	6	6	100
KHUZDAR	3.5	100	0	25	0	100
LASBELA	0.8	100	100	50	0	100
AWARAN	3.2	93	57	14	4	100
WASHUK	5.3	89	80	19	9	94
KALAT DIVISION	3.1	73	58	26	6	83

Division Wise AFP Observation Cursors in 201

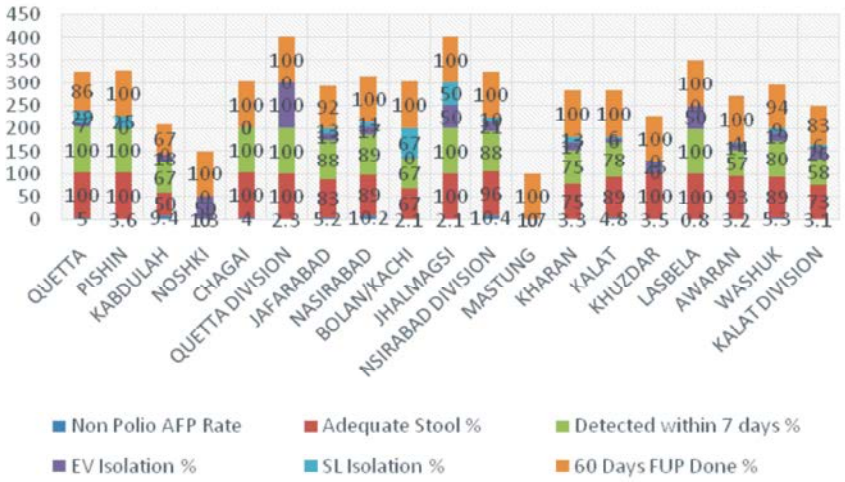


Table 4: District wise table of AFP Surveillance Indicators 2014*

District	Reported cases (n)	Confirm (n)	cVDPV2 (n)	Compatible (n)	Discarded (n)	Pending (n)
ZHOB	7	1	0	0	6	0
LORALAI	4	0	0	0	4	0
BARKHAN	6	0	0	0	6	0
MUSAKHEL	1	0	0	0	1	0
KSAIFULLAH	5	1	0	0	4	0
SHARANI	1	0	0	0	1	0
ZHOB DIVISION	24	2	0	0	22	0
SIBI	9	0	0	0	9	0
ZIARAT	0					
HARNAI	1	0	0	0	1	0
KOHLU	0					
DBUGTI	2	0	0	0	2	0
SIBI DIVISION	12	0	0	0	12	0
KECH	9	0	0	0	9	0
GWADAR	4	0	0	0	4	0
PANJGOUR	1	0	0	0	1	0
MAKRAN DIVISION	14	0	0	0	14	0
BALOCHISTAN	230	25	0	0	202	3

AFP Investigation Indicators 2014*

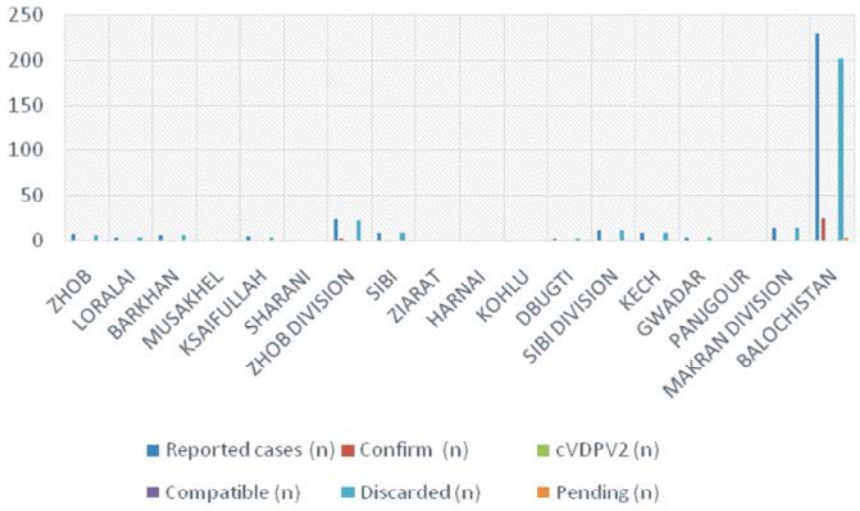


Table 5: Non Polio AFP Rate 2009- 2014

2009	2010	2011	2012	2013	2014
6.2	7.2	7.4	5.1	5.3	5.3

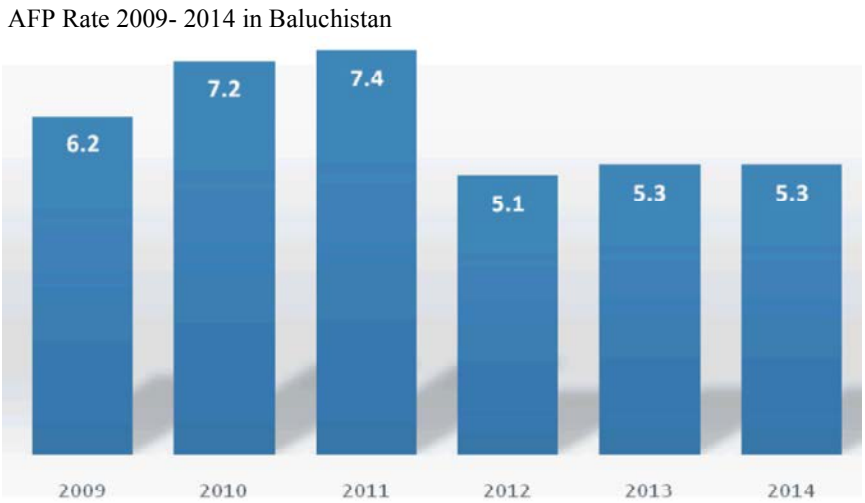


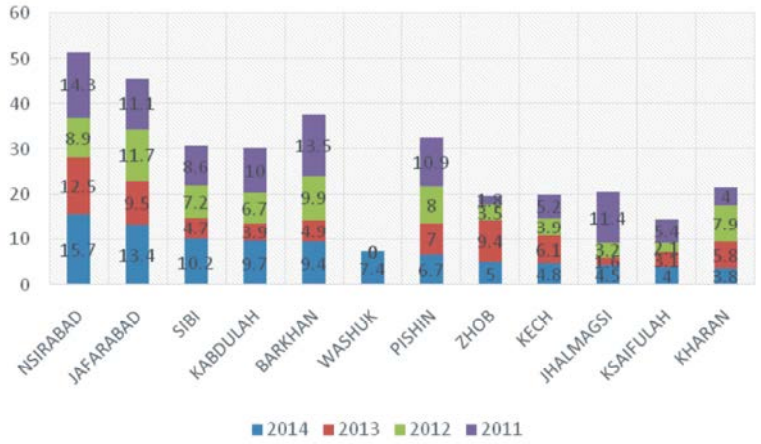
Table 6: Showing List of AFP Cases Incomplete 2014*

S.NO	1	2
District	KHUZDAR	NSIRABAD
EPID	BN/54/14/	BN/41/14/027
DONSET	04-12-14	30-12-14
DSTOOL1	19-12-14	
DSTOOL2	20-12-14	
DSTSENT1	22-12-14	
DSTSENT2	22-12-14	Patient Died Before Stool Collection
ADEQ	INADEQ	INADEQ
LAB RESULTS	NVI	
Pending Lab/ERC/Not Due for FUP	Due for FUP	PERC
Actions to be taken	PEO will do the FUP	Will be Classified in PERC meeting

Tabel 7: District WiseNon Polio AFP Rate 2011- 2014*

District	2014	2013	2012	2011
NSIRABAD	15.7	12.5	8.9	14.3
JAFARABAD	13.4	9.5	11.7	11.1
SIBI	10.2	4.7	7.2	8.6
KABDULAH	9.7	3.9	6.7	10.0
BARKHAN	9.4	4.9	9.9	13.5
WASHUK	7.4	0.0	0.0	0.0
PISHIN	6.7	7.0	8.0	10.9
ZHOB	5.0	9.4	3.5	1.8
KECH	4.8	6.1	3.9	5.2
JHALMAGSI	4.5	1.6	3.2	11.4
KSAIFULAH	4.0	3.1	2.1	5.4
KHARAN	3.8	5.8	7.9	4.0

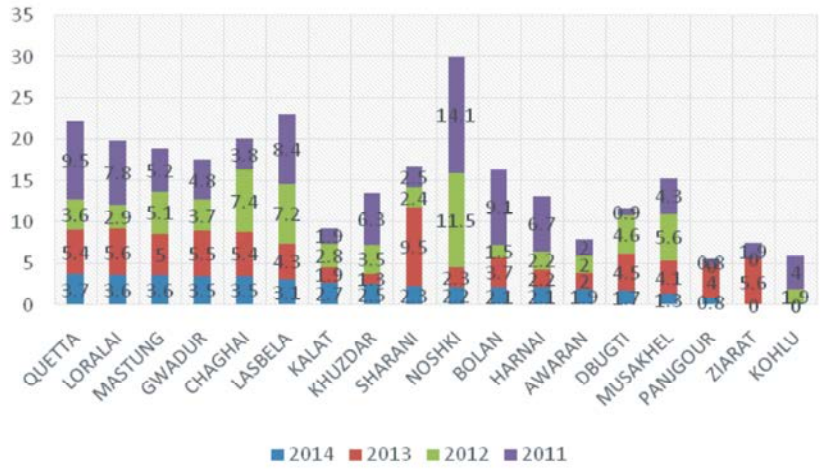
Non Polio AFP Rate 2011- 2014*



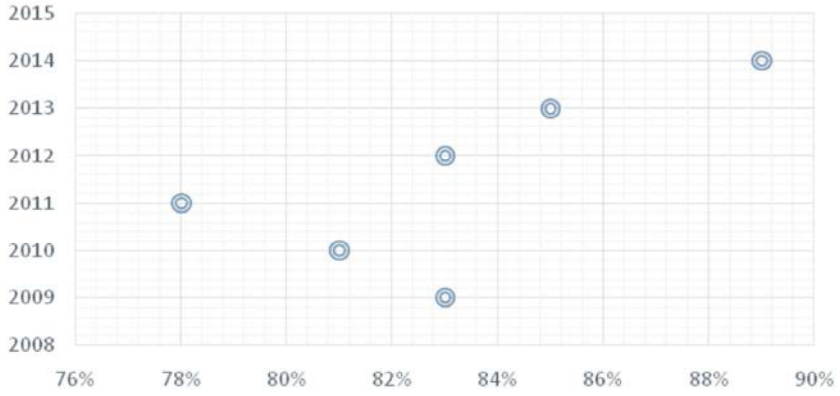
Tabel 8: Non Polio AFP Rate District Wise 2011- 2014*

District	2014	2013	2012	2011
QUETTA	3.7	5.4	3.6	9.5
LORALAI	3.6	5.6	2.9	7.8
MASTUNG	3.6	5.0	5.1	5.2
GWADUR	3.5	5.5	3.7	4.8
CHAGHAI	3.5	5.4	7.4	3.8
LASBELA	3.1	4.3	7.2	8.4
KALAT	2.7	1.9	2.8	1.9
KHUZDAR	2.5	1.3	3.5	6.3
SHARANI	2.3	9.5	2.4	2.5
NOSHKI	2.2	2.3	11.5	14.1
BOLAN	2.1	3.7	1.5	9.1
HARNAI	2.1	2.2	2.2	6.7
AWARAN	1.9	2.0	2.0	2.0
DBUGTI	1.7	4.5	4.6	0.9
MUSAKHEL	1.3	4.1	5.6	4.3
PANJGOUR	0.8	4.0	0.0	0.8
ZIARAT	0.0	5.6	0.0	1.9
KOHLU	0.0	0.0	1.9	4.0

AFP Rate District Wise 2011- 2014*



% AFP Cases with Adequate Stool Specimen



REFERENCES

1. Marx, A., J.D. Glass and R.W. Sutter, 2000. Differential Diagnosis of Acute Flaccid Paralysis and Its Role in Poliomyelitis Surveillance. The Johns Hopkins University School of Hygiene and Public Health. Epidemiologic Reviews: 22 (2).
2. Growdon, J.H. and J.S. Fink, 1994. Paralysis and movement disorder. In: Isselbacher KJ, Braunwald E, Wilson JD, eds. Harrison's principles of internal medicine. New York, NY: McGrawHill Book Company: 115-25.
3. Dr. N. Aumeer, 2010. Illnesses presenting as Acute Flaccid Paralysis. http://www.uom.ac.mu/ medicalupdate/files/2010/dec/afp_differential_diagnosis.pdf
4. Alcala, H., 1993. The differential diagnosis of poliomyelitis and other acute flaccid paralyses. Bio Med Infant Mex, 50(2): 136-44.
5. CDC. Progress towards poliomyelitis eradication, 2000. MMWR 2001; 50: 320-2.
6. WHO, 2009. Acute Flaccid paralysis Field Manuel. For communicable Diseases Surveillance staff.
7. Losos, J.Z., 1996. Routine and sentinel surveillance methodes. East Mediterr Health J, 2(1): 46-50.
8. WHO, 1998. Acute Flaccid Paralysis Surveillance: the surveillance strategy for poliomyelitis eradication. Weekly epidemiological record No. 16. Geneva: WHO; 113-120.
9. Pomerai.k, W., R.F. Mudyiradima, M. Tshimanga and M. Muchekeza, 2010. Evaluation of the Acute Flacid Paralysis (AFP) Surveillance System in Bikita District Masvingo Province. BMC Research Notes 2014, 7: 252.
10. Dawn.com. Provinces. Staff Reporter Metropolitan Islamabad 2011s.

11. Melnick, J.L., 1996. Clinical Microbiology review, Current status of Poliovirus infections, Clin. Microbiol, Rev., 9(3): 293.
12. MonisBolani Ali, Pak Tribune. Pakistan News Service, since 2002.
13. National Emergency Action Plan 2011 for Polio Eradication Page 6 of 18 [http:// www.polioeradication.org/Portals/0/Document/ Infected Countries/ Pakistan/ PakistanStrategy/ NationalEmergencyActionPlan.pdf
14. O'Reilly, K.M., C. Chauvin, R.B. Aylward, C. Maher and S. Okiror, 2011. A Statistical Model of the International Spread of Wild Poliovirus in Africa Used to Predict and Prevent Outbreaks. PLoS Med 8(10): e1001109. doi:10.1371/journal.pmed.1001109v.
15. World Health Statistics,2008. World Health Organization.