

## **AFP Surveillance – 2009**

Poliomyelitis was made a notifiable disease in Sri Lanka in 1944. Immunization with OPV was initiated island wide in 1964. The largest outbreak in the country was reported in 1962 and every 6 years thereafter however with decreased severity. The last case of confirmed polio from the country was reported in 1993, in a female child aged 2 years from Kataragama in the DPDHS Division of Moneragala. Polio virus (P1 wild) was isolated and it was found that the child had been immunized with only 2 doses of OPV.

In 1990 Acute Flaccid Paralysis (AFP) was gazetted as a notifiable disease and individual case based surveillance of AFP was commenced in 1991. The case definition of an AFP case cited such a case as any child under 15 years of age presenting with acute onset flaccid paralysis or a person of any age highly suspected of poliomyelitis.

Epidemiology Unit is the central co-ordinating agency for the National AFP Surveillance programme under the Poliomyelitis Eradication Initiative, receiving information about AFP cases from Medical officers in curative institutions where the patients seek treatment and also from Medical Officers of Health (MOOH).

In addition to the routine surveillance, active surveillance is carried out in the premier Children's Hospital in Colombo (Lady Ridgeway Hospital). An Epidemiologist from the Central Epidemiological Unit visits the hospital at least once a week and checks the wards for cases of AFP. In addition, 58 sentinel surveillance sites have been set up since 1996 in major hospitals in every RDHS Division where Consultant Paediatricians are in place. Regional Epidemiologists are expected to visit their respective sentinel sites in the regions at least once a week. A monthly report of cases of AFP including a nil report is received from the Regional Epidemiologists at the Epidemiology Unit in Colombo.

Weekly reports of AFP cases including zero or nil reports from the 58 sentinel sites in the entire country are being monitored at the Central Epidemiology Unit. Infection Control Nurses (ICN) of each sentinel site are responsible for sending this weekly return.

As a measure to counteract the threat posed from the neighbouring countries that report polio cases, MOOH in every district in northern and eastern provinces, Puttalam district and Nuwara Eliya district, carry out immunization of children less than 15 years of age who return to Sri Lanka from South India with an extra dose of OPV. A register of these South Indian returnees is maintained and updated regularly in each such MOH office. A monthly return summarizing the number of children under 15 years of age among the returnees, their OPV immunization coverage etc is sent to the relevant Regional Epidemiologist who sends a consolidated district report to the Epidemiological Unit monthly.

Also, since November 2007 all pilgrims departing for pilgrimages to India and especially to Buddhagaya should receive a dose of OPV at least 2 weeks prior to their travel date. This immunization activity is being carried out at all MOH offices and also at the Port Health Office in Colombo.

All children under 15 years of age among the Internally Displaced Persons (IDP) in the North are being immunized with 2 doses of OPV 4-6 weeks apart irrespective of their immunization status. This is to cover any under immunized pockets among these victims of conflict. In this post conflict period much attention is being given to strengthening capacity and infrastructure building with regard to EPI and OPV immunization in the resettlement areas.

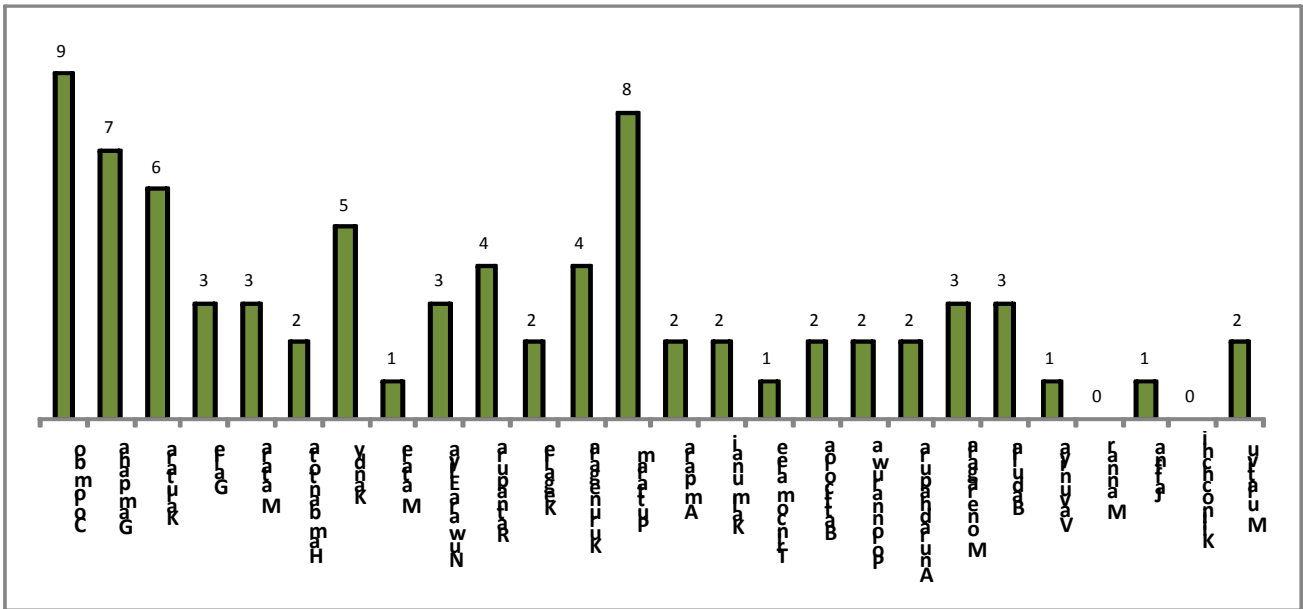
## **Geographical Distribution of AFP cases 2009**

A total of 78 AFP cases were reported for the year 2009 (Fig.1). This yielded a non polio AFP rate of 1.3 per 100,000 under 15 year old population. This is according to the population estimates for 2009 in the country. The highest number of cases, 9 (11%) was reported from Colombo RDHS Division. Eight and 7 cases were reported from Puttalam and Gampaha RDHS Divisions respectively. Highly populated Western province accounted for 22 (28%). All Provinces and most RDHS divisions had reported AFP cases during the year. There were 4 cases from the conflict ridden Northern Province

and 7 from the Eastern Province. Kilinochchi and Mannar districts did not report any cases for the year.

Eighteen districts had the required number of cases and had achieved a non polio AFP rate above 1 per 100,000 under 15 year old population. Districts that did not achieve this target for 2009 were Gampaha, Galle, Matale, Kegalle, Kurunegala, Trincomalee, Anuradhapura and Jaffna.

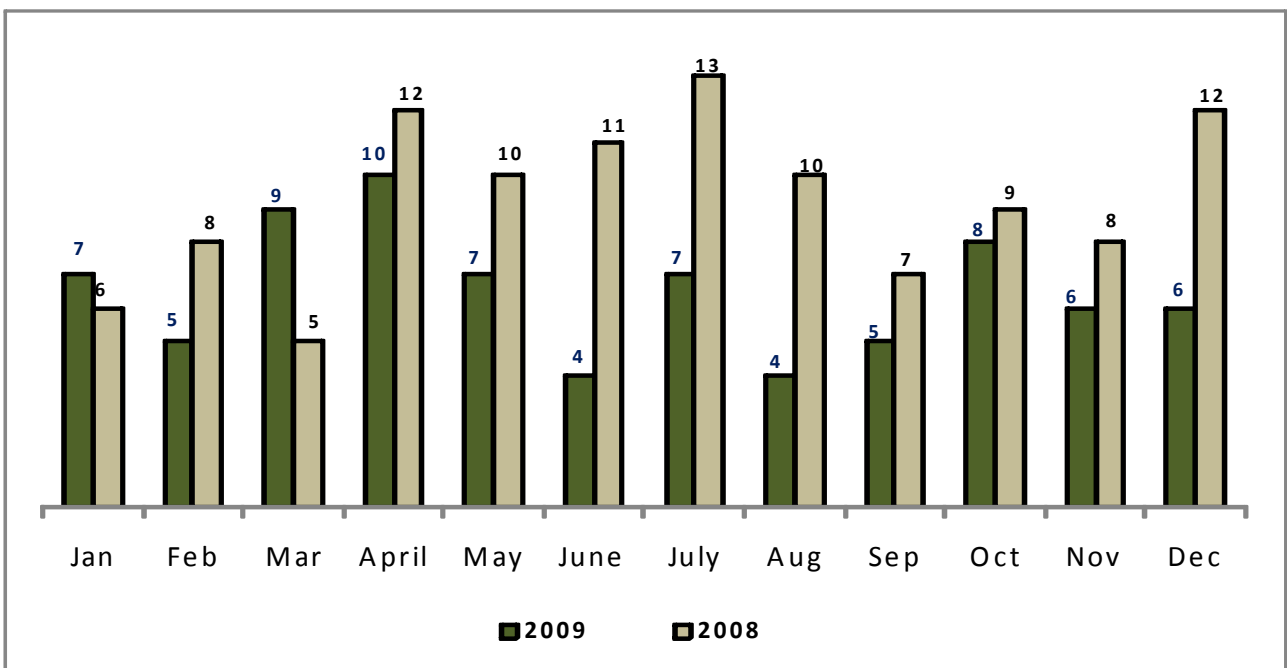
**Fig. I Geographical distribution of AFP cases - Year 2009**



**Seasonal Distribution of AFP Cases 2009**

April recorded the highest number of cases for the year. The number reported was 10 (13%). Nine cases were reported in March. Lowest number of cases (4) was seen in June and August. As in previous years there was no trend observed in this distribution. The figure II below shows the distribution of AFP cases for the years 2008 and 2009 (Fig. II).

**Fig. II Distribution of AFP Cases according to Month 2008 & 2009**



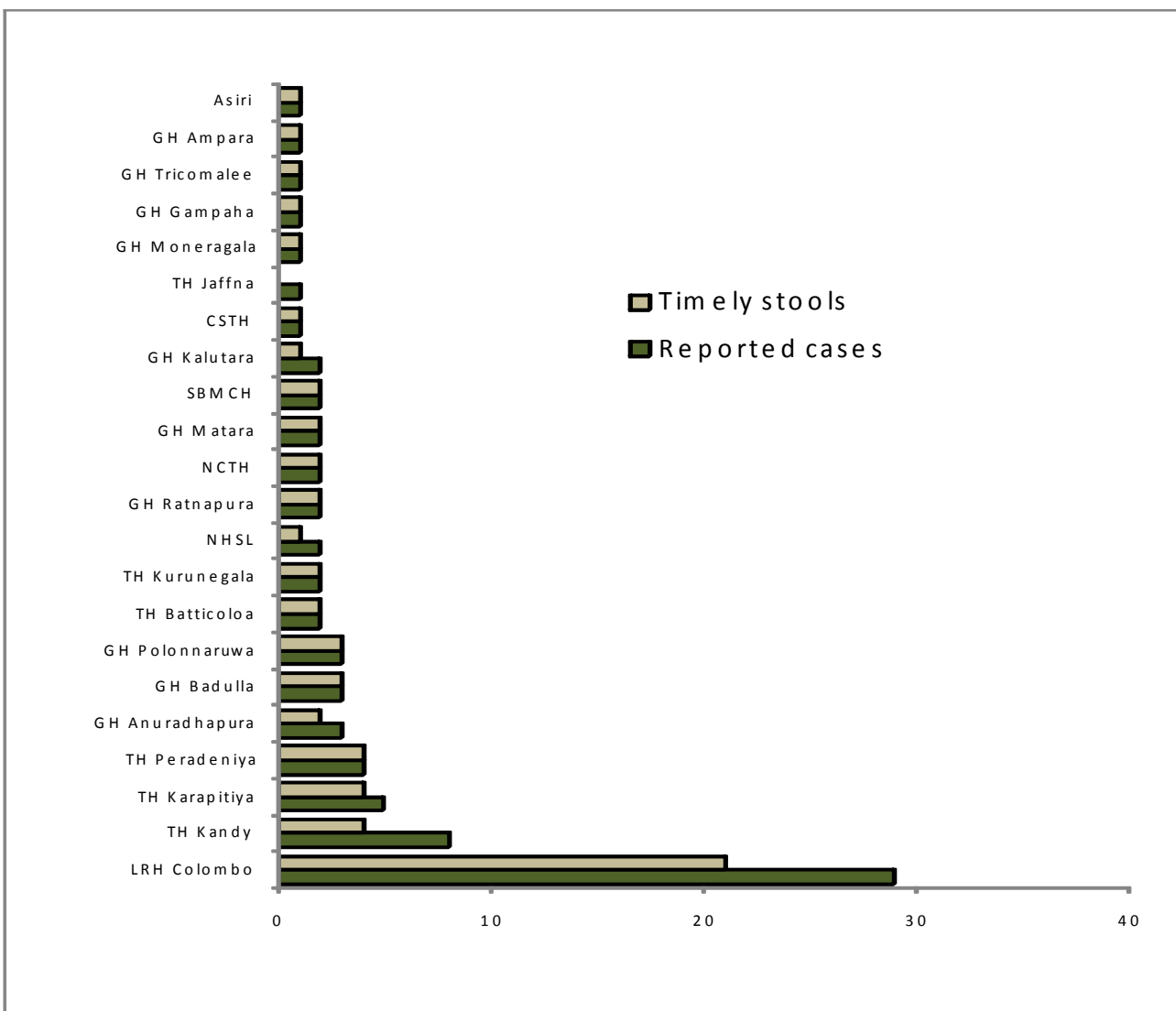
### AFP Surveillance Performance by Hospitals 2009

The main sentinel site for AFP out of the 58 sentinel sites in the country, Lady Ridgeway Children’s Hospital (LRH), Colombo which is a tertiary paediatric care center receiving referrals from other hospitals all over the country had reported well over one third of the total case load (37%) this year. Twenty nine cases had been reported from LRH in 2009. Teaching Hospital Kandy, another referral centre which drains a vast area in the country has reported 8 cases (10%) during the year. Teaching Hospital Jaffna from the conflict ridden Northern Province of the country reported 1 AFP case. In the Eastern Province, TH Batticaloa reported 2 cases while GH Trincomalee and GH Ampara reported one case each during 2009.

All cases of AFP reported should have two stool samples collected within 14 days of onset of the paralysis. This is one of the main responsibilities of the sentinel hospitals in the AFP surveillance programme. Eighty percent of cases should have two such timely stool samples to fulfill the criteria stipulated by the WHO. In 2009, 2 samples of stools were collected for virology within 14 days of the onset of paralysis from only 61 cases (78%) of the 78 cases reported.

The figure III below shows the distribution of AFP cases notified from hospitals with their performance in collection of stools for the year 2009 (Fig. III).

**Figure III. Performance of Sentinel Hospitals 2009**

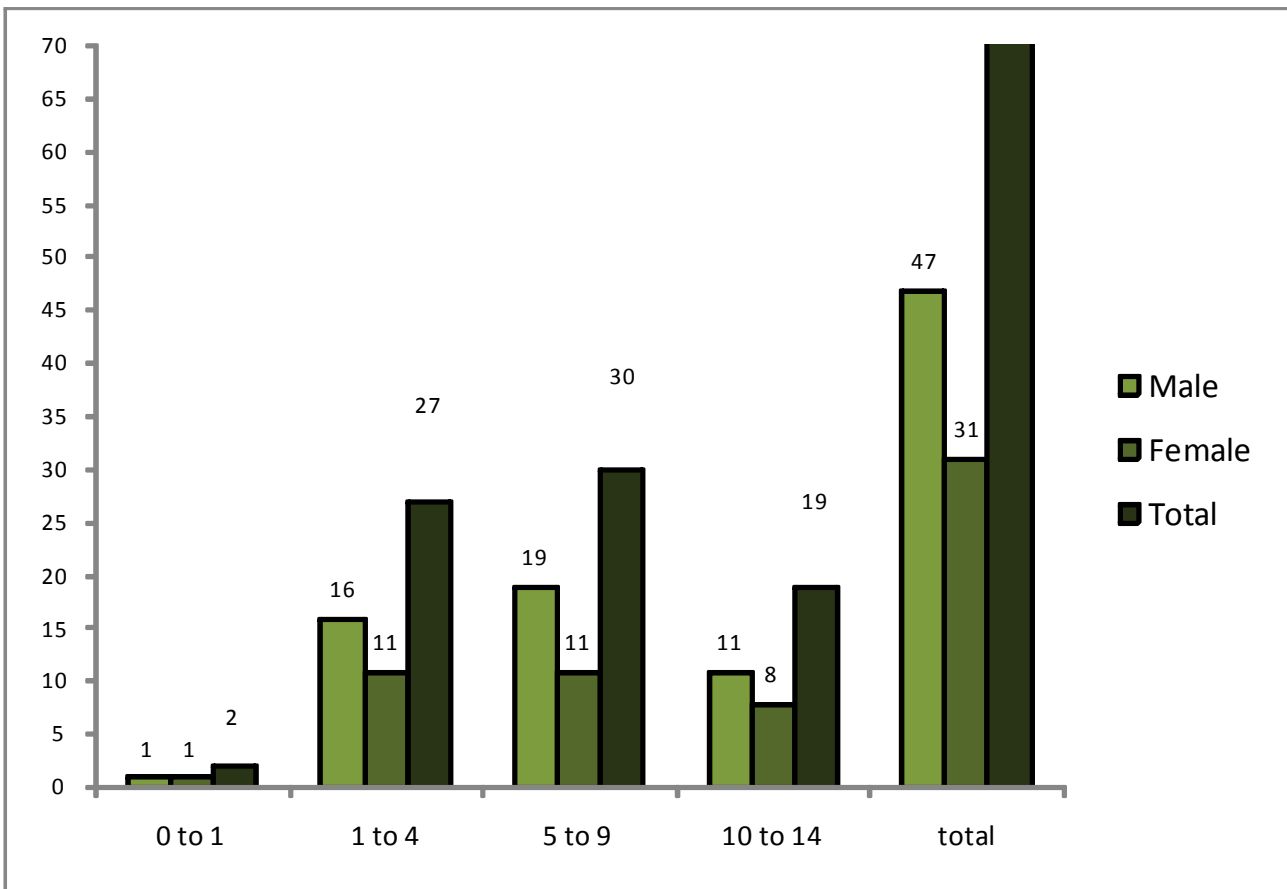


### Age and Sex Distribution of AFP Cases 2009

The majority of AFP number of cases reported in the year was males. Out of the total of 78 AFP cases, 47 (60%) were males and 31 (40%) were female children. This is similar to the trend observed last year where there were more male (61) than female cases (45) reported.

In 2009, this male predominance was observed in all 1-4 year, 5-9 year and 10 - 14 year age groups. A vast majority (73%) of the cases (57) were between 1 – 9 years of age. A similar trend was seen last year. Out of the cases reported in 2009, 19 children (24%) were between 10 – 14 years of age and only 2 children were less than 1 year of age (Fig.IV).

**Figure IV. Age and Sex Distribution of AFP Cases 2009**



### Immunization Status of AFP Cases Reported in 2009

Ninety nine percent of AFP cases (99%) reported during the year 2009 were age appropriately immunized with OPV. Data supporting the immunization status of the children had been obtained from the Child Health Development Record (CHDR) by the medical officers treating the patients or by the Medical Officer of Health (MOH) team through the relevant surveillance forms. Data for 1 case was not available.

### Final Classification of AFP Cases 2009

In 2009 all 78 cases reported were assigned a final classification. A majority of the cases (60) were classified as Guillan Barre syndrome (GBS) by the respective clinicians who reported these cases. This amounted to 77% of the total caseload in the year. This trend has been observed in the surveillance programme of the country throughout the years.

There were 3 cases of Transverse Myelitis (4%) and 2 cases (3%) each of Meningoencephalitis, Miller Fisher Syndrome and Post Viral Cerebellitis. Table 1 below shows the final classification of the AFP cases for the year.

**Table 1. Distribution of Final Classification of AFP Cases 2009**

<b>Diagnosis</b>	<b>Number of AFP Cases (%)</b>
Guillan Barre Syndrome	60 (77%)
Transverse Myelitis	3 (4%)
Post Viral Cerebellitis	2 (3%)
Miller Fisher Syndrome	2 (3%)
Meningo Encephalitis	2 (3%)
Post Viral Myalgia	1 (1%)
Encephalo myelitis	1(1%)
Ewings Sarcoma	1(1%)
AV Malformation	1(1%)
Acute Myelitis	1(1%)
Axillary Nerve Leision	1(1%)
Post Viral Arthritis	1(1%)
Septic Arthritis	1 (1%)
Viral Lumbosacral Radiculopathy	1(1%)
<b>Total</b>	<b>78</b>

### **Feedback Information on AFP Cases**

Feed back information on AFP cases reported from institutions is sent to the respective clinicians once the cases are discarded with a final classification. This has proved to be an effective method of obtaining their cooperation for the surveillance programme. Copies of these feedback forms are sent to the respective Regional Epidemiologists.

Apart from this case based individual feedback, information is sent routinely to all the Regional Directors of Health Services (RDHS), Regional Epidemiologists (RE), MOH, Heads of Health Institutions and all the clinicians through the Weekly Epidemiological Report (WER). The Epidemiological Unit has been publishing the WER since 1973 with the objective of providing a quick feedback in the form of a weekly statement on the notifiable diseases reported on the Weekly Return on Communicable Diseases from the Medical Officer of Health (MOH) areas.

In addition to the feedback sent through these two methods, Quarterly Epidemiological Bulletin published by the Epidemiological Unit provides summary information on AFP surveillance activities for each quarter and year.

### **Indicators of AFP Surveillance and Laboratory performance 2009**

Performance of an AFP surveillance programme is considered to be of adequate standard if a number of performance criteria were achieved. These criteria are stipulated by the Global Poliomyelitis Eradication Initiative of the World Health Organization Firstly the system should detect at least one case of non-polio AFP for every 100,000 population of children aged less than 15 years. Secondly two adequate diagnostic stool specimens (2 stools specimens collected at least 24 – 48 hours apart within 14 days of onset of paralysis and received in good condition at the laboratory) should be collected from at least 80% of AFP cases reported. The other criteria are based on the

performance of the laboratory processing the specimens, monitoring mechanisms in place to streamline the reporting system and the clinical investigation procedures involved.

## **1. Non polio AFP rate in children < 15 yrs. of age (Target $\geq$ 1/100,000)**

Sri Lanka achieved a non-polio AFP rate (Number reported/number expected) of 1.3 during the year 2009. This exceeds the expected rate of 1 per 100,000 population of under 15 year old children. This rate is lower than the non-polio AFP rate of 1.9/100,000 under 15 year old population reported in 2008 since the total number reported for the entire year was comparatively less. In the year 2009 all except 2 districts in the country have reported the expected number or more AFP cases. The AFP rate is routinely monitored for each district and surveillance is strengthened in those districts where the AFP rate has been low during the previous year.

## **2. Completeness of reporting**

### **2.1 Weekly reporting of Notifiable Diseases**

All Medical Officers of Health (MOOH) send a weekly return of notifiable diseases to the Epidemiological Unit. Completeness (number received/number expected) of these returns and their timeliness are monitored by the Epidemiological Unit. The returns are expected to be received within a week to be timely.

In the previous year the completeness of weekly notifiable disease reporting was satisfactory at 94%.

### **2.2 Weekly reporting of AFP cases from institutions**

Fifty eight hospitals around the country have been identified as sentinel sites (compared to 50 sites in 2004) which routinely report on AFP cases from the respective institutions. These weekly returns are monitored centrally for their completeness and the timeliness.

In 2009 the completeness of weekly reporting of AFP cases from those institutions was lower than the previous year and was 69%.

### **2.3. Monthly reporting of AFP cases by Regional Epidemiologists (REE) (Target >90%)**

Regional Epidemiologists in all 26 districts send a monthly return on AFP to the Epidemiological Unit. Completeness and timeliness of these returns are monitored centrally. In the previous year the completeness of monthly reporting was lower than 2008 and was 75%.

## **3. Timeliness of reporting**

### **3.1 Weekly reporting of Notifiable Diseases**

The weekly reports from MOH on notifiable diseases received within a week from the due date are considered as timely. During the year 2009 the timeliness of reporting was 74%.

### **3.2 Weekly reporting of AFP cases from institutions**

During the year 2009 the timeliness of weekly reporting of AFP was unsatisfactory at 42%. This had not improved since 2007 where this figure stood at 45%. Steps have been taken to educate the infection control nurses who are responsible for this activity in sentinel sites with repeated supervisions by the central as well as the regional level authorities.

### **3.3 Monthly reporting of AFP cases by REE (Target > 80%)**

Monthly reports received from REE before the 20<sup>th</sup> of the following month are considered as timely. Timeliness of monthly reporting in the previous year showed a large improvement from 2008 (15%) and was 53%.

### **4. Reported AFP cases investigated within 48 hrs of reporting (Target $\geq$ 80%)**

All AFP cases notified should be examined and investigated by an epidemiologist (at central or regional level) within 48 hrs of notification. In the year 2009, 100% of the AFP cases reported were investigated by an epidemiologist within 48 hours of notification.

### **5. Reported AFP cases with 2 stools specimens collected within 14 days of onset of paralysis (Target > 80%)**

All cases of AFP reported should have two stool samples collected within 14 days of onset of the paralysis. Over eighty percent of cases should have two such timely stool samples to fulfill the criteria stipulated by the WHO.

In 2009, 2 samples of stools were collected for virology within 14 days of the onset of paralysis from 60 cases (77%) of the 78 cases reported. Any Samples of stools were not collected from two AFP cases during 2009.

### **Stool samples from contacts**

Following notification, stools samples are collected from 3 to 5 contacts of all AFP cases during the outbreak response activities carried out by the respective MOH. The contact stool sampling was satisfactory during the previous year and samples of stools were collected from contacts of 66 (85%) AFP cases reported in 2009.

### **6. Reported AFP cases with a follow-up examination at 60 days after onset of paralysis to verify the presence of residual paralysis or weakness (Target $\geq$ 80%)**

All the reported AFP cases should be followed up at 60 days of onset of paralysis by an epidemiologist at central or regional level for presence of residual paralysis. In 2009, all 78 cases reported have been followed up after 60 days of onset of paralysis. It therefore achieved a 100% follow up rate.

### **7. Specimens of stools arriving at National Laboratory (MRI) within 03 days of being collected (Target > 80%)**

In the year 2009, 25 samples out of the total of 152 samples collected from cases, have been received after 3 days of being collected. This amounts to a 84% of the samples of stools being received timely.

### **8. Specimens of stools arriving at the National Laboratory in good condition (Target >80%)**

In 2009, out of the 152 samples of stools collected from 78 AFP cases, 151 samples were in 'good' condition (99%) on arrival at the laboratory.

Good condition means that upon arrival:

- a) There is ice in the container
- b) Specimen volume is adequate

- c) There is no evidence of leakage or desiccation
- d) Appropriate documentation is complete

**9. Specimens of stools with a turn around time <28 days (Target>80%)**

In the previous year out of the 152 samples of stools collected and sent, results of all 152 specimens of stools were reported within 28 days. This achieved the target with a percentage of 100%.

**10. Stool specimens from which non-polio enterovirus was isolated (Target> 10%).**

Non polio enterovirus was isolated from samples of stools of 8 cases out of the total 78 cases (10.2%). This is just above the expected target of 10%. Wild poliovirus was not isolated at the MRI during 2009.

**National Polio Expert Committee Meetings 2009**

The National Polio Expert Committee consists of experts from fields of paediatrics, virology, epidemiology, clinical neurology and neurophysiology. The expert committee meets once every quarter to discuss AFP cases that could not be discarded on laboratory results. In 2009, five such AFP cases were presented to the committee for deliberations. All these cases had stools samples collected late and had residual paralysis at 60 days of onset of paralysis. All of them were reviewed and discarded by the Expert committee as non Polio AFP cases.