



## WEEKLY FIELD EPIDEMIOLOGY REPORT

Volume 2 Issue 21 May 20-26, 2019

Date: May 30, 2019

Provincial Technical Officers and fellows of FELTP assigned at the Disease Surveillance and Response Units (DSRU's) are working with provincial and district health authorities on event based disease surveillance and outbreak response.

DSRUs are sharing the disease surveillance data, outbreak reports and activities of FELTP fellows to the Federal Disease Surveillance and Response Unit (FDSRU) at the Field Epidemiology and Disease Surveillance Division (FEDSD) National Institute of Health (NIH) Islamabad on weekly basis.

**Table 2: Dengue cases reported by province / areas, total in 2017, 2018 and monthly updates, 2019**

Month	KPK	Sindh	AJK	ICT	TDs - KP	Baluch	Punjab	Total
Jan-Dec 2017	18,857	2,884	6	120	406	86	579	22,938
Jan-Dec 2018	332	2088	1	0	175	69	539	3204
Jan-19	0	143	0	0	0	12	1	156
Feb-19	0	99	0	0	0	30	0	129
March-19	0	67	0	0	0	251	0	318
April-19	1	93	0	2	2	549	1	646
May-19	0	110	0	0	37	418	1	566
Total - 2019	1	512	0	0	39	1260	3	1815

### CCHF Surveillance:

In 2018 total **63** CCHF (suspected and confirmed) cases were reported from DSRUs and 11 cases have been reported in 2019. During the last week one new CCHF case was reported.

### Extensive Drug Resistant/Multi Drug Resistant - Typhoid Fever Surveillance, Sindh:

From November 1, 2016 to May 26, 2019 total of **11,500** Typhoid Fever cases were reported from different districts of Sindh province. Out of these **7,740** were found as Extensive Drug Resistant Typhoid cases. The Drug Resistant cases are mostly reported from Karachi and District Hyderabad. The PDSRU Hyderabad and Regional DSRU Karachi are following up on the Drug Resistant cases in Sindh.

**Table 3: Reported XDR Typhoid Fever cases in Sindh by year (Nov 2016 –May 26, 2019)**

Year	Karachi	Hyderabad	Other Districts	Sindh Total
2016	0	12	0	12
2017	175	485	4	664
2018	3,712	891	207	4,810
2019 (May 30)	1405	560	289	2254
Total	5292	1,948	500	7,740

### 1. Update on Extensive Drug Resistant Typhoid Fever Karachi:

A total of **8421** lab confirmed Typhoid cases were reported from ten hospitals of Karachi. Out of these **5292** were recorded as Extensive Drug Resistant (XDR) Typhoid Fever cases from January 1, 2017 to May 26, 2019.

In the 21<sup>st</sup> week of 2019, total **78** new XDR/MDR Typhoid Fever cases were reported from different hospitals in Karachi.

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**Table 1: Weekly and Cumulative Diseases Updates May 26, 2019**

Disease	New cases May 20-26, 2019	Total Cases in 2019
1 CCHF	1	11
2 Varicella	45	496
3 Dengue	146	1815
4 Chikungunya	0	0
5 Measles	307	3566
6 Diphtheria	10	201
7 suspected/confirmed Seasonal Influenza	0	81

### Influenza Suspected/Confirmed:

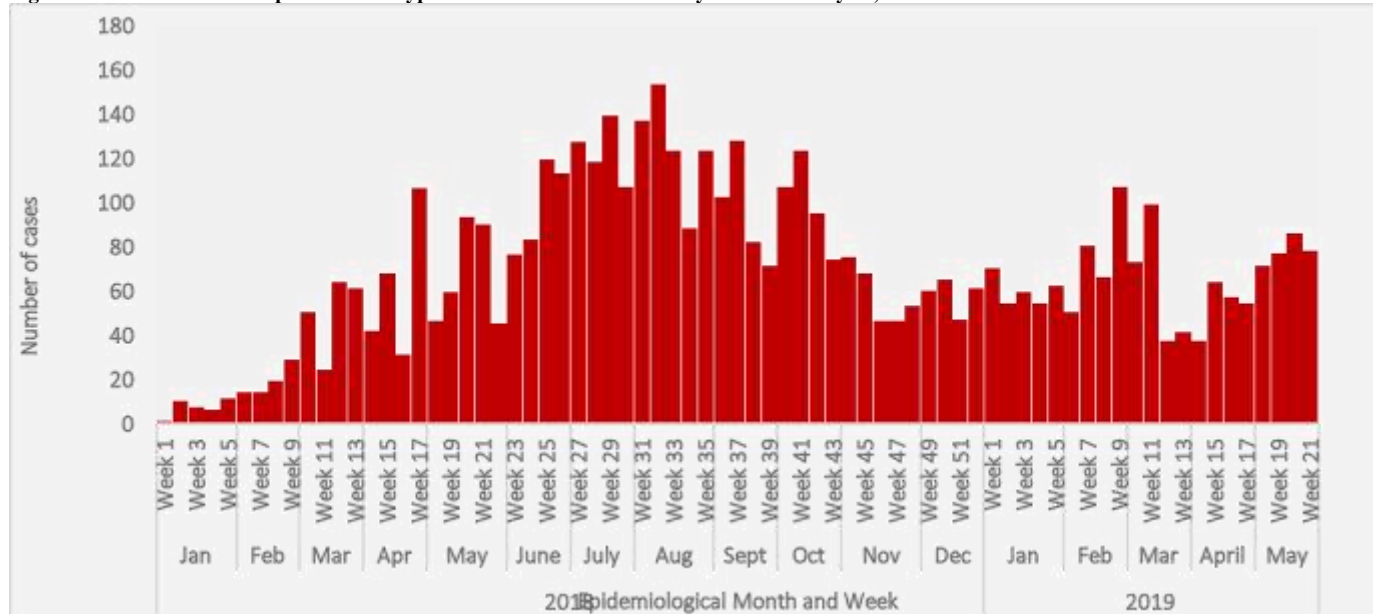
In 2018, 3221 Suspected/confirmed Influenza cases were reported from PDSRUs/RDSRUs. In week 21, 2019, no new case was reported.

### Diphtheria Surveillance:

During 2018 total **464** suspected cases of Diphtheria were reported. Total 201 cases reported in 2019 and 10 new cases reported last week.

### Dengue Surveillance:

In 2018 total **3204** Dengue cases were reported, from Sindh (**2088**) Baluchistan (**69**), Punjab (**539**), KP (**332**) and Tribal Districts KP (**175**), AJK (**1**). In 2019 total **1815** cases have been reported so far. In week 21, 2019, **146** new cases were reported from Sindh (**37**) and Baluchistan (**109**).

**Fig 1: Time distribution of reported XDR Typhoid cases in Karachi for the year 2018 – May 26, 2019**

Following cases definitions were applied to categorize the Typhoid cases reported:

#### Non Resistant typhoid fever:

It is defined as Typhoid fever caused by *Salmonella Typhi* or *Salmonella Paratyphi A, B or C* strains which are sensitive to first and second line drugs (ampicillin, chloramphenicol, trimethoprim-sulfamethoxazole, cefixime and ceftriaxone). Any isolate sensitive to first line drugs but resistant to fluoroquinolone group will also be considered as Non-Resistant typhoid.

#### Multi-Drug Resistant (MDR) Typhoid fever:

It is defined as Typhoid fever caused by *Salmonella Typhi* or *Salmonella Paratyphi A, B or C* strains which are resistant to the first line recommended drugs for treatment such as chloramphenicol, ampicillin and trimethoprim-sulfamethoxazole. The strain may be sensitive or resistant to fluoroquinolone group.

#### Extensive Drug Resistant (XDR) Typhoid fever:

It is defined as typhoid fever caused by *Salmonella Typhi* strain which are resistant to first line drugs, fluoroquinolones and third-generation cephalosporin (Ceftriaxone)

The Technical Support Officer and the FELTP fellows of the Regional DSRU Karachi reached out to the major hospitals in the city and collected the Typhoid data from hospitals in whatever form it is available. They segregated and analyzed the data for the Drug resistance pattern.

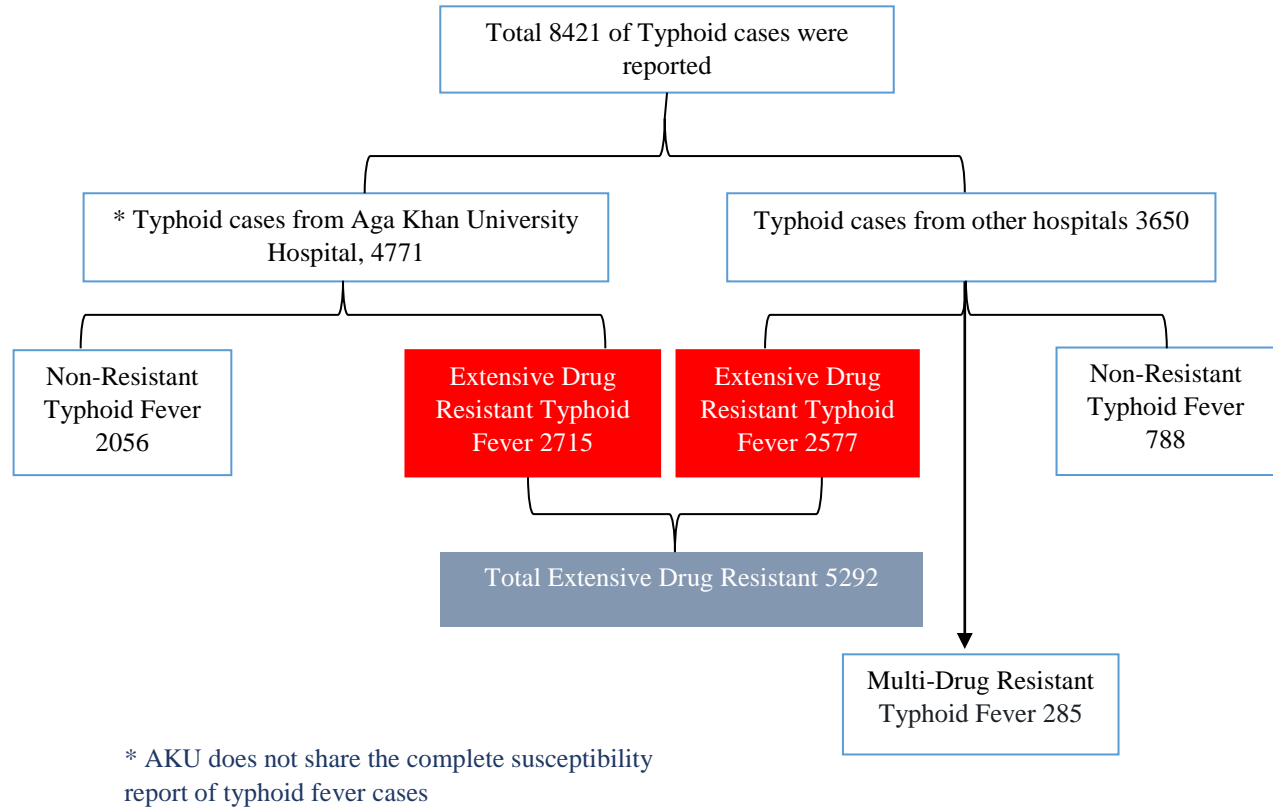
The XDR Typhoid cases were reported mostly among the children and maximum number **1093** (21%) of the XDR cases were reported in the 3-4 years age group.

The overall attack rate was **26/100,000** population. Highest attack rate was found in 3-4 years age group i.e.81/100,000 followed by 1-2 years age group i.e. 70/100,000. Males had higher attack rate (31/100,000) as compared to females

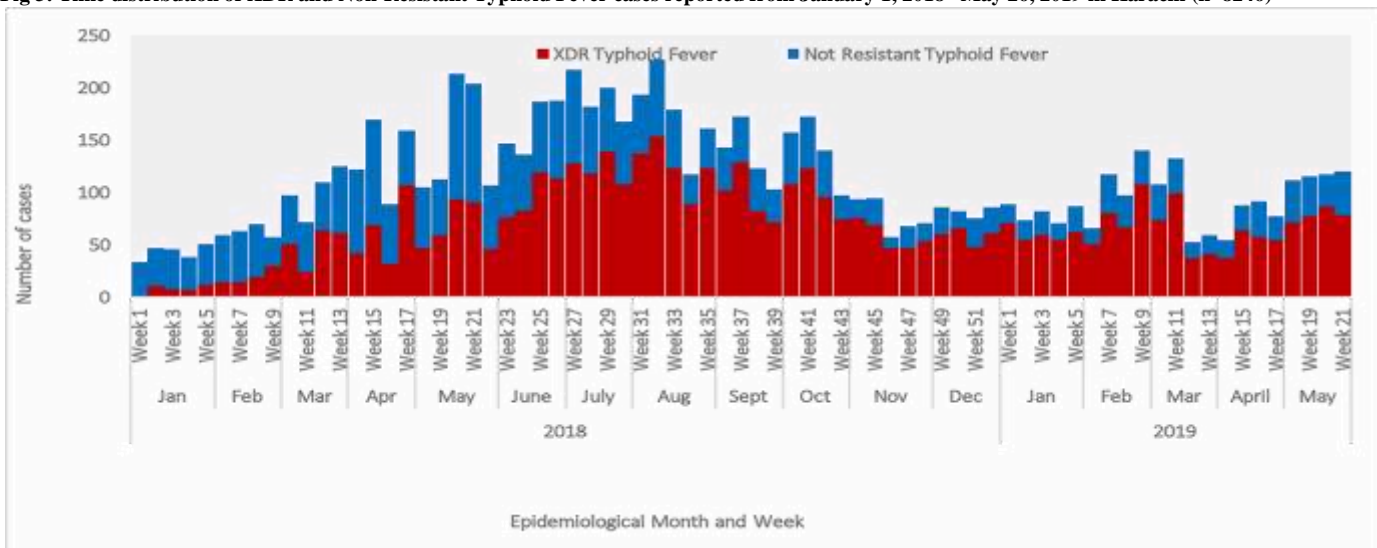
**Table 4: Age and gender specific attack rates of XDR Typhoid reported from Karachi during January 1, 2017 to May 26, 2018**

Age Group	Percentage of Population	Number of Population	XDR Typhoid	Attack rate /100,000
0-11 Month	3.4	686,785	101	15
1-2Y	7.6	1,535,166	1082	70
3-4Y	6.7	1,353,370	1093	81
5-6Y	5.6	1,131,175	658	58
7-8Y	5.1	1,030,177	675	66
9-10Y	5.2	1,050,377	381	36
11-12Y	4.4	888,780	328	37
13-14Y	4.4	888,780	139	16
15-24	20.4	4,120,709	510	12
25-34Y	13	2,625,942	194	7
35-44Y	11	2,221,951	55	2
45-54Y	7.5	1,514,967	38	3
55-64Y	3.7	747,383	24	3
>65	1.99	401,971	14	3
<b>Total</b>	<b>99.99</b>	<b>20,199,554</b>	<b>5292</b>	<b>26</b>
<b>Female</b>	<b>49</b>	<b>9,897,781</b>	<b>2091</b>	<b>21</b>
<b>Male</b>	<b>51</b>	<b>10,301,772</b>	<b>3201</b>	<b>31</b>

**Fig 2: Number of XDR and drug sensitive Typhoid fever cases reported from January 1, 2017 to May 26, 2019 in Karachi**



**Fig 3: Time distribution of XDR and Non-Resistant Typhoid Fever cases reported from January 1, 2018 –May 26, 2019 in Karachi (n=8246)**



The highest Incidence Rate of the cases was reported from 5 towns: Gulshan-e-Iqbal (AR=27.1/100,000), Saddar (16.6/100,000), North Nazimabad (AR 10.7/100,000), Malir (AR 10.1/100,000), Gulberg (AR 9.7/100,000) and Liyari (AR 8.1/100,000). While lowest Incidence was recorded in SITE town (AR=0.1/100,000).

**Reported by:** *Dr Asif Syed TSO Karachi, Dr Anum Vigio and Dr. Ishfaqe (fellows 10th Cohort)*

## 2. Update on Extensive Drug Resistant Typhoid Fever in district Hyderabad:

The PDSRU Hyderabad at DGHS Sindh Hyderabad is following up for the XDR/MDR Typhoid cases in District Hyderabad.

From November 2016 to May26, 2019, a total of **3079** Typhoid cases were reported at the PDSRU Hyderabad from different districts of Sindh province excluding Karachi. Out of these **2,448** are Extensive Drug Resistant (XDR) cases. Among all reported XDR cases, **1,948 (79.6 %)** were from District Hyderabad only.

Fig 4: XDR Typhoid cases reported by month in district Hyderabad (May 20-26, 2019)

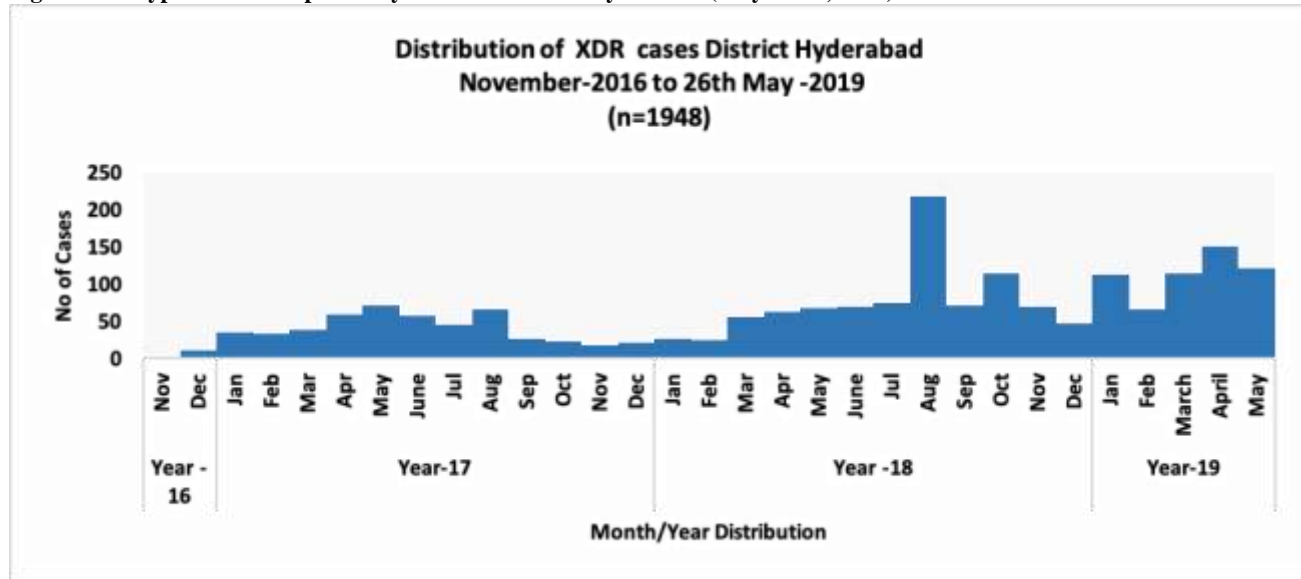


Table 5: District wise (excluding Karachi) total Typhoid and XDR Typhoid cases in Sindh (Nov 2016 – May 26, 2019)

Name of District	No of Typhoid Fever Cases	XDR cases	% XDR
Hyderabad	2454	1948	79.6
Tando Allah Yar	10	7	0.3
Badin	85	55	2.2
Dadu	21	16	0.7
Kashmore	13	13	0.5
Ghotki	17	15	0.6
Mirpurkhas	185	150	6.1
Sukkur	33	30	1.2
Tharparkar	5	3	0.1
Sanghar	58	49	2.0
Nau sheroferoz	22	13	0.5
Shikarpur	22	21	0.9
Tando M Khan	1	1	0.0
Jamshoro	93	77	3.1
Umar Kot	4	4	0.2
Jacobabad	2	2	0.1
SBA	10	7	0.3
Larkana	26	20	0.8
Sujawal	2	2	0.1
Jacobabad	1	1	0.0
Thatha	4	4	0.2
Khairpur	11	10	0.4
<b>Total</b>	<b>3079</b>	<b>2448</b>	<b>79.5</b>

The most affected age group was 2-4 years (n=679) with Attack Rate 35.9/10,000 of population followed by 5-9 years of age group (n=624) 20.3/10000. Overall attack rate is 8.9 /10,000.

Table 6: Age and gender specific attack rates XDR Typhoid reported from District Hyderabad (n=1948)

Age Group	XDR	Population	Attack rate/10000
0-23 Month	120	118771	10.1
2-4 Year	679	178157	38.1
5-9 Year	624	294728	21.2
10-14 Year	304	266135	11.4
15-19 Year	72	248539	2.9
20-24 Year	55	213348	2.6
25-29 Year	31	175957	1.8
30-34 Year	18	136367	1.3
35-39 Year	17	118771	1.4
40-44 Year	9	94577	1.0
45-49 Year	3	87979	0.3
50-54 Year	7	59386	1.2
55-59 Year	6	59029	1.0
60-64 Year	1	52787	0.2
>65	2	94577	0.2
<b>Total</b>	<b>1948</b>	<b>2199107</b>	
Male	1170	1112968	7.2
Female	778	1086139	8.9

**Environment and water Assessment:**

Out of 61 water sample taken; 39 showed E.coli in high quantity. Five samples showed the presence of Streptococci-I (Source: AKU team)

In 9 out of 13 (69 %) of the water samples from the cases household, coliforms and/ or thermo-tolerant E.coli were isolated from the household drinking water. On molecular analysis using PCR on extracted DNA from 55 water samples collected from community taps S. Typhi DNA was detected in 12 (21.8 %) samples.

**Actions Taken:**

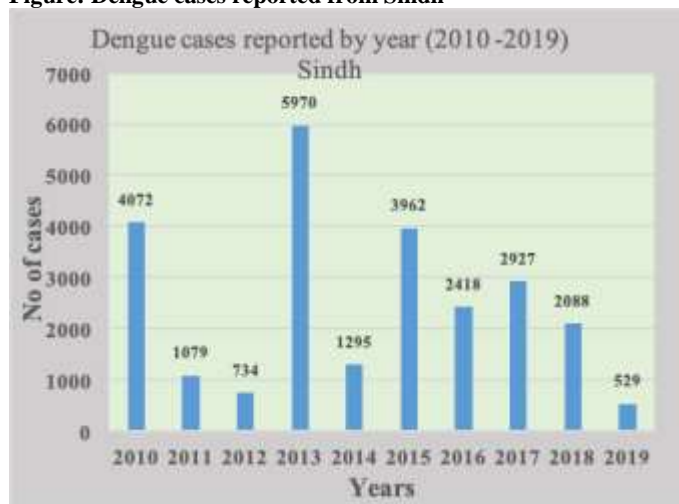
- Total **210,000** children between 6 months to 10 years age in Hyderabad high risk areas have been vaccinated for Typhoid
- Sensitization sessions with general practitioners
- Chlorine tablets were distributed to household in the affected areas of Hyderabad district

Reported by: *Dr Naveed Memon TSO Hyderabad, Dr Santosh, Dr Munaza (fellow, 11<sup>th</sup> cohort), Dr Mudassar (alumnus, 9<sup>th</sup> cohort)*

**Update on Dengue Surveillance Sindh:**

In week 21, **37** new Dengue cases were reported. Till week 21, 2019 total 529 cases and one death had been reported from Sindh.

**Figure: Dengue cases reported from Sindh**

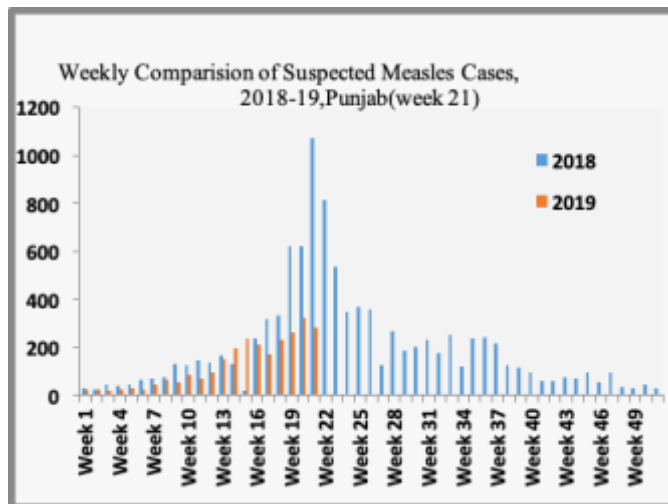


**Update Measles Surveillance Report Punjab:**

The PDSRU Punjab is regularly assisting with data analysis and information sharing with the health department officials. During the period from week 1-52, 2018 a total of **11,991** suspected Measles cases were reported. The highest number of suspected Measles cases (**n=1072**) was recorded during the week 21, 2018

In week 21, 2019, total **280** new cases of suspected Measles were reported.

**Fig 6: Weekly suspected Measles Cases-Punjab (2018 and 2019)**



**Update /Follow-up Varicella Surveillance in Punjab:**

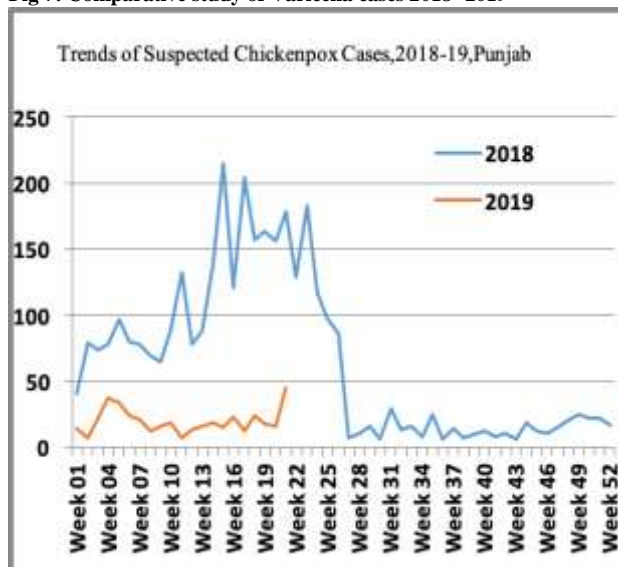
Forty five Varicella cases were reported from different districts of Punjab in week 20, 2019. The total number of cases reported from Jan 01, 2018 till May 26, 2019 is **3,762**.

**Table 7: Age specific attack rates of varicella in Punjab in 2018-2019**

Age Group	Total number of Cases (2019)	AR/100,000
0-4 Yrs.	986	6.8
5-9 Yrs.	1257	8.3
10-14 Yrs.	643	4.8
15-19 Yrs.	257	2.1
20-24 Yrs.	195	1.8
25-29 Yrs.	123	1.5
30-34 Yrs.	113	1.7
35-Above	188	0.6
<b>Total</b>	<b>3762</b>	<b>3.4</b>

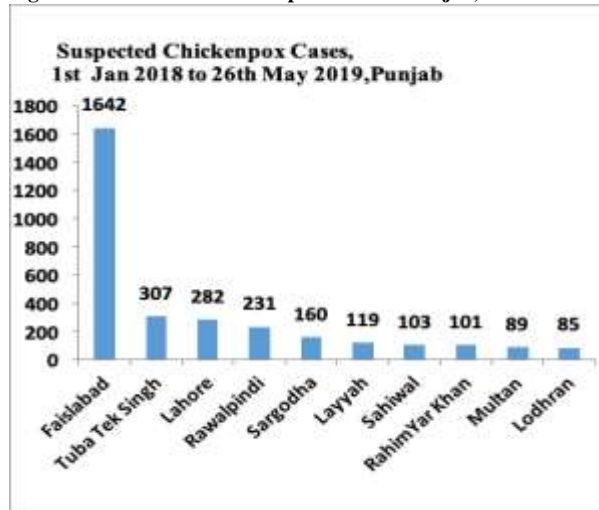
High attack rate was observed in children aged 5-9 yrs. (8.3/100,000) followed by 0-4 yrs. age group (6.8/100,000).

**Fig 7: Comparative study of Varicella cases 2018 -2019**



The highest number of cases were reported from District Faisalabad (n=1642). The cases are mostly from two locations (Thandiwallia and Jaharanwalla) in Faisalabad District.

Fig 8: Distribution of Chicken pox Cases in Punjab, 2018-2019

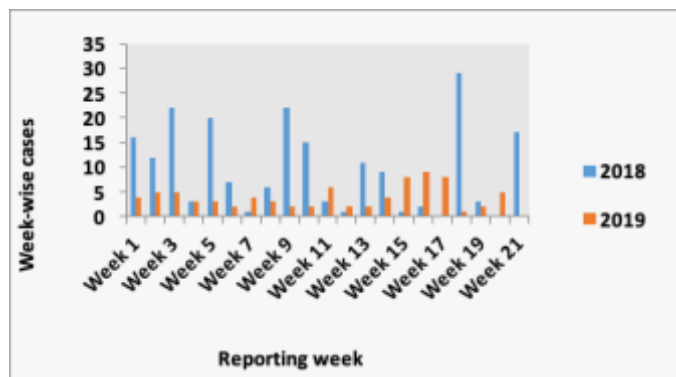


Reported by: *Dr Mohsan Wattoo TSO Lahore,*

**Update on Measles Surveillance KP:**

In current week, 31 suspected cases and 05 confirmed cases reported across province through online EPI MIS software. Suspected cases being reported sporadically from different health facilities of province. Total number of suspected cases are 547 with 82 Lab confirm cases. Clustering of cases not identified in any area.

Figure: Reported Measles cases-KP (2018-19)



Among positive cases 34% (n=28) cases being reported from district D I Khan. Overall, 80% (n=66) confirm cases were zero dose, 7% (n=6) received Measles 1 and 12% (n=10) received booster dose. Furthermore, among 66 lab confirmed cases aged more than 9 months, 75% (n=50) were zero dose as per information shared online by EPI staff of district. Overall among suspected cases, 64% (n=337) are zero dose. Further, among 358 suspected cases aged more than 9 months, 59% (n=213) were zero dose.

Fig 8: vaccination status of Measles cases-KP

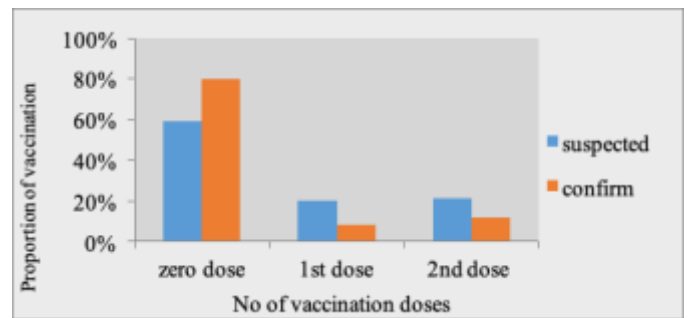


Table 8: Summary statistics of Measles cases in KP

Median age with Rang in Months (Lab Confirm)	18 Months (07 - 48)
Median age with Rang in Months (Suspected)	18 Months (0 - 360)
Proportion of Male & Female cases (Confirm)	61% & 39%
Proportion of Male & Female cases (Suspected)	64% & 36%
No. of Lab confirm cases	14% (n=82)
Epi Linked positive cases	15% (n=10)

Case response activities were carried out in affected localities with mopping up vaccination.

**Update on Diphtheria Surveillance-KP:**

In current week, two diphtheria case reported from district Shangla and Charsada. Total numbers of clinical diphtheria cases are 50 with no deaths. District Peshawar shared highest burden of disease 30% followed by district Bannu 20%.

All cases presented with rash, fever and adherent membrane tonsillitis. Samples were sent for lab confirmation.

Table: Summary statistics of Diphtheria Cases-KP

Median age with Range in Months	90 Months (19 - 196)
Proportion of male & female cases	63% (n=37) & 37% (n=22)
Routine Immunization Status	Zero dose
H/O Travel in last 21 days	4.5% (n=1)
Case fatality	Nil

Case response activities are under way in the affected locality. Mopping up vaccination campaign was launched under the supervision of Director EPI KP in Diphtheria endemic areas.

**Update on Dengue Outbreak Baluchistan:**

After an upsurge of Dengue cases in district Kech and Gwadar a joint team of FELTP, WHO and Department of Health Balochistan conducted field investigation, initiated control interventions and monitoring the Dengue situation in Kech and Gwadar. During the last week, **109** more dengue cases were reported from District Kech.

The dengue was first time reported in 2011 from Gwadar and Kech districts with travel history of the patients to Karachi and other endemic areas of Pakistan. From 2014 onward, Dengue is endemic in the Coastal belt districts of Balochistan.

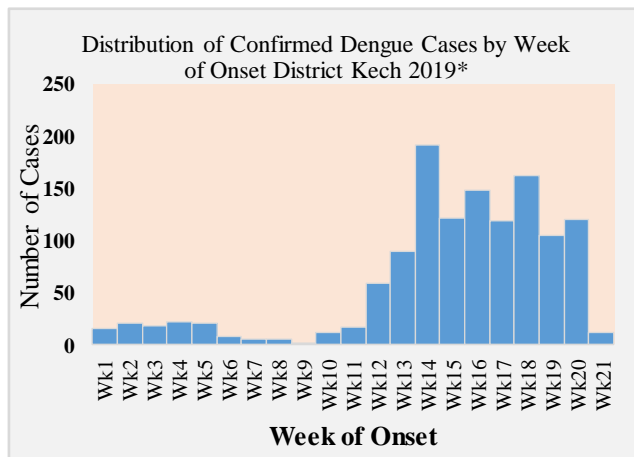
A total of 1270 confirmed cases of dengue have been recorded (Case Fatality Rate=2.3/1000 population). The mean age of dengue cases was 27 years with age range 1 years to 80 years. The male to female ratio was about 1.9:1. Majority of cases 53.5% (n=528) were among age group 15-29 years, followed by 26.1% (n=258) among 30-44 years age-group while 9.7% (n=96) were among ,1-14 years of age group. The overall attack rate was 5.4/1000 Population.

**Table 9: Age wise attack rate of Dengue-Baluchistan**

Age Group (Years)	Cases (n=1092)	Percentage (%)	Pop of that Age Group	Attack Rate/10000 Pop
< 1-14	122	11.2	88861	1.37
15-29	630	57.7	59390	10.61
30-44	241	22.1	33571	7.18
45-59	90	8.2	20523	4.39
60-74	8	0.7	9183	0.87
75-89	1	0.1	6782	0.15

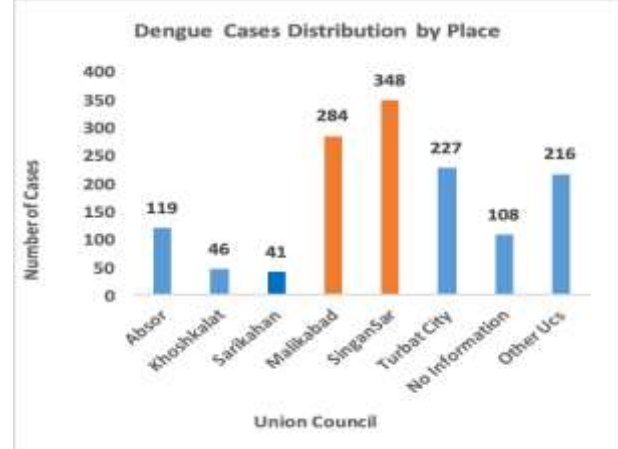
Serotyping was done on five samples from Gwadar and Kech district and all were reported DNV-1

**Fig 9: Dengue confirmed cases by week of onset Baluchistan**



Majority of confirmed Dengue case are reported from Union councils Singansar, Malikabad, Turbat city and Absor. For 108 cases the location was not mentioned while 216 cases were reported from other Union councils in the district.

**Fig 10: Dengue cases by place (Union councils) Baluchistan**



**Actions taken so far to control Outbreak:**

- FELTP, Department of Health and WHO mission conducted the field investigations and support district health team in controlling current outbreak at Kech, Gwadar and Lasbella.
- More than 50 Health Care workers have been trained on to identify and eliminate the Aedes breeding sites.
- Vector control Program Balochistan provided District Health Office NS1 and insecticides for IRS and Larviciding.
- Awareness sessions continuously conducted in the Community particularly for School and college students
- IRS and Larviciding activities still continue.
- Private hospitals are included in surveillance network and were reporting suspected and confirmed dengue cases on daily basis.

**Update on Pertussis Outbreak-Baluchistan:**

District Health Officer Naseerabad reported seven (8) suspected Pertussis cases to PDSRU Baluchistan. The existence of outbreak was confirmed from local Health service provider on telephone. The field investigation started on 20-05-2019 at Village Saradar Yar Mohammad. The total population of village is about 300.

The objectives of investigation were:

1. To confirm and assess the magnitude of Pertussis outbreak in village Sardar Yar Mohammad
2. To identify/ assess the risk factors for Pertussis outbreak
3. To give recommendation for control and future prevention.

A Descriptive study was conducted from 20-25 May 2019 in Village Sardar Yar Mohammad Rind. Case was defined as “A person of any age resident of village Sardar Yar Mohammad Rind with a cough lasting ≥ 2 weeks, and with at

least one of the following symptoms, based on observation or parental report:

- Paroxysms (fits) of coughing
- Inspiratory whooping
- Post-tussive vomiting, Post-tussive micturition
- Apparent cause apnea (only in < 1 year of age)

OR

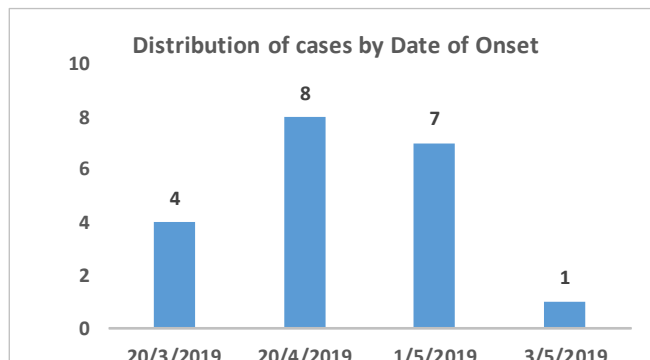
- Clinician suspicion of pertussis.” from 20-3-2019 to 22-5-2019.
- Active case finding was done in the affected and surrounding villages to look for any new case along with health facility records review. A questionnaire was developed after pretesting and parents of cases were interviewed at their houses. EPI data collection tool was used to assess Routine immunization status of cases. Data was entered in excel Microsoft and Epi Info 7. The statistics were calculated for time place and person. Two (2) oropharyngeal swab were collected and dispatched to NIH Laboratory Islamabad for culture and sensitivity. A total of twenty (20) cases of suspected pertussis were identified. The median age of children was 6 years with age range 18 months to 10 years. Majority 65% (n=13) were among the most affected age group 5-9 years followed by 30% (n=6) among < 1-4 years of age while 5% (n=1) were among 10-14 years of age group. The overall attack rate is 6.6%.

**Table: Age specific attack rates of Pertussis-Baluchistan**

Age Group (Years)	Cases (n=20)	Percentage (%)	Pop of that Age Group	Attack Rate %
< 1-4	6	30	40	15
5-9	13	65	46	28
10-14	1	5	41	2

The first case reported on 20<sup>th</sup> March 2019. The last case was reported on 3<sup>rd</sup> May 2019.

**Figure: Date of onset of Pertussis-Baluchistan**



The routine immunization status of suspected pertussis cases revealed that non 0% (n=) children were fully vaccinated for any antigen. Non routine immunization (0% Coverage) was most probable cause of the pertussis outbreak. The outreach session for routine immunization were not carried out in village Sardar Yar Mohammad Rind. The Vaccine preventable disease surveillance system failed to pick timely suspected cases of pertussis, as most of cases were having complaint more than two months.

**ACTION TAKEN:**

1. A mop up activity in affected and surrounding villages was carried. Fifty-one (51) children were vaccinated for different antigens.
2. Antibiotics (Erythromycin) were provided to all cases and close contacts according to guidelines.
3. The VPD surveillance strengthened by conducting refresher training of vaccinators at DHO Office
4. Two (2) community sessions were conducted about importance of vaccination and how to prevent spread of disease.

**Reported by Dr. Ehsan Ahmed Larik (TSO),**