

WEEKLY FIELD EPIDEMIOLOGY REPORT

Volume 2 Issue 42 Oct 14-20, 2019

Date: October 29, 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.

were reported from DSRUs and 72 cases have been reported in 2019. During the last week no new CCHF case were reported.

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	1	176	0	0	37	535	1	570
June-19	5	219	0	0	0	263	4	565
July-19	33	205	0	0	4	57	38	337
Aug-19	88	0	2	140	10	6	758	1004
Sept-19*	2513	1935	504	2705	235	297	2714	10903
Oct-19	1636	0	0	0	951	134	3309	6030
Total - 2019	4277	2937	506	2845	1229	2134	6826	20,754

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

From November 1, 2016 to October 20, 2019 total of **16,926** Typhoid Fever cases were reported from different districts of Sindh province. Out of these **11,762** were found as Extensive Drug Resistant Typhoid cases.

Table 3: Reported XDR Typhoid Fever cases in Sindh by year (Nov 2016 – October 20, 2019)

Year	Karachi	Hyderabad	Other Districts	Sindh Total
2017	175	485	4	664
2018	3,712	891	207	4,810
2019 (October 20)	3966	1416	884	6,266
Total	7853	2814	1095	11,762

1. Update on Extensive Drug Resistant Typhoid Fever Karachi:

A total of **12045** lab confirmed Typhoid cases were reported from ten hospitals of Karachi. Out of these **7853** were recorded as Extensive Drug Resistant (XDR) Typhoid Fever cases from January 1, 2017 to October 20th, 2019.

In the week **42** of 2019, total **111** new XDR/MDR Typhoid Fever cases were reported from different hospitals in Karachi.

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Table 1: Weekly and Cumulative Diseases Updates Oct 20, 2019

Disease	Oct 14-20, 2019	Total Cases in 2019
1 CCHF	0	72
2 Varicella	7	1067
3 Dengue	1388	20754
4 Chikungunya	0	
5 Measles	39	6267
6 Diphtheria	37	390
7 suspected/confirmed Seasonal Influenza	0	82

Influenza Suspected/Confirmed:

In 2018, 3221 Suspected/confirmed Influenza cases were reported from PDSRUs/RDSRUs. In week 42, 2019, no new case was reported.

Diphtheria Surveillance:

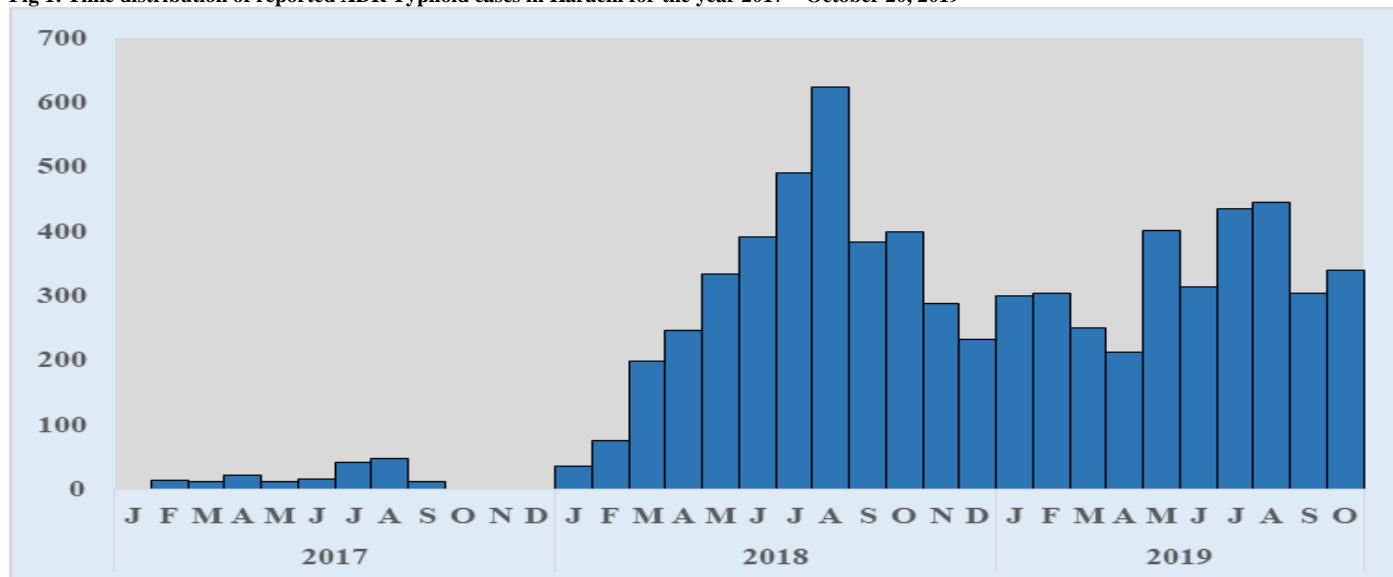
During 2018 total **464** suspected cases of Diphtheria were reported. Total **309** cases reported in 2019 and **37** new case reported last week.

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 20,754 cases have been reported so far. In week 42, 2019, Punjab (**854**), KP (**457**), Baluchistan (**35**), Merged Area (**42**), No report received from ICT, Sindh & AJK.

CCHF Surveillance:

In 2018 total **63** CCHF (suspected and confirmed) cases

Fig 1: Time distribution of reported XDR Typhoid cases in Karachi for the year 2017 – October 20, 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.

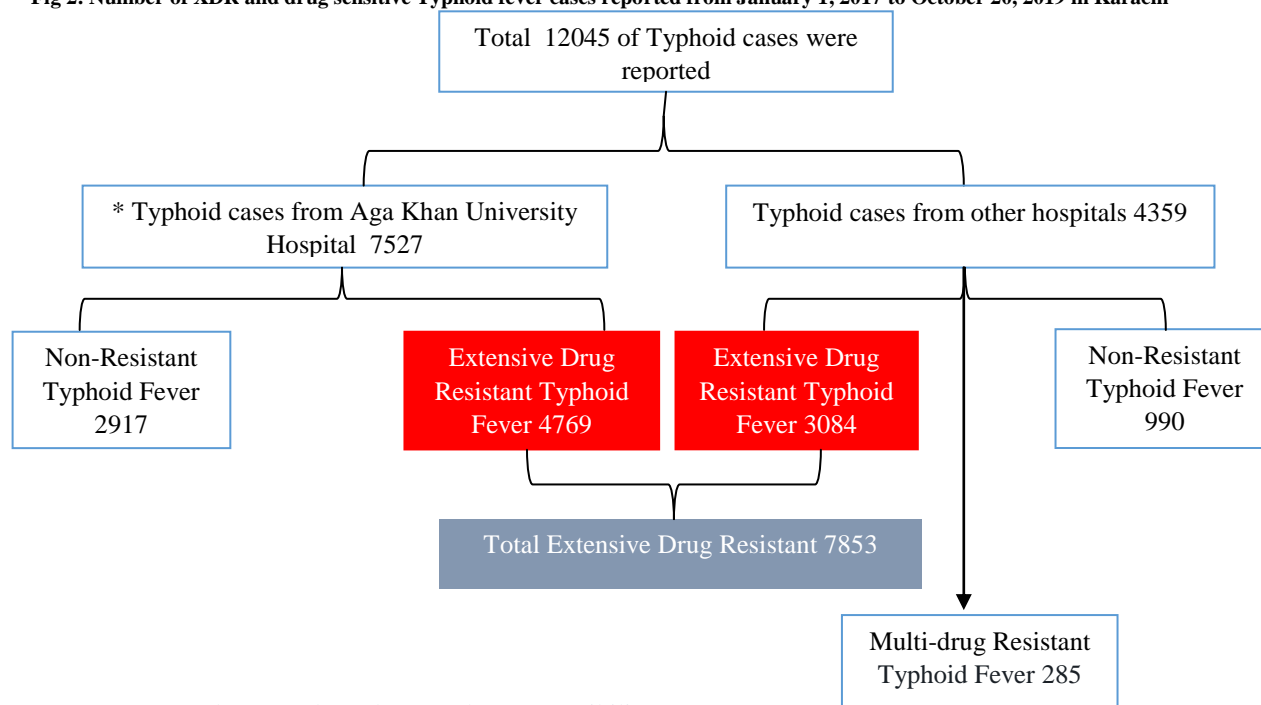
The XDR Typhoid cases were reported mostly among the children and maximum number **3248** (42%) of the XDR cases were reported in the 0-4 years age group.

The overall attack rate was **38/100,000** population. Highest attack rate was found in 0-4 years age group i.e. 117/100,000 followed by 5-9 years age group i.e. 85/100,000. Males had higher attack rate (47/100,000) as compared to females

Table 4: Age and gender specific attack rates of XDR Typhoid reported from Karachi during January 1, 2017 to October 20, 2018

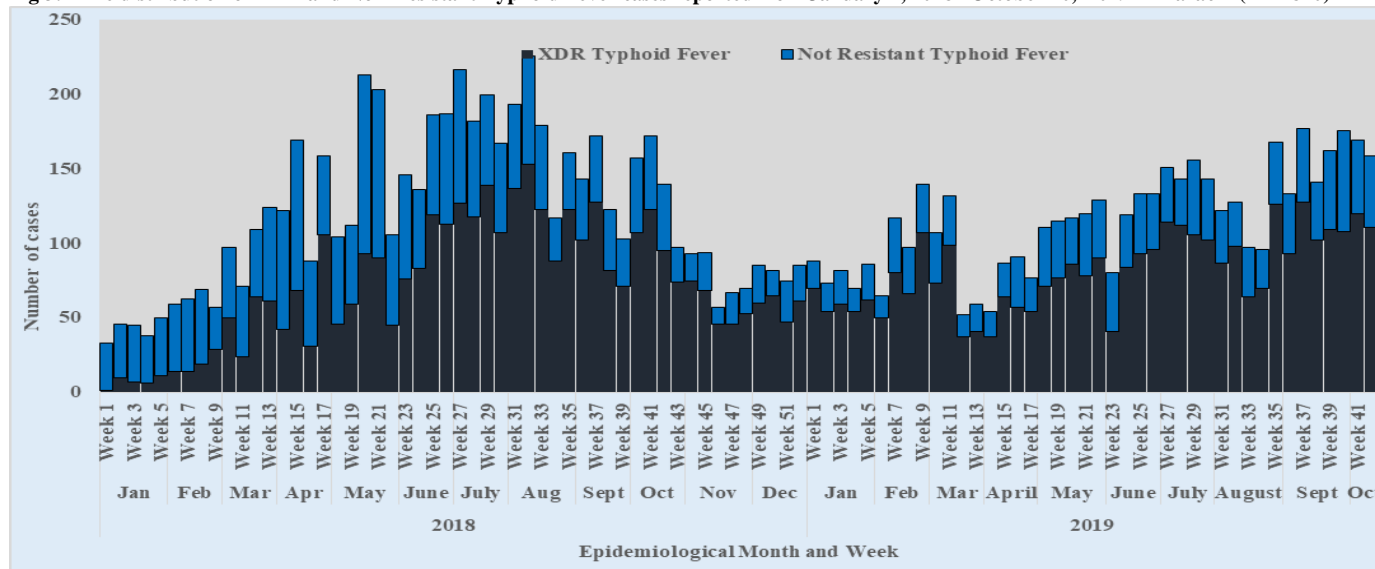
Age Group	Percentage of Population	Number of Population	XDR Typhoid	Attack rate /100,000
0-4 Y	13.5	2726940	3248	117
5-9 Y	13.4	2706740	2324	85
10-14 Y	12.1	2444146	965	39
15-19 Y	11.3	2282550	499	22
20-24 Y	9.7	1959357	330	17
25-29 Y	8	1615964	210	13
30-34 Y	6.2	1252372	88	7
35-39 Y	5.4	1090776	50	5
40-44 Y	4.3	868581	36	4
45-49 Y	4	807982	33	4
50-54 Y	2.7	545388	22	4
55-59 Y	2.7	545388	16	3
60-64 Y	2.4	484789	17	4
>65	4.3	868581	15	2
Total	99.99	20,199,554	7853	38
Male	51	10301767	3144	30
Female	49	9897777	4709	47

Fig 2: Number of XDR and drug sensitive Typhoid fever cases reported from January 1, 2017 to October 20, 2019 in Karachi



* AKU does not share the complete susceptibility report of typhoid fever cases

Fig 3: Time distribution of XDR and Non-Resistant Typhoid Fever cases reported from January 1, 2018 –October 20, 2019 in Karachi (n=11870)



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).

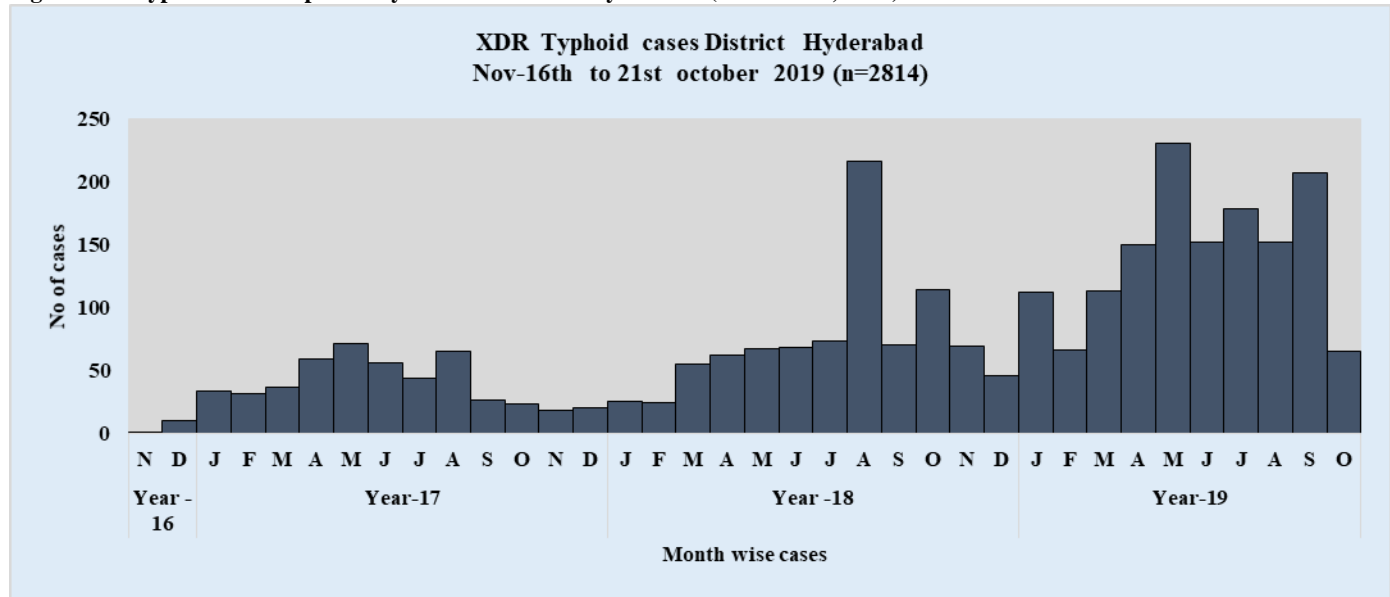
Reported by: *Dr Asif Syed TSO Karachi, Dr Anum Vigio and Dr. Ishfaqe (fellows 10th Cohort)*

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

From November 2016 to October 20, 2019, a total of **4881** Typhoid cases were reported at the PDSRU Hyderabad from different districts of Sindh province excluding Karachi. Out of these **3,909** are Extensive Drug Resistant (XDR) cases.

Among all reported XDR cases, **2814 (72 %)** were from District Hyderabad only.

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

Fig 4: XDR Typhoid cases reported by month in district Hyderabad (October 20, 2019)**Table 5: District wise (excluding Karachi) total Typhoid and XDR Typhoid cases in Sindh (Nov 2016 –October 20, 2019)**

Name of District	No of Typhoid Fever Cases	XDR cases	% XDR
Hyderabad	3554	2814	72
Mirpurkhas	333	272	7
Jamshoro	223	186	4.8
Badin	128	109	2.8
Sanghar	127	92	2.4
Sukkur	77	67	1.7
Khairpur	61	51	1.3
Larkana	59	52	1.3
Kashmore	50	47	1.2
Nau sheroferoz	45	34	0.9
Dadu	42	37	0.9
Ghotki	39	31	0.8
Shikarpur	37	35	0.9
Tharparkar	23	15	0.4
SBA	20	13	0.3
Jacobabad	17	14	0.4
Thatha	14	13	0.3
Umar Kot	13	12	0.3
Sujawal	7	5	0.2
Matari	6	5	0.1
Tando Alha Yar	4	3	0.1
Tando M Khan	2	2	0.1
Total	488	3909	80.1

The most affected age group was 0-4 years (**n=1198**) with Attack Rate **40.4/10,000** of population followed by 5-9 years of age group (**n=871**) 29.7/10000. Overall attack rate is **12.9/10,000**.

Table 6: Age and gender specific attack rates XDR Typhoid reported from District Hyderabad

Age Group	XDR	Population	Attack rate(10,000)
0-4 Y	1198	295146	40.6
5-9 Y	871	292960	29.7
10-14 Y	391	264538	14.8
15-19 Y	115	247048	4.7
20-24 Y	97	212068	4.6
25-29 Y	55	174901	3.1
30-34 Y	28	135548	2.1
35-39 Y	19	118058	1.6
40-44 Y	11	94009	1.2
45-49 Y	7	87451	0.8
50-54 Y	10	59029	1.7
55-59 Y	7	59029	1.2
60-64 Y	2	52470	0.4
>65	3	94009	0.3
Total	2814	2186266	12.9
Male	1677	1106469	15.2
Female	1137	1079797	10.5

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

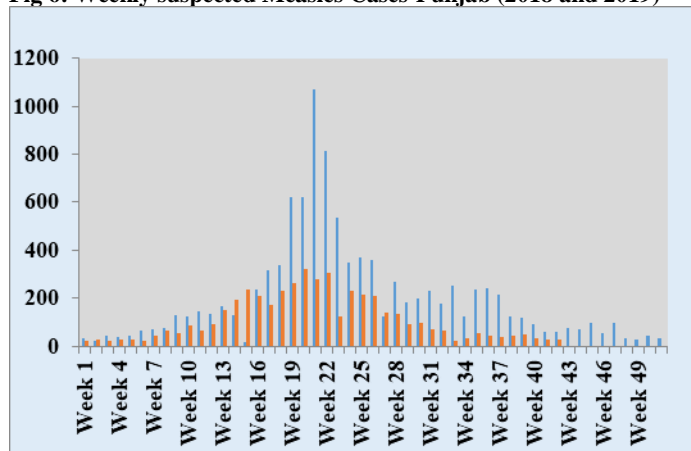
Reported by: *Dr Naveed Memon TSO Hyderabad, Dr Santosh, Dr Munaza (fellow, 11th cohort), Dr Mudassar (alumnus, 9th cohort)*

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 **42**, 2019, total 30 new cases of suspected Measles were reported.

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



Update /Follow-up Varicella Surveillance in Punjab:

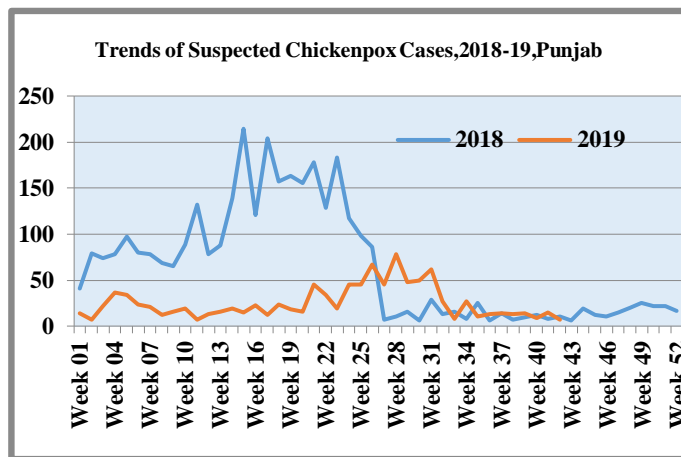
The total number of cases reported from Jan 01, 2018 till October 20, 2019 is **4,439**.

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.	1145	7.0
5-9 Yrs.	1541	8.6
10-14 Yrs.	730	4.9
15-19 Yrs.	297	2.2
20-24 Yrs.	229	2.0
25-29 Yrs.	152	1.6
30-34 Yrs.	128	1.8
35-Above	217	0.7
Total	4439	3.5

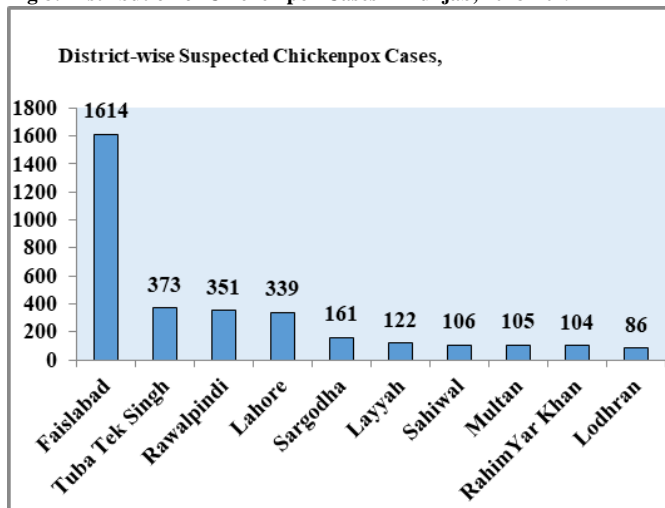
High attack rate was observed in children aged 5-9 yrs. (8.6 /100,000) followed by 0-4 yrs. age group (7.0/100,000).

Fig 7: Comparative study of Varicella cases 2018 -2019



The highest number of cases was reported from District Faisalabad. 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, Dr. Tahir Muneer, Dr. Shehzad Naseem (fellows 12th cohort)*

Update on Dengue Fever Surveillance-KP:

In current week, total of 457 dengue fever cases reported across the province. Majority of cases reported from district

Peshawar. Total number of laboratory confirms cases are 5789.

After the dengue fever epidemic of 2017, Dengue fever is endemic in district Peshawar considering the abundance of dengue fever risk factors which includes; Urban population, indoor storage of water and poor sanitation conditions. Since June, 2019 a total of 2137 laboratory confirmed cases have been reported from different health facilities of district Peshawar including major teaching hospitals/MTIs. In current week 57 new cases reported. Cases started to rise in week 34 and achieved peak in week 36.

Fig 9 : Epi curve showing cases by week of onset-KP

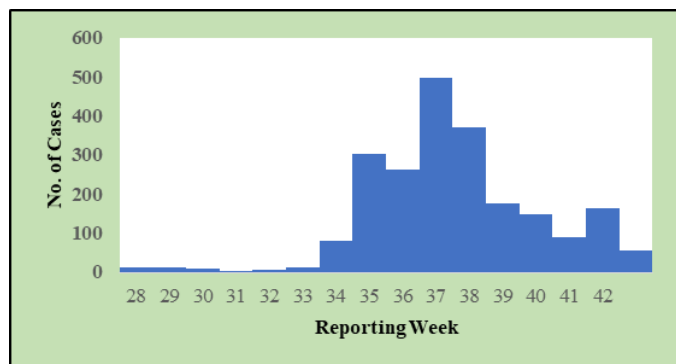
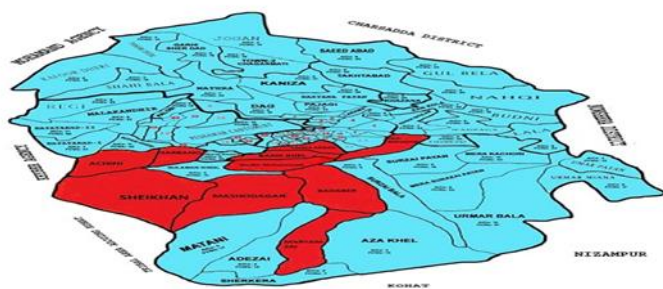


Fig 10: Spot map showing location of cases in KP



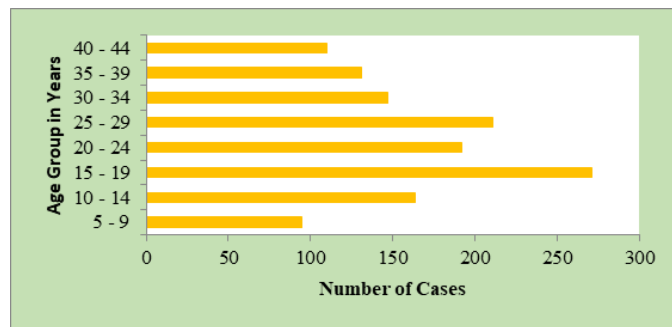
Majority of cases (61%) emerged from 06 rural union councils of district. These areas were less affected in 2017 epidemic. In 2018, only 180 cases reported from these localities

Table 9: Summary statistics of Dengue cases-KP

Total number of Suspected / Confirm cases	2137
Most affected UC (Shiekh Mohammadi)	AR 8/1000 Population
Median Age	25 years (4 - 92)
Male female proportion	51% – 49%

Continuous response activities are being carried out across Peshawar specifically most affected union councils. Multi-sector response has been implemented involving all line-departments.

Fig : Age distribution of Dengue cases-KP



Reported by: Dr Wasif Shah (TSO KP),

Dengue Outbreak Investigation in district lasbela-Baluchistan:

BACKGROUND:

Forty-three (43) dengue cases in Hub town were reported by District Health Officer Lasbela. A Provincial Rapid Response Team including TSO and Fellow FELTP constituted to investigate suspected Dengue outbreak at Lasbela and institute control measures to prevent in future. The existence of outbreak was confirmed from local Health authorities on telephone. The field investigation started on 21-09-2019 in District Lasbela.

The population of district Lasbela according to censuses 2017 is about 574292 inhabitants and Hub town has 175376 inhabitants.

Outbreak Alert & Thresh Hold:

The alert thresh hold was set at one suspected or probable cases of dengue while outbreak thresh hold was set clustering of 5 or more cases at a specific time and place.

Fig 11: Map of Baluchistan showing Dengue endemic areas



Objectives of Investigation:

The objectives of investigation were;

1. To confirm and assess the magnitude of Dengue outbreak in Lasbela
2. To identify/ assess the risk factors and epidemic linkage for dengue outbreak
3. To conduct entomological surveillance.
4. To assess capacity of local health department for dengue control measure
5. To evaluate existing dengue surveillance system
6. To give recommendation for control and future prevention of outbreak.

A Descriptive study was conducted from 1st September -25th October 2019 in District Lasbela. A Suspected dengue case was defined as “Any person resident of Hub Town having acute onset of fever (>38 C) for 2-10 days with at least two of the following manifestations: nausea/vomiting, aches and pains (e.g., headache, retro-orbital pain, joint pain, myalgia, arthralgia), Positive Tourniquet test, leukopenia, or any warning sign for severe dengue: mucosal bleeding at any site, liver enlargement >2 centimeters, increasing hematocrit concurrent with rapid decrease in platelet count) from 1st September to 25th October 2019”. A probable case was defined as “A clinically compatible case of dengue-like illness, dengue, or severe dengue with laboratory results indicative of probable infection, as defined above”.

A confirmed case was defined as “A clinically compatible case of dengue-like illness, dengue, or severe dengue with confirmatory laboratory results, as defined above”.

Results:

A total of 226 dengue cases have been recorded. The mean age of dengue cases was 27 years with age range 2 years to 65 years. The male to female ratio was about 2:1. Majority of cases 45.4% (n=94) were among age group 16-30 years, followed by 29.9% (n=62) among 31-45 years age-group while 19.8% (n=41) were among ,1-15 years of age group.

The overall attack rate was 12.87/10000 Population.

Among the total 226 cases, males 67.26% (n=152) were more affected than female 32.74% (n=74)

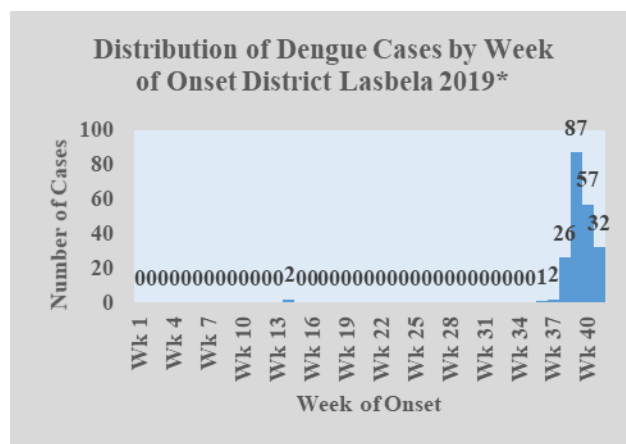
The attack rate with affected age group is given in table below.

Table : Age group distribution of Dengue cases-Lasbela-Baluchistan

Age Group (Years)	Cases (n=207)	Percentage (%)	Pop. of Age Group	Attack Rate/10000 Pop
< 1-15	41	19.8	74728	5.49
16-30	94	45.4	50526	13.46
31-45	62	29.9	29323	18.60
46-60	9	04.3	18607	4.84
61-75	1	00.4	9295	1.08

The epidemiological curve showing index case reported on week 36th, 2019, then the cases started reporting from 37th week of 2019 and peak was reached on 39th week 2019.

Fig 12: Epi curve showing time distribution of Dengue cases



Majority of confirmed Dengue case are reported from Union councils Berot, Vindor and Patara.

Mosquito, Pupae & Larvae Survey:

The entomological surveillance was also conducted in areas where clustering of dengue cases found in September 2019.

The table below shows results of container and breteau index.

Table 2: Breteau Index at Hub Town

Name of Locality	Number of Containers	Container Positive	Container Index
Zehri street	21	3	14.3
Adalat Road	28	7	25.0
Madina Colony	32	11	34.4
Mehmood Abad	34	14	41.2

Table 3: House Index at Hub Town

Name of Locality	Number of Houses inspected	House Positive	House Index
Zehri street	26	3	11.5
Adalat Road	33	6	18.2
Madina Colony	35	9	25.7
Mehmood Abad	38	11	28.9

Conclusion:

The dengue outbreak started in September 2019. The larvae and adult *Aedes Egypti* mosquito were found in three different sites in Hub town during entomological survey. A total of 226 dengue cases have been recorded. The mean age of dengue cases was 27 years with age range 2 years to 65 years. The male to female ratio was about 2:1. Majority of cases 45.4% (n=94) were among age group 16-30 years, age group. The overall attack rate was 12.87/10000 Population. The Vector borne disease surveillance system was poor and no proper reporting tool was used to collect data. The data about dengue cases was incomplete and not available. There was no uniform case definition of dengue, most of time general practitioners were advising NS1 before evaluating patient to rule out other disease. The most of patient were visiting private hospitals as compared to government facilities and availing health facilities at Karachi.

ACTION TAKEN:

1. FELTP, Department of Health and WHO mission visited and conducted dengue outbreak investigations at district Lasbela to support district health team in controlling current outbreak.
2. More than 100 Health Care workers have been trained on *Aedes* identification, detection and elimination including awareness sessions too.
3. The dengue cases management training of Health Care providers has been conducted at Hub and Uthal.
4. Awareness sessions (12) conducted in Community particularly for School and college students

5. An isolation wards for admission of dengue cases has been established with the all facilities at Jam Mir Ghulam Qadir Hospital Hub and DHQ Hospital Uthal.
6. Private hospitals are included in surveillance network and were reporting suspected and confirmed dengue cases on daily basis.
7. Weekly Epidemiological Report regularly shared with district and province Health Department for update and further necessary actions.
8. FELTP_PDSRU, WHO, VBD and Health Department working on short and long terms measures to control dengue outbreak.
9. Provincial Disease Surveillance and Response Unit (PDSRU) Quetta declared as Dengue Response Unit Balochistan.
10. District Focal person for dengue has been nominated.
11. The VBD program has provided 2000 NS1 kits and 200 LLINs for outbreak response activities in district Lasbela.
12. WHO has provided EIC Material and Combo RDT Kits for outbreak response activities in district Lasbela?
13. The multisectoral response is not yet in place and only health department is responding at the moment as other departments are not aware of their role in dengue response. In this connection the ADC was informed to notify multisector outbreak response team.
14. The DHQ hospital Uthal did not have facility of diagnosis of Dengue. The Combo RDT was provided and Laboratory technician was trained on RDT Kit use.
15. The action plan was finalized with district health authorities to implement in district Lasbela to control Dengue outbreak.
16. The dengue surveillance system established and made functional in district Lasbela.
17. Larviciding, IRS and Fogging (Shoulder & ULV) in Hot spot of Hub chowki conducted.

Pic : Fellows DSRU quetta while checking for larvae-Lasbela-Baluchistan



Reported by: Dr Ehsan Ahmed Larik (TSO), Dr. Jan Inayat, Dr. Khair Mohammad & Dr. Zubair Bugti (Fellows 12th Cohort)