



WEEKLY FIELD EPIDEMIOLOGY REPORT

Volume 2 Issue 15 April 08-14, 2019

Date: April 17, 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.

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Table 1: Weekly and Cumulative Diseases Updates April 14, 2019

	Disease	New cases April 07-14, 2019	Total Cases in 2019
1	CCHF	3	7
2	Varicella	15	358
3	Dengue	168	935
4	Chikungunya	0	0
5	Measles	324	1653
6	Diphtheria	9	154
7	suspected/confirmed Seasonal Influenza	0	81

Influenza Suspected/Confirmed:

In 2018, 3221 Suspected/confirmed Influenza cases were reported from PDSRUs/RDSRUs. In week 15, 2019, no new case was reported.

Diphtheria Surveillance:

During 2018 total **464** suspected cases of Diphtheria were reported. Total 154 cases reported in 2019 and nine 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 **935** cases have been reported so far. In week 15, 2019, **177** new cases were reported from Sindh (**13**), Baluchistan (**153**), Merged Area (**1**) and KP (**1**).

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	11	1	155
Feb-19	0	99	0	0	0	12	0	111
March-19	0	67	0	0	0	257	0	324
April-19	2	25	0	0	2	316	0	345
Total - 2019	2	334	0	0	2	596	1	935

CCHF Surveillance:

In 2018 total **63** CCHF (suspected and confirmed) cases were reported from DSRUs and **7** cases have been reported in 2019. During the last week three new CCHF case were reported from Quetta (2) and Sindh (1).

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

From November 1, 2016 to April 14, 2019 total of **10,388** Typhoid Fever cases were reported from different districts of Sindh province. Out of these **6,907** 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 – April 14, 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 (April 06)	975	327	119	1,421
Total	4862	1715	330	6907

1. Update on Extensive Drug Resistant Typhoid Fever Karachi:

A total of **7,779** lab confirmed Typhoid cases were reported from ten hospitals of Karachi. Out of these **4,862** were recorded as Extensive Drug Resistant (XDR) Typhoid Fever cases from January 1, 2017 to April 7, 2019.

In the 15th week of 2019, total **64** new XDR/MDR Typhoid Fever cases were reported from different hospitals in Karachi.

Fig 1: Time distribution of reported XDR Typhoid cases in Karachi for the year 2018 – April 14, 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)

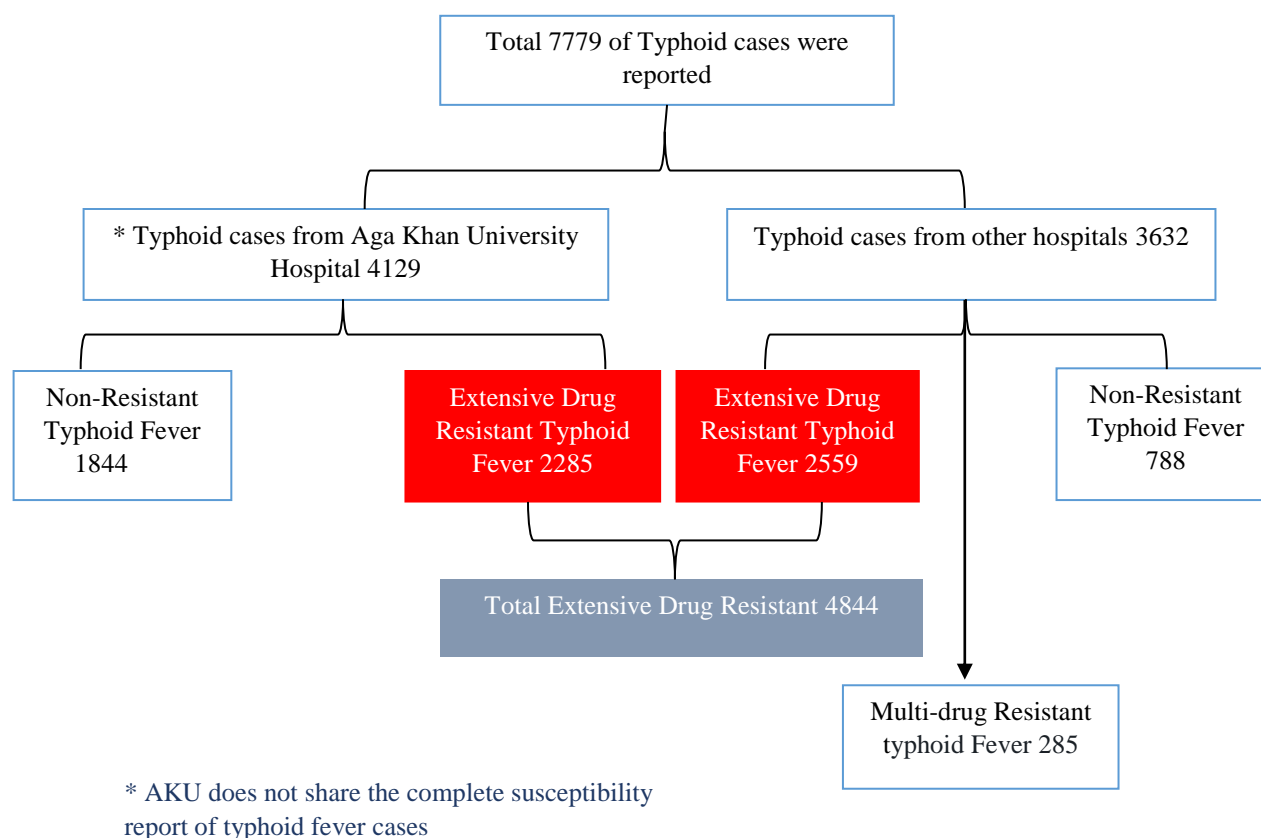
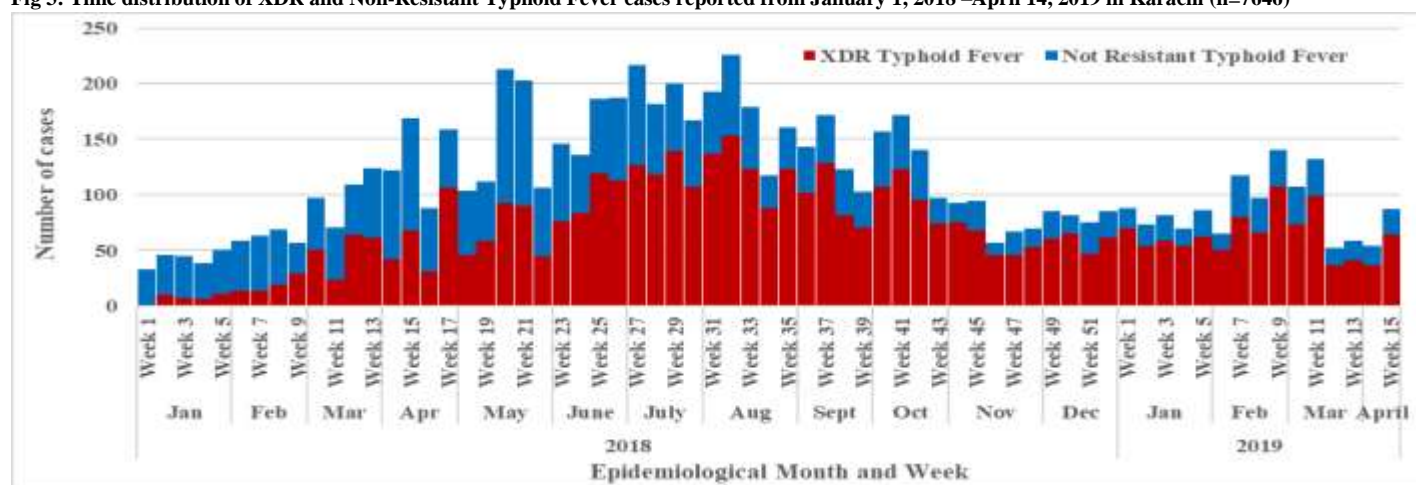
The Technical Support Officer and the FELTP fellows of the Regional DSRU Karachi reached out to the major hospitals in the city and collected the Typhoid data from hospitals in whatever form it is available. They segregated and analyzed the data for the Drug resistance pattern.

The XDR Typhoid cases were reported mostly among the children and maximum number **995**(20.7%) of the XDR cases were reported in the 3-4 years age group.

The overall attack rate was **24/100,000** population. Highest attack rate was found in 3-4 years age group i.e. 75/100,000 followed by 1-2 years age group i.e. 64/100,000. Males had higher attack rate (29/100,000) as compared to females

Table 4: Age and gender specific attack rates of XDR Typhoid reported from Karachi during January 1, 2017 to April 14, 2018

Age Group	Percentage of Population	Number of Population	XDR Typhoid	Attack rate /100,000
0-11 Month	3.4	686,785	95	14
1-2Y	7.6	1,535,166	986	64
3-4Y	6.7	1,353,370	1018	75
5-6Y	5.6	1,131,175	597	53
7-8Y	5.1	1,030,177	612	59
9-10Y	5.2	1,050,377	353	34
11-12Y	4.4	888,780	308	35
13-14Y	4.4	888,780	130	15
15-24	20.4	4,120,709	471	11
25-34Y	13	2,625,942	172	7
35-44Y	11	2,221,951	52	2
45-54Y	7.5	1,514,967	32	2
55-64Y	3.7	747,383	23	3
>65	1.99	401,971	13	3
Total	99.99	20,199,554	4862	24
Female	49	9,897,781	1923	19
Male	51	10,301,772	2939	29

Fig 2: Number of XDR and drug sensitive Typhoid fever cases reported from January 1, 2017 to April 14, 2019 in Karachi**Fig 3: Time distribution of XDR and Non-Resistant Typhoid Fever cases reported from January 1, 2018 –April 14, 2019 in Karachi (n=7646)**

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 10.1/100,000). While lowest Incidence was recorded in SITE town (AR=0.1/100,000).

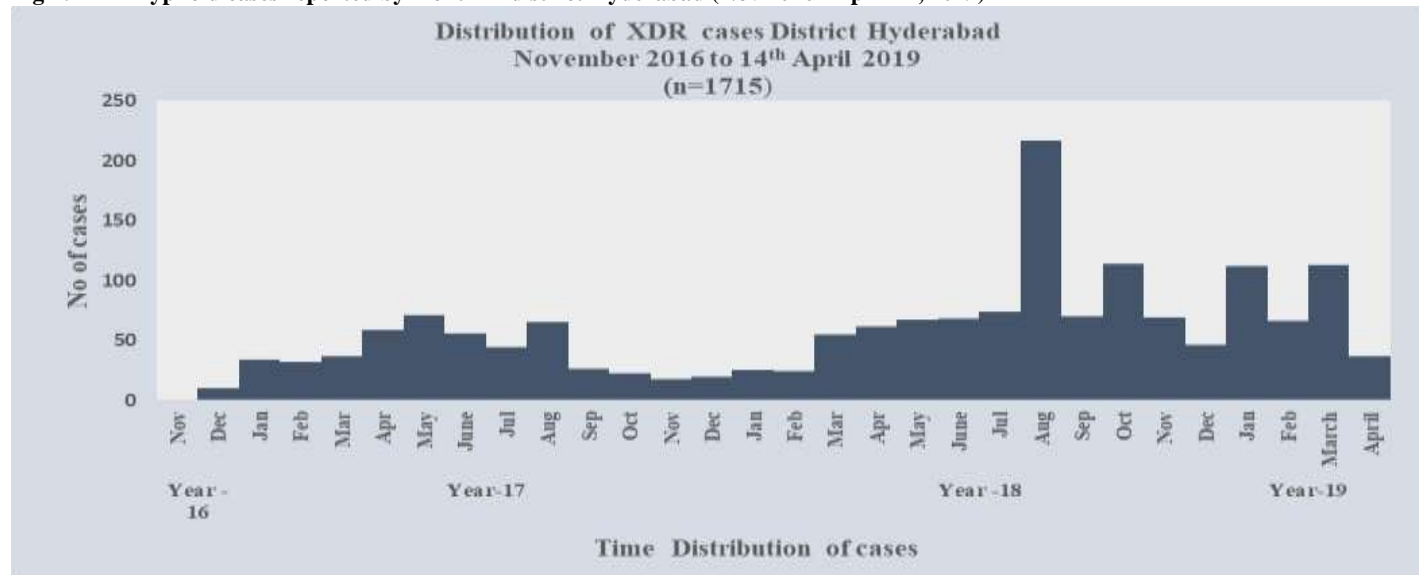
Reported by: Dr Asif Syed TSO Karachi, Dr Anum Vigio and Dr. Ishfaq (fellows 10th Cohort)

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 April 14, 2019, a total of **2609** Typhoid cases were reported at the PDSRU Hyderabad from different districts of Sindh province excluding Karachi. Out of these **2,045** are Extensive Drug Resistant (XDR) cases.

Among all reported XDR cases, **1715 (84.9 %)** were from District Hyderabad only.

Fig 4: XDR Typhoid cases reported by month in district Hyderabad (Nov 2016 –April 14, 2019)**Table 5: District wise (excluding Karachi) total Typhoid and XDR Typhoid cases in Sindh (Nov 2016 – April 14, 2019)**

Name of District	No of Typhoid Fever Cases	XDR cases	% XDR
Hyderabad	2164	1697	84.1
Tando Allah Yar	9	6	0.3
Badin	69	42	2.1
Dadu	15	10	0.5
Kashmore	3	3	0.3
Ghotki	7	5	0.2
Mirpurkhas	144	113	5.2
Sukkur	21	18	0.9
Tharparkar	4	2	0.1
Sanghar	43	31	1.6
Nau sheroferoz	16	6	0.4
Shikarpur	14	10	0.2
Tando M Khan	1	1	0.2
Jamshsoro	64	49	1.9
Umar Kot	4	3	0.1
Jacobabad	2	2	0.1
SBA	3	0	0.1
Larkana	16	10	0.4
Sujawal	1	2	0.1
Jacobabad	1	1	0.1
Thatha	4	4	0.1
Khairpur	4	3	0.1
Total	2573	2017	78.6

The most affected age group was 2-4 years (n=608) with Attack Rate 34.1/10,000 of population followed by 5-9 years of age group (n=563) 16.2/10000. Overall attack rate is 7.8 /10,000.

Table 6: Age and gender specific attack rates XDR Typhoid reported from District Hyderabad (n=1715)

Age Group	XDR	Population	Attack rate/10000
0-23 Month	90	118771	7.6
2-4 Year	608	178157	34.1
5-9 Year	563	294728	19.1
10-14 Year	274	266135	10.3
15-19 Year	64	248539	2.6
20-24 Year	48	213348	2.2
25-29 Year	29	175957	1.6
30-34 Year	9	136367	0.7
35-39 Year	12	118771	1.0
40-44 Year	4	94577	0.4
45-49 Year	2	87979	0.2
50-54 Year	6	59386	1.0
55-59 Year	2	59029	0.3
60-64 Year	1	52787	0.2
>65	3	94577	0.3
Total	1715	2199107	7.8
Male	1023	1112968	9.2
Female	692	1086139	6.4

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:

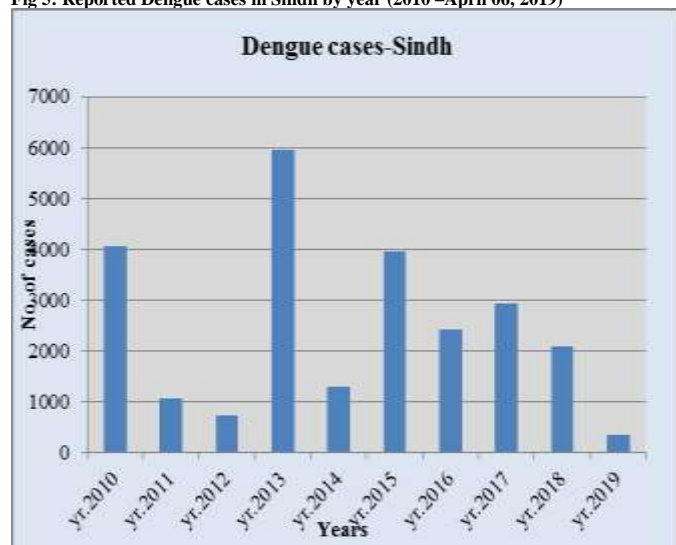
- Total **210,000** children between 6 months to 10 years age in Hyderabad high risk areas have been vaccinated for Typhoid
- Sensitization sessions with general practitioners
- Chlorine tablets were distributed to household in the affected areas of Hyderabad district

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

Dengue Surveillance in Sindh:

In week 15, total **13** new Dengue cases were reported from Sindh. In 2018 total **2088** cases and two deaths were reported. Maximum number of cases was reported in 2013.

Fig 5: Reported Dengue cases in Sindh by year (2010 –April 06, 2019)

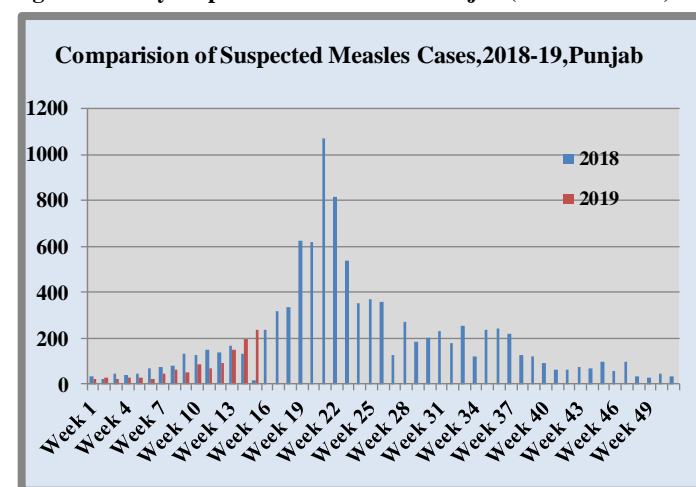


Update Measles Surveillance Report Punjab:

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

During 2019 total **893** suspected Measles cases have been reported. In week 15, 2019, total **236** new cases of suspected Measles were reported.

Figure: Weekly suspected Measles cases-Punjab (2018 and 2019)



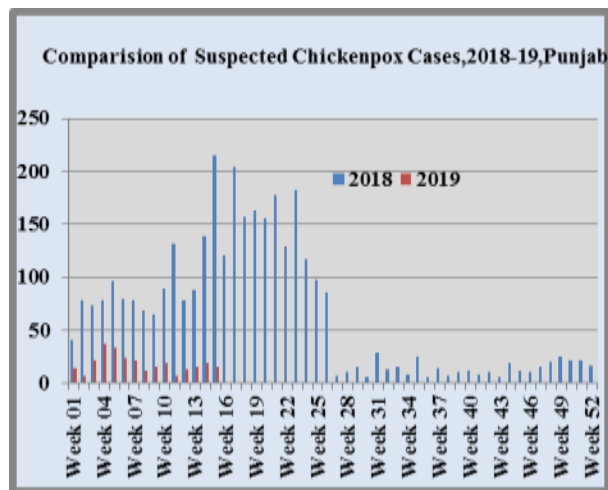
Update /Follow-up Varicella Surveillance in Punjab:

Fifteen Varicella cases were reported from different districts of Punjab in week 15, 2019. The total number of cases reported from Jan 01, 2018 till April 07, 2019 is **3,605**.

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

Age Group	Total number of Cases (2018)	AR/100,000
0-4 Yrs.	948	6.5
5-9 Yrs.	1223	8.0
10-14 Yrs.	616	4.6
15-19 Yrs.	249	2.1
20-24 Yrs.	188	1.8
25-29 Yrs.	113	1.4
30-34 Yrs.	104	1.6
35-Above	183	0.6
Total	3,624	3.3

High attack rate was observed in children aged 5-9 yrs. (8.1/100,000) followed by 0-4 yrs. age group (6.5/100,000).

Figure: Comparative study of Varicella cases 2018 -2019

The highest number of cases were reported from District Faisalabad (**n=1583**). The cases are mostly from two locations (Thandiwalia and Jaharanwalla) in Faisalabad District.

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

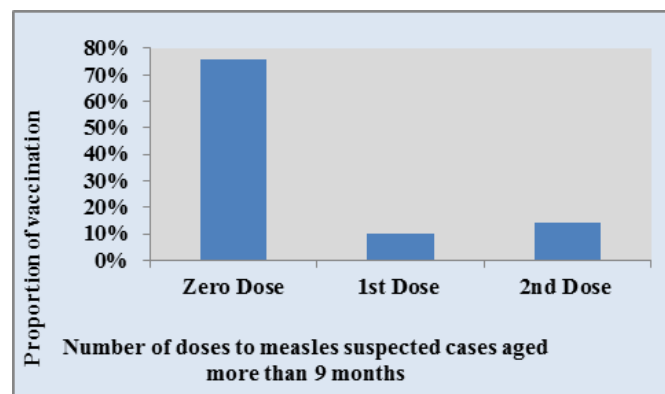
Reported by: Dr Mohsan Wattoo TSO Lahore,

Update on Measles Surveillance KP:

In current week, 87 suspected cases with one confirm case from district Abbottabad reported through online EPI MIS software. Suspected cases being reported sporadically from different health facilities of province. Total number of suspected cases are 416 with 24 Lab confirm cases. Clustering of cases not identified in any area.

Among positive cases 56% (n=13) cases being reported from district D I Khan followed by district Mardan 21% (n=5). Overall, 73% (n=17) confirm cases were zero dose. Further,

among 19, lab confirmed cases aged more than 9 months, 63% (n=12) were zero dose as per information shared online by EPI staff of district.

Figure: vaccination status of Measles cases-KP

Overall all among 397 suspected cases 77% (n=307) are zero dose.

Further, among 294, suspected cases aged more than 9 months, 22% (n=66) were vaccinated against Measles

Table: 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)	75% & 25%
Proportion of Male & Female cases (Suspected)	58% & 42%
No. of Lab confirm cases	6% (n=24)
Measles Vaccination (Lab confirm)	26% (n=6)
Measles Vaccination (Suspected)	17% (n=56)
H/O of travel in last 21 days	1% (n=1)

Update on Dengue Outbreak Baluchistan:

During the last week, **153** 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 Costal belt districts of Balochistan. Although dengue is now endemic in costal belt districts of Balochistan, however upsurge of Dengue cases was reported from 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.

A total of 596 cases of confirmed dengue have been recorded identified (Case Fatality Rate=5.1/1000 population). The mean

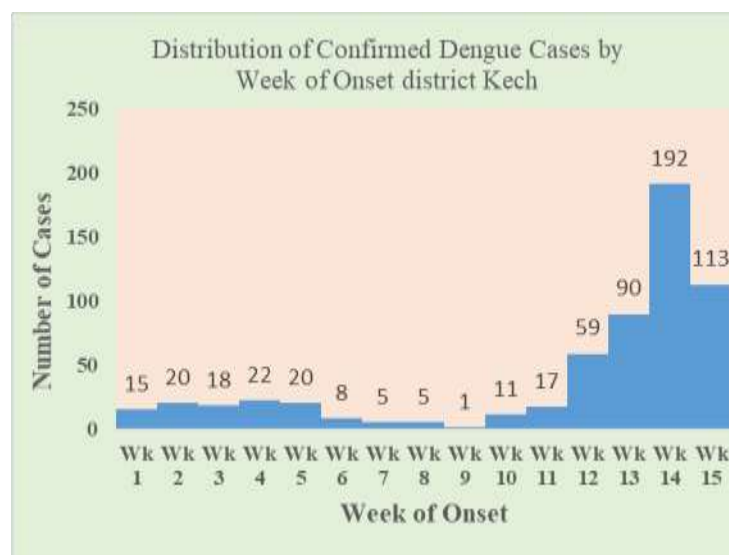
age of cases was 26 years with age range 1 years to 65 years. The male to female ratio was about 1.9:1. Majority of cases 51.5% (n=234) were among 15-29 years age group, followed by 26.4% (n=120) among 30-44 years age-group while 13.4% (n=61) were among 1-14 years of age group. The overall attack rate was 2.8/1000 Population.

Table: Age wise attack rate of Dengue-Baluchistan

Age Group (Years)	Cases (n=454)	Percentage (%)	Pop of that Age Group	Attack Rate/10000 Pop
< 1-14	61	13.4	88861	6.86
15-29	234	51.5	59390	39.40
30-44	120	26.4	33571	35.75
45-59	33	7.3	20523	16.08
60-74	8	1.8	9183	8.71

Among the total 596 cases, males 65.1% (n=388) were more affected than female 34.9% (n=208)

Figure: Epi-Curve showing confirmed cases



The index case reported on week 43, 2018, then the cases started reporting from 1st week of 2019 and peak reached on 14th week 2019 and last case reported on April 7, 2019. The outbreak is not over yet

Mosquito, Pupae & Larvae Survey:

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

Table: Breteau Index at Turbat Town

S#	Name of Locality	Number of Containers	Container Positive	Container Index
1	Doctors Colony	45	13	28.9
2	Absor Colony	120	11	9.2
3	Zarat Colony	39	3	7.7

Table 3: House Index at Turbat Town

S#	Name of Locality	Number of Houses inspected	House Positive	House Index
1	Doctors Colony	54	6	11.1
2	Zarat Colony	16	3	18.8
3	Absor Colony	31	7	22.5

CCHF Cases Investigation at Fatima Jinnah Chest & General Hospital (FJCGH) Quetta

Two (2) CCHF cases were reported during week 15, from Fatima Jinnah Chest & General Hospital Quetta. The Lab test of both the cases were found positive for CCHF. Technical Support Officer investigated both cases.

First case was admitted at FJCGHQ on 4-4-2019. A 33 years old male from Kuchlak, district Quetta with onset of symptoms (fever, body aches, generalized weakness, vomiting and nasal bleeding). His initial platelet count was 54,000 at the time of admission. He is driver by occupation and had history of animal contacts at home. Laboratory reported blood tests positive for CCHF on 6-4-2019. The condition of patient was not stable and platelets counts fluctuates on different occasions. None of his contacts including the health care providers developed any symptoms at the moment and they will be followed for 14 days.

The Second patient admitted on April 10, 2019 and was also investigated on 12-4-2019 at FJCGHQ by TSO. The patients is a 30 years old male from village Lashkar Gah, Halmand, Afghanistan with onset of symptoms (fever, body aches, vomiting and nasal bleeding) on April 6, 2019. His initial platelet count was found 43,000 at the time of admission. He is a farmer, had history of animal contacts at home. His blood sample was tested positive for CCHF on 9-4-2019. All his contacts are listed for follow up

Reported by Dr. Ehsan Ahmed Larik (TSO)