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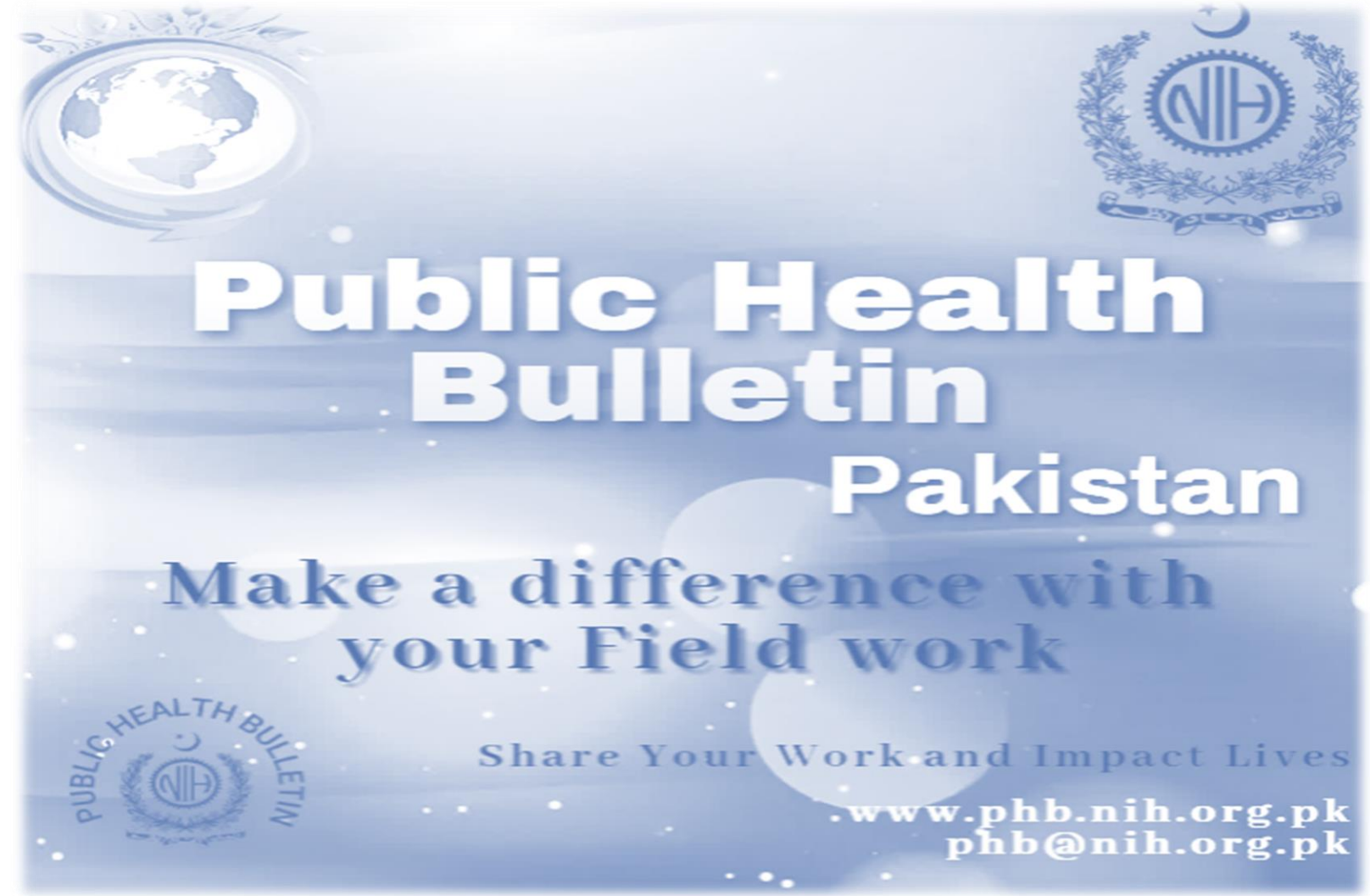
Integrated Disease Surveillance & Response (IDSR) Report

Center of Disease Control
National Institute of Health, Islamabad

http:/www.phb.nih.org.pk/

Integrated Disease Surveillance & Response (IDSR) Weekly Public Health Bulletin is your go-to resource for disease trends, outbreak alerts, and crucial public health information. By reading and sharing this bulletin, you can help increase awareness and promote preventive measures within your community.



Public Health Bulletin - Pakistan, Week 09, 2024

This edition of the Public Health Bulletin delves into the current health landscape of Pakistan, providing critical information for healthcare professionals and the public alike. The report identifies prevalent illnesses like acute diarrhea, respiratory infections, malaria, and tuberculosis, allowing stakeholders to tailor preventative efforts. However, the bulletin also highlights the detection of suspected cases Acute Flaccid Paralysis (AFP), HIV/AIDS, and Typhoid. These findings underscore the importance of continued vigilance and prompt investigation to safeguard public health.

Building upon this foundation, the bulletin extends an invitation to field epidemiologists to contribute their invaluable expertise to future editions. Beyond surveillance, the bulletin showcases recent advancements in Pakistan's public health preparedness. Articles explore collaborative initiatives like the National Institute of Health's collaboration with EMPHNET on Rapid Response Teams training, and the successful launch of the FETP Frontline Balochistan Cohort, underscoring Pakistan's commitment to strengthening its public health workforce. Furthermore, the bulletin highlights investigation of a suspected measles outbreak in Zhob district.

Recognizing the vital role of individual action, the issue concludes with a comprehensive exploration of Typhoid Fever – a looming threat in Pakistan – and the challenges posed by Multi-Drug Resistant (MDR) and Extensively Drug-Resistant (XDR) strains. This information empowers the public to adopt preventative measures and support public health initiatives.

This edition of the Public Health Bulletin serves as a valuable resource, fostering collaboration and action towards safeguarding public health in Pakistan.

Sincerely,

The Chief Editor

- *During week 9, the most frequently reported cases were of Acute Diarrhea (Non-Cholera) followed by ILI, Malaria, ALRI <5 years, TB, VH (B, C & D), B. Diarrhea, Typhoid, SARI, and dog bite.*
- *Fifteen cases of AFP reported from Sindh, eleven from KP and ten from Balochistan. All are suspected cases and need field verification.*
- *Four suspected cases of HIV/ AIDS reported from Balochistan. Field investigation required to verify the cases.*
- *There is a decreasing trend observed for Acute Diarrhea (Non-Cholera), ILI, Malaria, ALRI <5 years, TB and VH (B, C & D) cases this week.*

IDSR compliance attributes

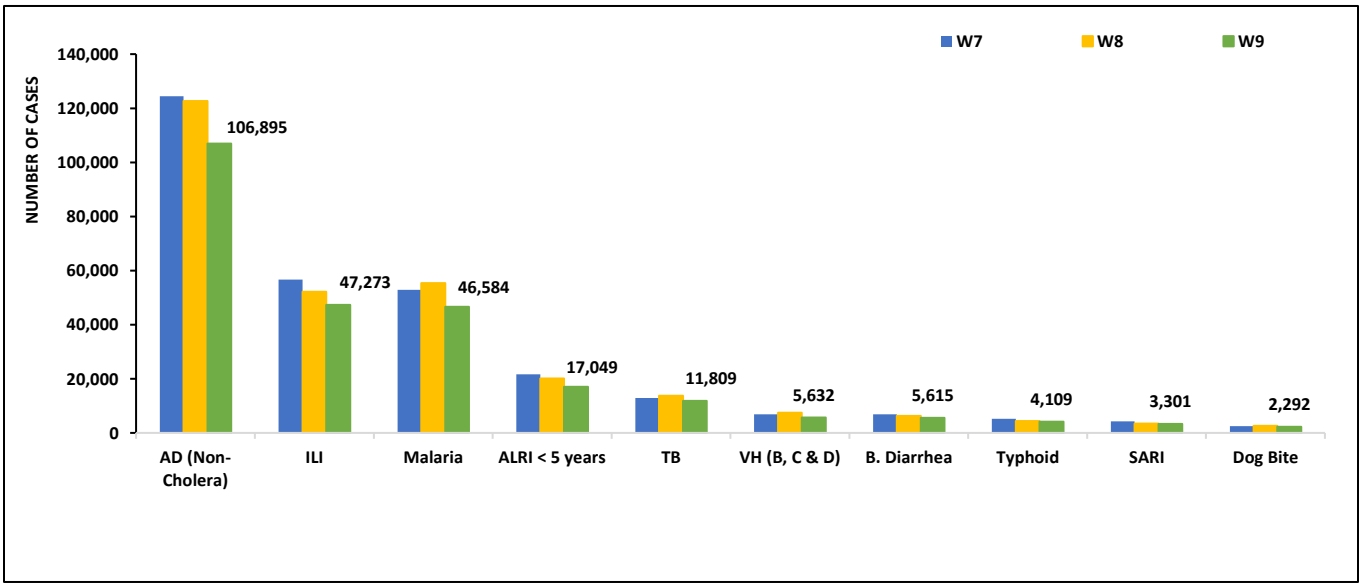
- *The national compliance rate for IDSR reporting in 149 implemented districts* is 75%
- *Gilgit Baltistan and AJK are the top reporting regions with a compliance rate of 100% and 99%, followed by Sindh 93% and ICT 83%*
- *The lowest compliance rate was observed in KPK.*

Region	Expected Reports	Received Reports	Compliance (%)
Khyber Pakhtunkhwa	*2750*	*1551*	*56*
Azad Jammu Kashmir	*382*	*377*	*99*
Islamabad Capital Territory	*35*	*29*	*83*
Balochistan	*1220*	*842*	*69*
Gilgit Baltistan	*374*	*374*	*100*
Sindh	*2087*	*1946*	*93*
National	*6848*	*5119*	*75*

Table 1: Province/Area wise distribution of most frequently reported suspected cases during week 09, Pakistan.

Diseases	AJK	Balochistan	GB	ICT	KP	Punjab	Sindh	Total
AD (Non-Cholera)	1,030	4,556	256	277	10,575	58,284	31,917	106,895
ILI	2,443	6,532	381	1,451	5,821	38	30,607	47,273
Malaria	0	3,299	2	3	2,510	2,473	38,297	46,584
ALRI < 5 years	1,406	1,854	561	3	1,812	NR	11,413	17,049
TB	33	99	46	11	338	NR	11,282	11,809
VH (B, C & D)	7	82	0	0	57	NR	5,486	5,632
B.Diarrhea	44	1,184	38	2	428	1,305	2,614	5,615
Typhoid	22	483	42	0	443	2,011	1,108	4,109
SARI	360	917	381	0	1,136	NR	507	3,301
Dog Bite	14	99	0	1	208	NR	1,970	2,292
Measles	4	53	22	0	444	NR	125	648
CL	0	133	0	0	247	19	1	400
Mumps	13	61	1	0	56	NR	228	359
AVH(A&E)	26	11	8	0	126	NR	180	351
AWD (S. Cholera)	20	186	69	0	34	NR	17	326
Pertussis	1	94	8	0	31	NR	1	135
Chickenpox/ Varicella	0	5	3	0	50	18	51	127
AFP	1	10	0	0	11	NR	15	37
Gonorrhea	2	48	1	0	8	NR	6	65
Dengue	0	8	0	0	2	NR	54	64
Syphilis	0	2	0	0	0	NR	20	22
VL	0	0	0	0	9	NR	12	21
Meningitis	2	0	4	0	1	NR	6	13
Rubella (CRS)	0	9	0	0	0	NR	0	9
HIV/AIDS	0	4	0	0	2	NR	2	8
NT	0	0	0	0	5	NR	0	5
Brucellosis	0	0	0	0	5	NR	0	5
Diphtheria (Probable)	0	2	0	0	0	NR	0	2

Figure 1: Most frequently reported suspected cases during week 09, Pakistan.



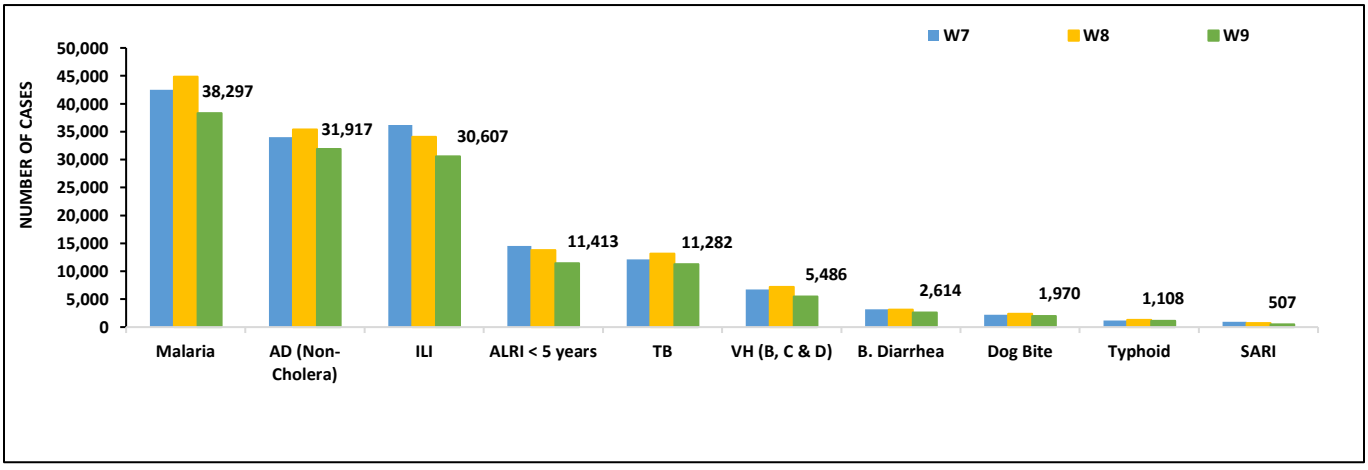
Sindh

- Malaria cases were maximum followed by AD (Non-Cholera), ILI, ALRI<5 Years, TB, VH (B, C, D), B. Diarrhea, dog bite, Typhoid and SARI.
- Malaria cases are from Larkana, Khairpur and Kamber whereas AD cases are mostly from Khairpur, Badin and Dadu.
- Fifteen cases of AFP reported from Sindh. All are suspected cases and need field verification.
- High number of Typhoid cases reported from Khairpur and Shaheed Benazirabad. Field verification is required to confirm the cases.
- There is a decreasing trend observed for Malaria, AD (Non- Cholera), ILI, ALRI<5 Years, TB, VH (B, C, D) and B. Diarrhea cases this wee.

Table 2: District wise distribution of most frequently reported suspected cases during week 09, Sindh

Districts	Malaria	AD (Non-Cholera)	ILI	ALRI < 5 years	TB	VH (B, C & D)	B. Diarrhea	Dog Bite	Typhoid	SARI
Badin	1,932	2,168	430	615	791	241	159	25	36	0
Dadu	2,582	2,159	110	681	435	19	258	165	116	45
Ghotki	343	465	0	503	182	275	46	239	0	0
Hyderabad	477	1,068	2,623	268	303	153	70	10	19	0
Jacobabad	1,141	708	753	603	251	184	93	121	17	49
Jamshoro	1,172	958	11	197	349	62	82	4	45	0
Kamber	3,010	1,298	1	544	796	396	154	99	11	2
Karachi Central	47	1,103	2,749	75	643	535	15	0	56	21
Karachi East	101	777	537	80	24	0	19	13	1	0
Karachi Keamari	2	220	119	6	0	0	0	0	1	0
Karachi Korangi	25	189	62	1	0	0	1	0	0	0
Karachi Malir	61	864	3,050	272	54	36	44	45	22	1
Karachi South	39	83	0	0	0	0	0	0	0	0
Karachi West	114	1,229	2,642	188	182	150	56	170	71	42
Kashmore	1,007	402	782	280	289	238	35	201	20	0
Khairpur	4,065	2,638	4,164	1,091	905	268	445	122	261	188
Larkana	4,256	1,234	0	456	761	86	199	0	5	0
Matiari	1,006	1,221	12	509	720	482	66	60	6	0
Mirpurkhas	2,621	1,811	4,480	477	664	202	82	13	90	0
Naushero Feroze	910	541	1,080	174	351	75	50	99	50	0
Sanghar	2,669	1,150	0	411	935	804	41	121	14	5
Shaheed Benazirabad	1,158	1,437	0	547	341	119	41	143	167	1
Shikarpur	2,031	780	2	137	142	512	101	172	0	5
Sujawal	931	790	0	414	109	78	20	23	0	0
Sukkur	1,427	1,249	2,383	415	457	220	147	39	7	0
Tando Allahyar	1,167	823	1,065	399	340	90	73	5	5	0
Tando Muhammad Khan	647	726	0	236	434	32	65	0	1	3
Tharparkar	1,617	1,728	2,172	871	455	92	119	1	28	145
Thatta	1,149	779	1,380	382	34	88	59	80	13	0
Umerkot	590	1,319	0	581	335	49	74	0	46	0
Total	38,297	31,917	30,607	11,413	11,282	5,486	2,614	1,970	1,108	507

Figure 2: Most frequently reported suspected cases during week 09 Sindh



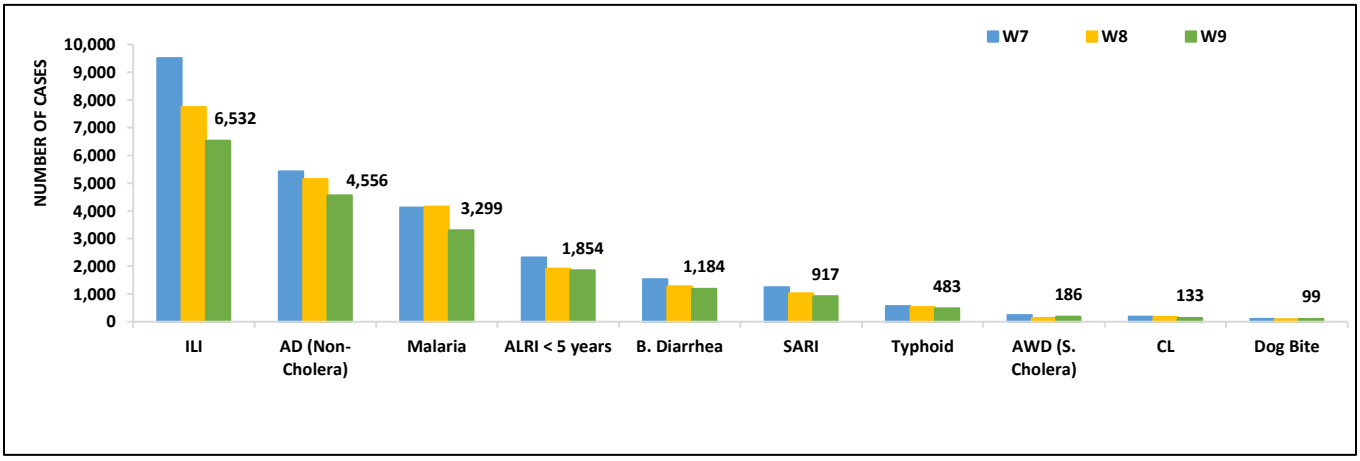
Balochistan

- ILI, AD (Non-Cholera), Malaria, ALRI <5 years, B. Diarrhea, SARI, Typhoid, AWD (S. Cholera), CL and dog bite cases were the most frequently reported diseases from Balochistan province.
- ILI, AD (Non-Cholera) and Malaria cases showed a decreasing trend this week. ILI cases are mostly reported from Kech (Turbat) and Quetta while AD (Non-Cholera) cases are mostly reported from Kech (Turbat) and Jhal Magsi.
- Ten cases of AFP reported from Balochistan. All are suspected cases and need field verification.

Table 3: District wise distribution of most frequently reported suspected cases during week 09, Balochistan

Districts	ILI	AD Non-Cholera)	Malaria	ALRI < 5 years	B. Diarrhea	SARI	Typhoid	AWD (S.Cholera)	CL	Dog Bite
Awaran	55	20	33	3	13	3	4	16	0	0
Barkhan	54	61	7	35	2	0	27	0	0	0
Chagai	280	125	10	0	36	1	16	7	0	1
Dera Bugti	26	31	49	25	27	11	2	0	0	0
Duki	50	111	18	31	63	38	8	4	0	8
Harnai	16	45	23	116	31	0	1	13	0	0
Hub	110	230	202	22	31	0	0	0	7	17
Jaffarabad	92	318	501	30	29	22	5	0	41	22
Jhal Magsi	245	385	496	36	8	10	12	4	3	11
Kachhi (Bolan)	60	95	82	25	51	95	35	31	2	0
Kalat	6	17	4	10	7	0	21	0	0	0
Kech (Turbat)	1,101	471	137	122	94	5	1	NR	NR	1
Kharan	370	150	22	0	50	11	1	1	0	0
Khuzdar	99	96	53	0	34	1	2	0	9	6
Killa Saifullah	5	99	93	158	70	26	25	1	0	0
Kohlu	543	178	98	45	96	104	49	24	0	0
Lasbella	93	269	340	123	25	23	12	0	16	3
Loralai	350	147	36	58	52	116	20	0	0	0
Mastung	175	138	25	48	38	59	15	6	3	0
Naseerabad	0	189	133	13	12	0	37	0	11	12
Nushki	22	106	2	15	45	0	0	9	0	0
Panjgur	47	83	65	63	27	8	3	10	0	0
Pishin	175	17	3	18	18	5	5	0	4	3
Quetta	1,062	340	26	52	41	16	16	15	18	0
Sherani	167	39	2	0	14	190	3	1	0	0
Sibi	251	114	158	39	35	27	31	11	7	0
Sohbat pur	8	163	256	113	75	29	36	1	9	7
Surab	151	48	3	9	0	0	57	0	2	0
Usta Muhammad	142	231	321	319	22	9	15	0	1	3
Washuk	227	72	35	3	61	8	1	9	0	0
Zhob	318	50	41	289	30	86	9	18	0	0
Ziarat	232	118	25	34	47	14	14	5	0	5
Total	6,532	4,556	3,299	1,854	1,184	917	483	186	133	99

Figure 3: Most frequently reported suspected cases during week 09, Balochistan



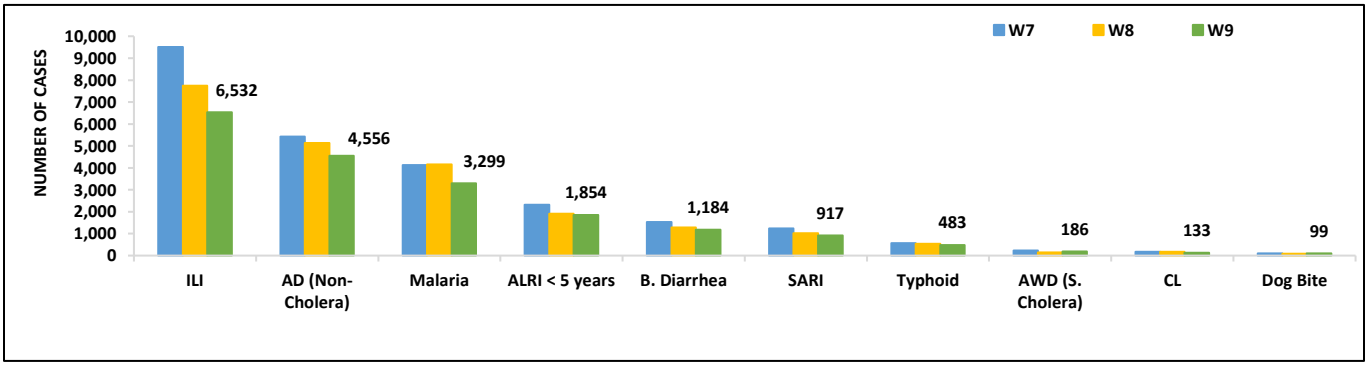
Khyber Pakhtunkhwa

- Cases of AD (Non-Cholera) were maximum followed by ILI, Malaria, ALRI<5 Years, SARI, Measles, Typhoid, B. Diarrhea, TB, and CL cases.
- AD (Non-Cholera), ILI, Malaria and ALRI<5 Years cases showed a decreasing trend this week.
- Eleven cases of AFP reported from KP. All are suspected cases and need field verification.
- High number of Typhoid cases reported from Bannu and Peshawar. Field verification is required to confirm the cases.
- A large number of CL cases are reported from Mohmand and Karak. Field investigation needed to verify the cases.

Table 4: District wise distribution of most frequently reported suspected cases during week 09, KP

Districts	AD (Non-Cholera)	ILI	Malaria	ALRI <5 Years	SARI	Measles	Typhoid	B. Diarrhea	TB	CL
Abbottabad	321	98	0	17	20	5	5	2	9	0
Bajaur	83	46	27	5	55	9	1	7	0	1
Bannu	614	50	839	51	10	14	96	10	30	0
Battagram	49	168	5	0	0	1	0	0	0	2
Buner	287	0	118	58	0	0	3	0	1	0
Charsadda	479	918	264	101	35	28	25	18	0	0
Chitral Lower	83	38	2	30	34	0	6	7	4	6
Chitral Upper	40	3	0	2	7	1	9	1	0	0
D.I. Khan	589	0	66	22	32	65	8	12	35	0
Dir Lower	561	4	316	300	0	23	43	71	18	2
Dir Upper	187	127	2	18	0	8	20	1	14	4
Hangu	152	283	320	5	0	15	5	14	10	13
Haripur	715	388	4	82	22	4	35	61	33	0
Karak	194	60	73	31	0	83	12	0	12	47
Khyber	64	0	15	52	64	2	2	9	6	4
Kohat	54	74	23	1	8	2	0	1	0	0
Kohistan Lower	93	0	0	4	2	3	0	3	0	0
Kohistan Upper	180	1	0	13	1	9	6	5	0	0
Kolai Palas	42	3	0	5	5	0	0	3	0	0
L & C Kurram	0	36	0	0	0	0	0	2	0	0
Lakki Marwat	235	20	70	48	1	9	6	7	28	1
Malakand	165	177	6	16	8	20	2	21	2	23
Mansehra	339	477	0	62	76	2	8	6	12	0
Mardan	356	2	9	444	0	0	0	12	4	0
Mohmand	51	49	57	1	8	2	2	8	1	73
Nowshera	770	151	63	2	14	33	5	8	2	17
Orakzai	13	4	3	1	0	0	0	3	0	0
Peshawar	1,785	724	14	97	123	45	65	66	28	21
SD DI Khan	0	0	2	0	0	0	0	0	0	0
SD Peshawar	0	0	0	0	0	0	0	0	0	0
SD Tank	0	0	0	0	0	0	0	1	0	0
Shangla	131	0	93	14	0	0	8	0	18	0
SWA	24	179	13	29	43	0	7	7	0	11
Swabi	570	965	18	184	112	17	9	4	43	0
Swat	888	379	2	68	4	7	0	12	19	0
Tank	325	131	80	34	1	24	48	2	6	13
Tor Ghar	47	0	6	0	16	0	2	10	1	9
Upper Kurram	89	266	0	15	435	13	5	34	2	0
Total	10,575	5,821	2,510	1,812	1,136	444	443	428	338	247

Figure 4: Most frequently reported suspected cases during week 09, KP



ICT, AJK & GB

ICT: The most frequently reported cases from Islamabad were ILI followed by AD (Non-Cholera). Cases showed increasing trend this week.

AJK: ILI cases were maximum followed by ALRI <5 years, AD (Non-Cholera), SARI, B. Diarrhea, TB, AVH (A & E), Typhoid, AWD (S. Cholera) and dog bite cases. Cases of ILI, SARI and TB showed a decreasing trend while cases of ALRI <5 years and AD (Non-Cholera) showed a slightly increasing trend this week.

GB: ALRI <5 years cases were the most frequently reported diseases followed by ILI, SARI, AD (Non-Cholera), AWD (S. Cholera), TB, Typhoid and B. Diarrhea. Decreasing trend for ALRI <5 years, ILI, AD (Non-Cholera) and B. Diarrhea cases while an increasing trend for SARI, AWD (S. Cholera), TB and Typhoid cases observed this week.

Figure 5: Week wise reported suspected cases of ILI, ICT

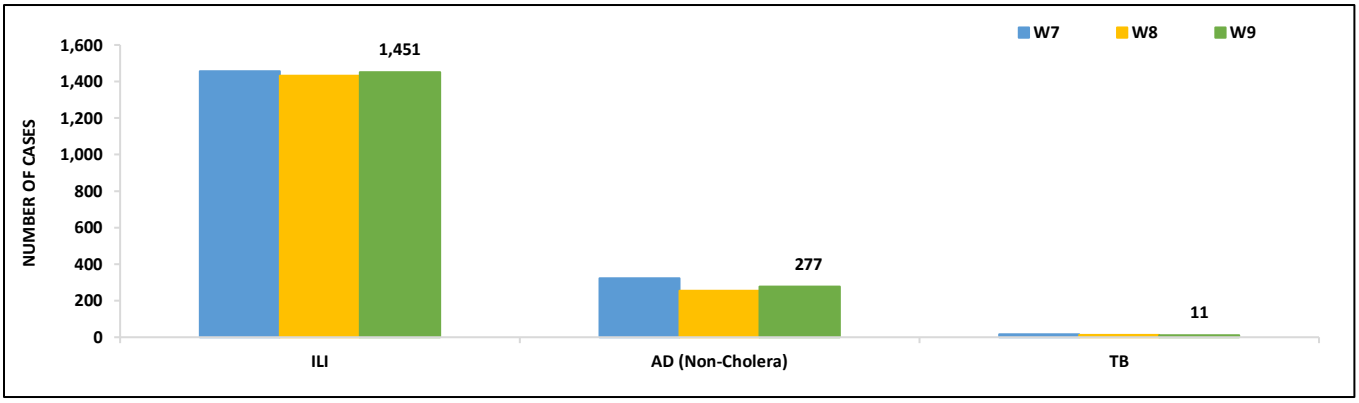


Figure 6: Week wise reported suspected cases of ILI, ICT

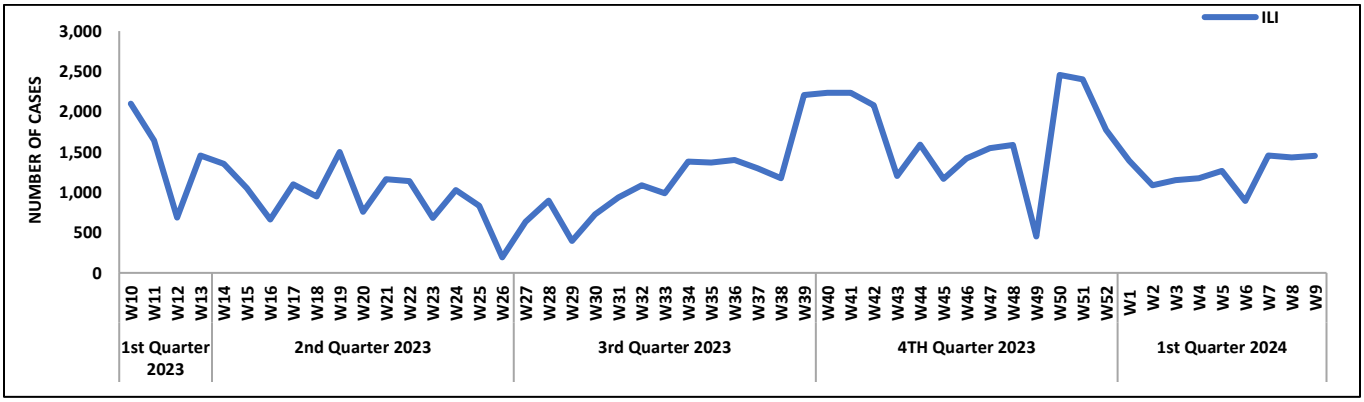


Figure 7: Most frequently reported suspected cases during week 09, AJK

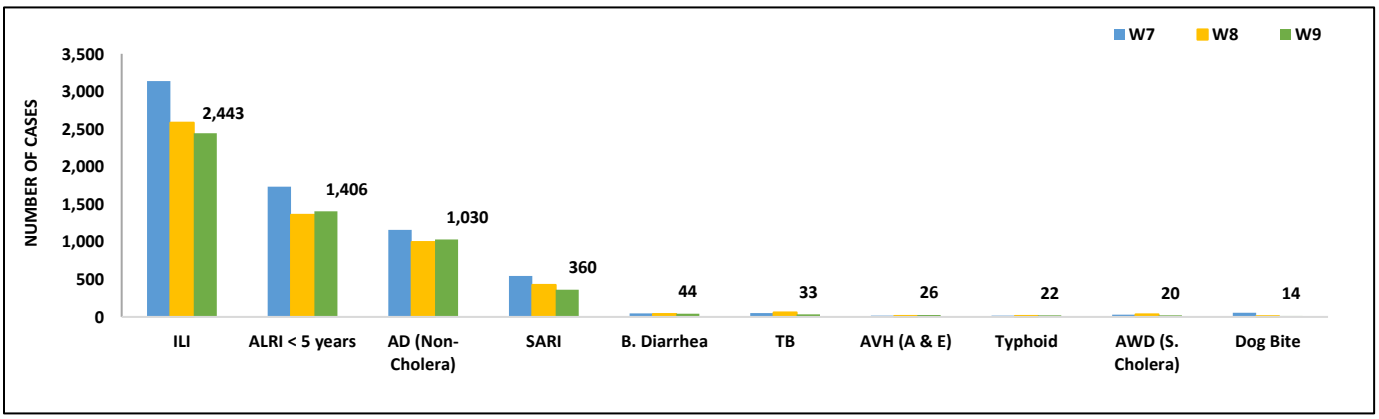


Figure 8: Week wise reported suspected cases of ILI and ALRI<5 years AJK

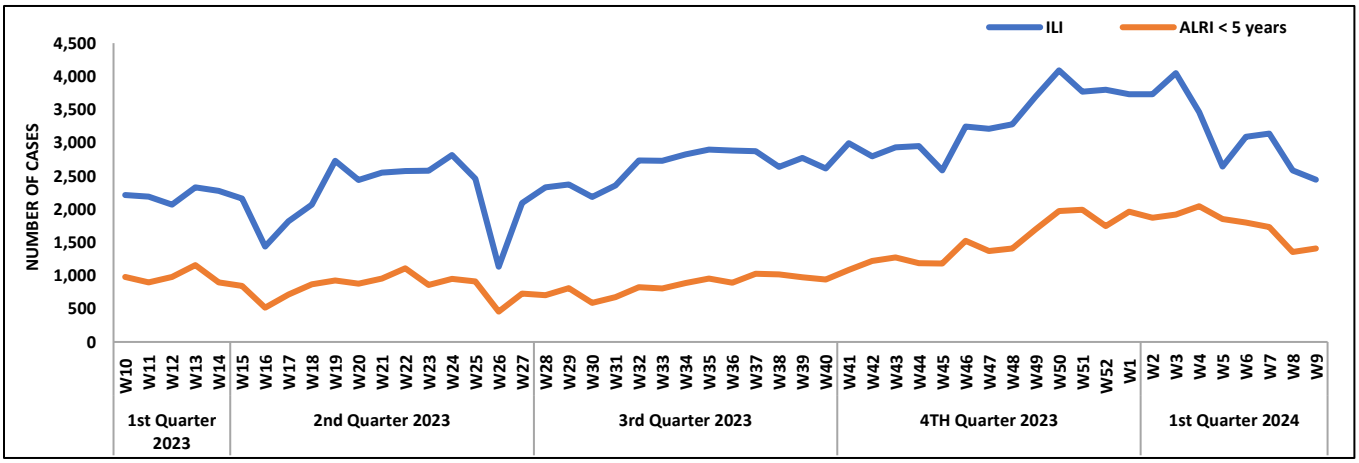


Figure 9: Most frequent cases reported during Wk 04, GB

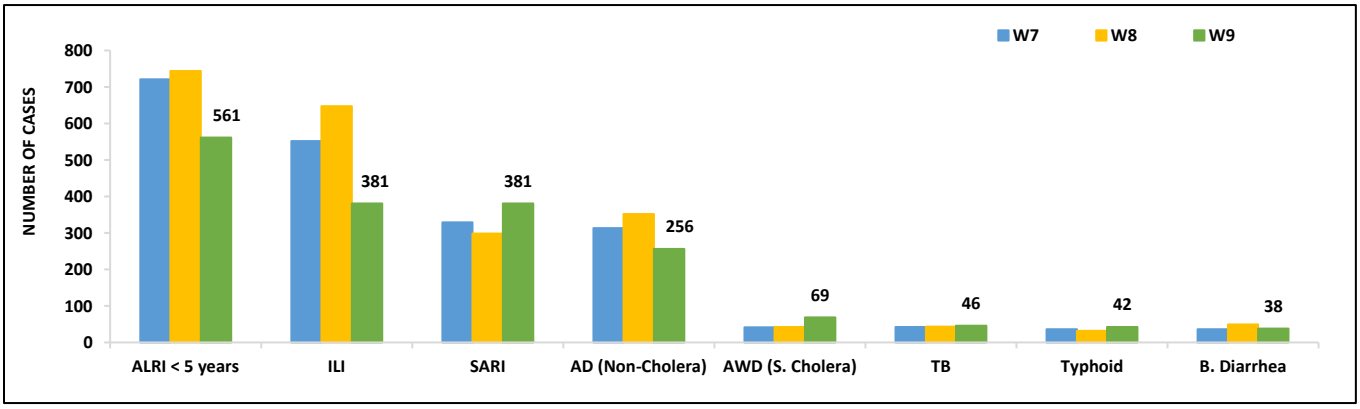
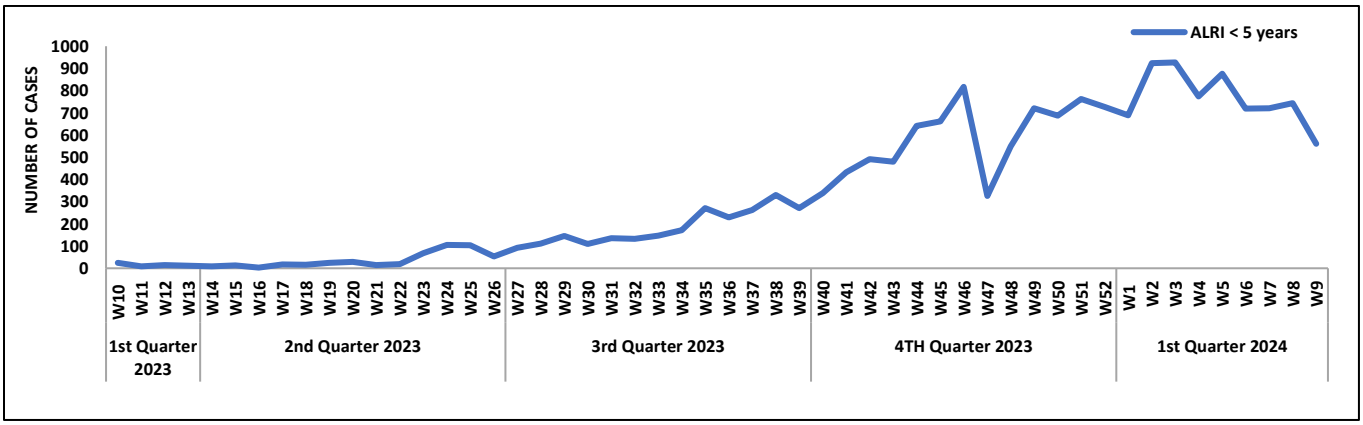


Figure 10: Week wise reported suspected cases of ALRI, GB



Punjab

- Cases of AD (Non-Cholera) were maximum followed by Malaria, Typhoid, B. Diarrhea, ILI and CL. AD (Non-Cholera), Malaria, B. Diarrhea, ILI and CL cases showed a decreasing trend this week.

Figure 11: District wise distribution of most frequently reported suspected cases during week 09, Punjab

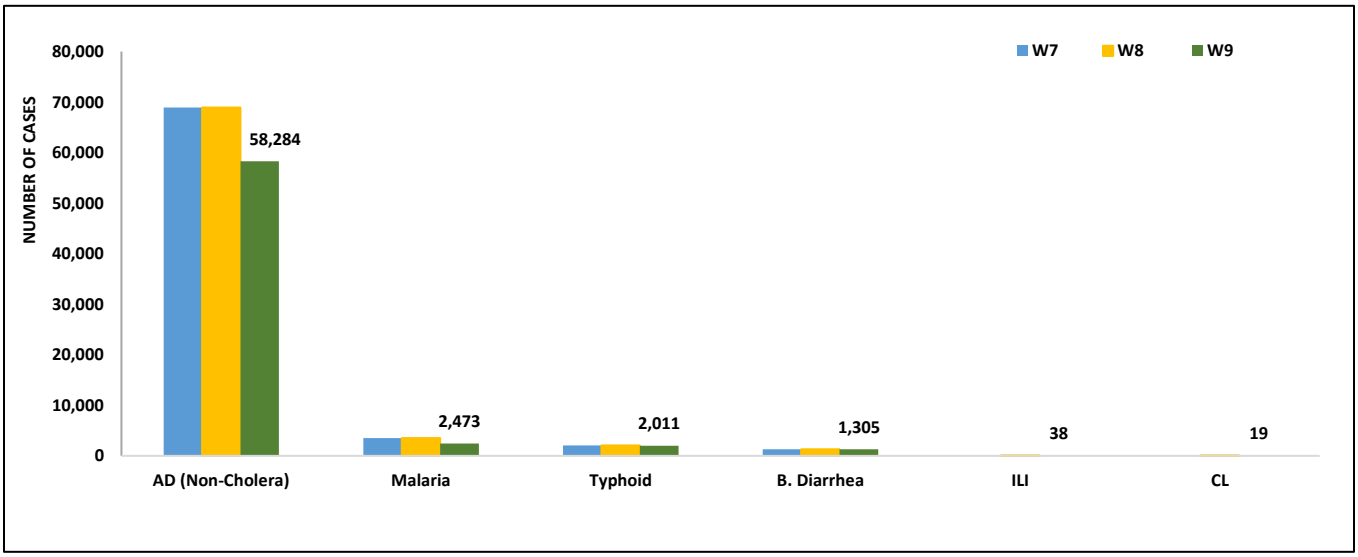


Table 5: Public Health Laboratories confirmed cases of IDSR Priority Diseases during Epid Week 09

Diseases	Sindh		Balochistan		KPK		ISL		GB	
	Total Test	Total Positive	Total Test	Total Positive	Total Test	Total Positive	Total Test	Total Positive	Total Test	Total Positive
AWD (S. Cholera)	95	0	-	-	-	-	-	-	-	-
AD (Non-Cholera)	95	0	-	-	-	-	-	-	-	-
Malaria	3,130	131	-	-	-	-	-	-	-	-
CCHF	0	0	32	1	-	-	0	0	-	-
Dengue	8	3	0	0	-	-	2	0	-	-
VH (B)	622	50	72	55	-	-	19	0	87	0
VH (C)	978	94	66	21	-	-	21	0	87	0
VH (A&E)	15	6	-	-	-	-	-	-	-	-
Covid-19	-	-	10	0	1	0	72	1	-	-
HIV	60	3	-	-	-	-	-	-	-	-
Diphtheria	-	-	-	-	-	-	50	0	-	-
Influenza A	-	-	-	-	3	0	-	-	-	-
TB	158	11	-	-	-	-	-	-	-	-
Syphilis	122	7	-	-	-	-	-	-	-	-
Pertussis	-	-	-	-	-	-	4	0	-	-

IDSR Reports Compliance

- Out OF 149 IDSR implemented districts, compliance is low from KPK. Green color showing >50% compliance while red color is <50% compliance

Table 6: IDSR reporting districts Week 09, 2024

Provinces/Regions	Districts	Total Number of Reporting Sites	Number of Reported Sites for current week	Compliance Rate (%)
Khyber Pakhtunkhwa	Abbottabad	110	103	94%
	Bannu	234	130	56%
	Battagram	63	16	25%
	Buner	34	23	68%
	Bajaur	44	28	64%
	Charsadda	59	51	86%
	Chitral Upper	34	18	53%
	Chitral Lower	35	26	74%
	D.I. Khan	94	93	99%
	Dir Lower	74	74	100%
	Dir Upper	52	42	81%
	Hangu	22	20	91%
	Haripur	71	59	83%
	Karak	35	35	100%
	Khyber	64	12	19%
	Kohat	61	60	98%
	Kohistan Lower	11	11	100%
	Kohistan Upper	20	20	100%
	Kolai Palas	10	10	100%
	Lakki Marwat	70	69	99%
	Lower & Central Kurram	40	3	8%
	Upper Kurram	42	13	31%
	Malakand	48	38	79%
	Mansehra	136	78	57%
	Mardan	80	75	94%
	Nowshera	55	52	95%
	North Waziristan	380	0	0%
	Peshawar	153	122	80%
	Shangla	65	11	17%
	Swabi	63	56	89%
	Swat	76	71	93%
	South Waziristan	134	50	37%
	Tank	34	34	100%
	Torghar	14	14	100%
	Mohmand	86	20	23%
	SD DI Khan	19	1	5%
	SD Peshawar	5	1	20%
	SD Tank	58	2	3%
	Orakzai	68	10	15%
	Mirpur	37	37	100%
	Bhimber	20	20	100%
	Kotli	60	60	100%
	Muzaffarabad	45	45	100%
	Poonch	46	45	98%

Azad Jammu Kashmir	Haveli	39	39	100%
	Bagh	40	37	93%
	Neelum	39	39	100%
	Jhelum Vellay	29	28	97%
	Sudhnooti	27	27	100%
Islamabad Capital Territory	ICT	21	20	95%
	CDA	14	9	64%
Balochistan	Gwadar	25	0	0%
	Kech	40	34	85%
	Khuzdar	20	20	100%
	Killa Abdullah	20	0	0%
	Lasbella	55	55	100%
	Pishin	62	8	13%
	Quetta	43	16	37%
	Sibi	36	33	92%
	Zhob	39	32	82%
	Jaffarabad	16	15	94%
	Naserabad	32	32	100%
	Kharan	30	30	100%
	Sherani	15	14	93%
	Kohlu	75	67	89%
	Chagi	35	28	80%
	Kalat	41	37	90%
	Harnai	17	12	71%
	Kachhi (Bolan)	35	13	37%
	Jhal Magsi	26	25	96%
	Sohbat pur	25	25	100%
	Surab	32	28	88%
	Mastung	45	45	100%
	Loralai	33	29	88%
	Killa Saifullah	28	27	96%
	Ziarat	29	27	93%
	Duki	31	27	87%
	Nushki	32	31	97%
	Dera Bugti	45	12	27%
	Washuk	46	14	30%
	Panjgur	38	16	42%
	Awaran	23	7	30%
	Chaman	24	0	0%
	Barkhan	20	16	80%
	Hub	33	33	100%
	Musakhel	41	0	0%
	Usta Muhammad	34	34	100%
Gilgit Baltistan	Hunza	32	32	100%
	Nagar	20	20	100%
	Ghizer	40	40	100%
	Gilgit	40	40	100%
	Diamer	62	62	100%

	Astore	54	54	100%
	Shigar	27	27	100%
	Skardu	52	52	100%
	Ganche	29	29	100%
	Kharmang	18	18	100%
Sindh	Hyderabad	73	60	82%
	Ghotki	64	63	98%
	Umerkot	43	41	95%
	Naushahro Feroze	107	62	58%
	Tharparkar	282	259	92%
	Shikarpur	60	60	100%
	Thatta	52	52	100%
	Larkana	67	66	99%
	Kamber Shadadkot	71	71	100%
	Karachi-East	23	21	91%
	Karachi-West	20	20	100%
	Karachi-Malir	37	21	57%
	Karachi-Kemari	18	5	28%
	Karachi-Central	11	11	100%
	Karachi-Korangi	18	10	56%
	Karachi-South	4	4	100%
	Sujawal	54	48	89%
	Mirpur Khas	106	102	96%
	Badin	123	122	99%
	Sukkur	64	64	100%
	Dadu	90	90	100%
	Sanghar	100	100	100%
	Jacobabad	44	44	100%
	Khairpur	169	165	98%
	Kashmore	59	58	98%
	Matiari	42	41	98%
	Jamshoro	68	68	100%
	Tando Allahyar	54	54	100%
	Tando Muhammad Khan	40	40	100%
	Shaheed Benazirabad	124	124	100%

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Public Health Bulletin Pakistan

The Public Health Bulletin Pakistan (PHBP) seeks valuable contributions from Pakistan's dedicated field epidemiologists. Your expertise in disease investigation, outbreak response, and program evaluation is crucial for informing public health policy. Sharing your experiences and insights through case studies, short reports, perspectives, or opinion pieces will:

- **Broaden the Impact**: Reach fellow professionals, policymakers, and the public, fostering collaboration and shaping national public health practices.
- **Enhance Public Understanding**: Translate complex information into accessible language, raise awareness, and dispel myths about public health issues.
- **Inspire the Next Generation**: Showcase your passion and dedication, potentially inspiring future generations to join the fight for a healthier Pakistan.
- **Refine Writing Skills**: Hone your communication and advocacy abilities by contributing to a respected publication.

The PHBP welcomes diverse perspectives on current challenges and potential solutions.
Visit the PHBP website (https://www.nih.org.pk/)
or
email phb@nih.org.pk for submission information.
Together, let's build a healthier future through informed public health discourse.

A note from Field Activities.

Bolstering Public Health Preparedness: National Institute of Health Collaborates with EMPHNET on Rapid Response Teams Training Workshop

Building upon Pakistan's commitment to fortifying its public health response infrastructure, the National Institute of Health (NIH) partnered with the Eastern Mediterranean Public Health Network (EMPHNET) to conduct a successful Public Health Rapid Response Team (RRT) workshop in Islamabad. This collaborative initiative, held over five days, aimed to enhance the capabilities of key personnel, enabling them to mount swift and effective responses to public health emergencies.

Empowering a National Rapid Response Team

The workshop served as a vital training ground for a designated national Rapid Response Team (RRT). Comprised of highly skilled professionals, this team will be instrumental in future outbreak investigations. The workshop curriculum provided participants with the essential knowledge and skills necessary for rapid response deployments. Key areas of focus included:

- **Outbreak Investigation Methodologies**:
  Participants honed their skills in effectively investigating outbreaks, allowing for the swift identification of the source and scope of public health threats.
- **Case Management Protocols:**
  The workshop emphasized the importance of standardized case management protocols,

ensuring consistent and high-quality care for affected individuals.

- **Effective Communication Strategies:**

  Fostering clear and concise communication during public health emergencies is crucial. The workshop equipped participants with the skills to effectively communicate with the public, healthcare providers, and policymakers.

- **Strong Coordination Mechanisms:**

  Establishing robust coordination mechanisms is essential for a streamlined and efficient response. The workshop emphasized the importance of collaboration between various stakeholders, ensuring a unified approach to public health emergencies.

Collaborative Development and National Stakeholder Engagement

The workshop wasn't solely focused on training. It also served as a platform for collaborative development and national stakeholder engagement. A distinguished team of experts from EMPHNET, including Dr. Asma, Dr. Mehmood, Dr. Deema from Jordan, and Dr. Khurram from Pakistan, played a pivotal role in facilitating discussions and knowledge exchange. This collaborative effort resulted in the development of Standard Operating Procedures (SOPs) for the functioning of the RRT. Furthermore, the workshop facilitated national stakeholder discussions on the SOPs, ensuring broad-based consensus and buy-in.

Looking Forward: Finalizing SOPs and Provincial Trainings

The successful completion of the RRT workshop marks a significant step forward in strengthening Pakistan's public health response capabilities. Moving forward, efforts will focus on finalizing the developed SOPs and conducting provincial training sessions to ensure nationwide preparedness. Through this collaborative effort, the NIH and EMPHNET are building a robust public health response system, safeguarding the health and well-being of the Pakistani population from future public health emergencies.

A note from Field Activities.

Investigation of Suspected Measles Outbreak in Sur Katch District Zhob, Balochistan (February 21-26, 2024)

Source: DHIS-2 Reports
https://dhis2.nih.org.pk/dhis-web-event-reports/

Introduction

Measles, a highly contagious vaccine-preventable disease (VPD), remains a significant public health concern in low-socioeconomic regions. Zhob, Balochistan, exemplifies such a region, grappling with challenges like inadequate immunization coverage, malnutrition, limited healthcare access, and geographical remoteness. These factors contribute to the spread of VPDs like measles. An outbreak in February 2024 prompted a public health investigation to understand the outbreak's risk factors, causes, and optimal intervention strategies.

Methods

Following the alert notification, a team from the Provincial Disease Surveillance and Response Unit (PDSRU) Balochistan investigated the suspected measles cases in UC Sur Katch, Zhob, during the 7th epidemiological week. A suspected case was defined as a child aged 0-60 months residing in Tora Khola village, presenting with fever (≥37.5°C), maculopapular rash lasting for at least three days, and at least one of the following: cough, coryza, or conjunctivitis.

A standardized IDSR measles questionnaire was used to collect data on clinical signs, symptoms, immunization status, age, sex, nutritional status, travel history, treatment history, and contact tracing. Additionally, a vaccine coverage survey was conducted in Tora Khola village to assess routine immunization rates in children under five years old.

Results

Through comprehensive field investigations and active case finding efforts, eight suspected measles cases were identified. These cases involved two males and six females between the ages of five

and eight years old. Eight samples were collected from suspected patients. Laboratory confirmation was obtained for four cases, with two linked to established measles cases (EPI-linked) and two testing negatives. All six confirmed cases were unvaccinated for routine immunizations. The investigation revealed the area's remoteness, poor routine immunization coverage, lack of a nearby static health facility, and suboptimal outreach coverage. Notably, 83% (n=5) of the measles cases were female children, highlighting potential gender disparities in healthcare access. Furthermore, the investigation identified compromised nutritional status within the community, particularly among female patients.

Discussion

The measles outbreak in Zhob underscores the vulnerability of children in low-resource settings. The clustering of cases in Tora Khola village suggests localized transmission dynamics. These findings emphasize the need for a multifaceted approach involving healthcare authorities, local communities, and stakeholders. Prompt and coordinated action are crucial to control the outbreak's impact and strengthen Zhob's overall public health resilience. The lessons learned from this outbreak can inform future strategies and policies to prevent and mitigate VPDs.

Recommendations

Public Health Interventions:

a. Case Management and Surveillance:

- **Isolation Units:** Establish isolation units in district hospitals, rural health centers, and model basic health units to manage suspected and confirmed measles cases effectively.
- **Integrated Outreach Services:** Implement comprehensive and monitored outreach activities focusing on immunization and nutrition in UC Sur Katch. Regular health camps are recommended for these marginalized populations.
- **Strengthening Healthcare Facilities:** Establish a healthcare facility with EPI and nutritional services in the vicinity of RD-238, UC Sur Katch Zhob, to improve accessibility.
- **Enhanced Surveillance:** Develop a robust surveillance system for real-time case monitoring and reporting to facilitate rapid response to new cases.

b. Vaccination Campaign:

- **Targeted Vaccination:** Conduct mass vaccination campaigns targeting high-risk and unvaccinated populations in UC Sur Katch.
- **School-Based Vaccination:** Implement school-based vaccination programs to reach a significant portion of the vulnerable child population.

c. Health Education and Awareness:

- **Community Outreach:** Conduct culturally sensitive health education campaigns within affected communities to raise awareness about VPDs, symptoms, transmission, and preventive measures.
- **Promote Hygiene:** Emphasize the importance of safe drinking water, handwashing, and safe food handling practices through educational materials and community workshops.
- **Health Worker Training:** Continuously train healthcare workers in diagnosing, managing measles cases, and implementing isolation protocols for communicable diseases.
- **Human Resources:** Address staff shortages by filling vacant vaccinator positions to ensure adequate personnel for routine immunization activities.
- **Local Leaders:** Collaborate with community leaders to promote health education initiatives.
- **Community Health Workers:** Train and deploy community health workers to disseminate information and support healthcare interventions.

A note from Field Activities.

FETP Frontline Balochistan Cohort: A Successful Inaugural Contact Session in Islamabad

Dr. Mudassir Ali Abro
Fellow FELTP
PDSRU Balochistan

This week, Islamabad played host to the highly anticipated 1st Contact Session of the FETP Frontline Balochistan Cohort. Organized by the Provincial Disease Surveillance and Response Unit (PDSRU) Balochistan, the program convened a distinguished group of 34 participants representing a diverse range of sectors critical to public health in Balochistan. These sectors included the Balochistan health department, the Public Health Lab Quetta, the Balochistan Food Authority, and the Livestock Department.

The core objective of the program was to bolster disease surveillance and disease outbreak detection capabilities within Balochistan. The initiative's success is a direct result of the invaluable support extended by the National Institute of Health (NIH) Islamabad and the Centers for Disease Control and Prevention (CDC).

Mentorship and Collaboration: Pillars of Success

A truly distinctive element of the Contact Session was the presence of FETP Balochistan Alumni who assumed the commendable role of mentors for the Balochistan participants. Their dedication and the contributions they made throughout the program were lauded by Dr. Mudassir Abro, FETP Balochistan.

Furthermore, the program drew upon the extensive expertise of mentors from NSTOP Balochistan and the WHO sub-office Balochistan. PDSRU Balochistan's role in facilitating the session was nothing short of instrumental, and the program itself was made possible through the generous sponsorship of NIH and CDC.

This collaborative endeavor has demonstrably established a firm foundation for the FETP Frontline Balochistan Cohort. By empowering participants with the necessary skills and knowledge, the program has positioned them to play a pivotal role in safeguarding public health across Balochistan.

Knowledge Hub

Typhoid Fever: A Looming Threat in Pakistan - The Challenge of MDR and XDR Strains

Typhoid fever, a systemic bacterial infection caused by *Salmonella enterica serovar Typhi* (S. Typhi), remains a significant public health burden in developing countries, particularly in South Asia. Pakistan faces a unique challenge – a rising tide of multidrug-resistant (MDR) and extensively drug-resistant (XDR) typhoid strains, jeopardizing the effectiveness of conventional treatment strategies. This essay explores the intricacies of typhoid fever, highlighting the critical need for public awareness regarding MDR and XDR strains in the context of Pakistan.

Pathogenesis and Clinical Presentation

S. Typhi, an obligate human pathogen, gains entry through contaminated food or water. It invades the intestinal mucosa, disseminating to the bloodstream and reticuloendothelial system (liver, spleen). Clinical manifestations typically include sustained fever, headache, malaise, and myalgia. The hallmark rash, rose spots, appears on the abdomen in approximately 20% of cases. Complications like intestinal perforation and typhoid encephalopathy can arise, particularly in the absence of prompt diagnosis and treatment.

Traditional Management and the Emergence of Resistance

The mainstay of typhoid treatment has been antibiotics, primarily ampicillin, chloramphenicol, and third-generation cephalosporins. However, the indiscriminate use of antibiotics in humans and animals has fueled the emergence of resistant strains. MDR S. Typhi exhibits resistance to at least one first-line antibiotic, while XDR strains are resistant to all

first-line and most second-line antibiotics, leaving limited therapeutic options.

Pakistan's Typhoid Scenario: A Perfect Storm

Pakistan faces a confluence of factors contributing to the rise of MDR and XDR typhoid:

- **Poor Sanitation and Hygiene:** Inadequate sanitation infrastructure and unsafe drinking water facilitate fecal-oral transmission of S. Typhi.
- **Irrational Antibiotic Use:** Over-the-counter availability and misuse of antibiotics in human and veterinary medicine selects for resistant strains.
- **Limited Diagnostic Capacity:** Reliance on traditional blood cultures can delay diagnosis and lead to inappropriate empirical treatment, further promoting resistance.

The Devastating Consequences of MDR/XDR Typhoid

The emergence of MDR and XDR strains poses a serious threat:

- **Treatment Prolongation and Increased Costs:** Limited effective antibiotics necessitate longer treatment courses, often with more expensive drugs, placing a strain on healthcare resources.
- **Increased Morbidity and Mortality:** Treatment failure due to resistance can lead to prolonged illness, higher complication rates, and even death.
- **Global Spread:** International travel can facilitate the dissemination of MDR and XDR strains from endemic regions like Pakistan to other parts of the world.

Public Awareness: A Critical Weapon

Combating the rising threat of MDR/XDR typhoid calls for a multi-pronged approach, with public awareness playing a pivotal role:

- **Promoting Safe Food and Water Practices:** Educational campaigns can emphasize hand hygiene, proper food handling, and the consumption of treated water to break the transmission cycle.
- **Judicious Antibiotic Use:** Public awareness campaigns can promote the responsible use of antibiotics only upon prescription and completion of the full course as prescribed by a doctor].
- **The Importance of Vaccination:** Pakistan has introduced the typhoid conjugate vaccine (TCV) into its national immunization program. Public awareness campaigns can encourage parents to ensure their children receive the recommended TCV doses.

Conclusion

Typhoid fever, particularly the growing burden of MDR and XDR strains, poses a significant public health challenge in Pakistan. By empowering the public with knowledge about safe hygiene practices, judicious antibiotic use, and the importance of vaccination, we can mitigate the risk of typhoid transmission and curb the emergence of resistant strains. Collaborative efforts between healthcare professionals, policymakers, and the public are crucial to safeguard public health in Pakistan and beyond.

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PHB, Pakistan: Submission Guidelines

Notes from the Field

- These abbreviated reports aim to inform the public health community of ongoing or recent events of concern without awaiting the development of a full report.
- Events of concern include outbreaks, unusual disease clusters, poisoning, and notable public health-related case reports.
- These reports may contain preliminary results and hypotheses regarding risk factors and exposures. Definitive conclusions are not required.
- Ideal length: 500 words. Longer submissions may be accepted, but the justification should be discussed with the managing editor beforehand.

Structure:

- Brief introduction describing the onset of the event and its identification
- Description of the investigation, magnitude, and extent of the event
  Outcomes (e.g., hospitalizations or deaths) and any preliminary conclusions
- Public health actions taken to control the situation and recommendations for preventing future recurrences
- Illustrations are encouraged.
- Report laboratory and epidemiologic results within a public health perspective, explaining their significance and placing them in a broader context.
- Tables and figures: One table, one figure, and one summary box may be included, especially if they can shorten the text.
- References: Keep references relevant and recent. (See details in Author Submission Checklist and Submission Formats)
- Criteria for authors: Attribution should be strictly limited to those persons or organizations responsible for writing the report or to whom public inquiries should be directed.

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