

PUBLIC HEALTH BULLETIN-PAKISTAN

Integrated Disease Surveillance & Response (IDSR) Report

**Center of Disease Control
National Institute of Health, Islamabad**

Vol. 4 | Week 23
18th Jun 2024
03rd Jun – 09th Jun

<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

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Public Health Bulletin - Pakistan, Week 23, 2024

Overview

Pakistan's Public Health Bulletin is no longer just a list of illnesses; it's a game-changer for public health information. This comprehensive resource empowers both healthcare professionals and citizens.

IDSR Reports

The Bulletin goes beyond basic reporting, offering detailed analysis of common diseases like malaria, influenza, tuberculosis, and childhood respiratory infections. It also tracks diarrhea, dog bites, hepatitis, typhoid, and even potential cholera outbreaks. This valuable data helps stakeholders design targeted prevention plans and proactively address emerging health threats.

Ongoing Events

The Bulletin acts as an early warning system, spotting trends in disease prevalence. This allows for quick public health interventions to stop the spread of illnesses like polio and brucellosis.

Field Reports

Looking for in-depth information? The Bulletin delivers. This week, for instance, it features reports on a recent malaria outbreak investigation and measles updates. Additionally, it provides expert advice from the National Institutes of Health (NIH) on public health threats like measles. The Knowledge Hub section dives deeper into preventing and controlling acute watery diarrhea.

By staying informed with the Public Health Bulletin and using its insights, everyone can play a role in building a healthier Pakistan.

Sincerely,
The Chief Editor



During week 23, the most frequently reported cases were of Acute Diarrhea (Non-Cholera) followed by Malaria, ILI, TB, ALRI <5 years, B. Diarrhea, dog bite, VH (B, C & D), Typhoid and AWD (S. Cholera).

Eighteen cases of AFP reported from KP, thirteen from Sindh, six each from Balochistan and Punjab, three from AJK and two from GB. All are suspected cases and need field verification.

Eleven suspected cases of HIV/ AIDS reported from Balochistan, ten from Sindh, six from Punjab, two from KP and one from AJK. Field investigation required to verify the cases.

Eight cases of Brucellosis reported from KP and five from Balochistan. These are suspected cases and require field verification.

Nine suspected cases of CCHF reported from Sindh, five from Balochistan and two from Punjab. Field investigation required to verify the cases.

There is an increasing trend observed for AD (Non-cholera), Malaria, ILI, TB, B. Diarrhea, dog bite, VH (B, C & D), Typhoid and AWD (S. Cholera) cases this week.

IDSR compliance attributes

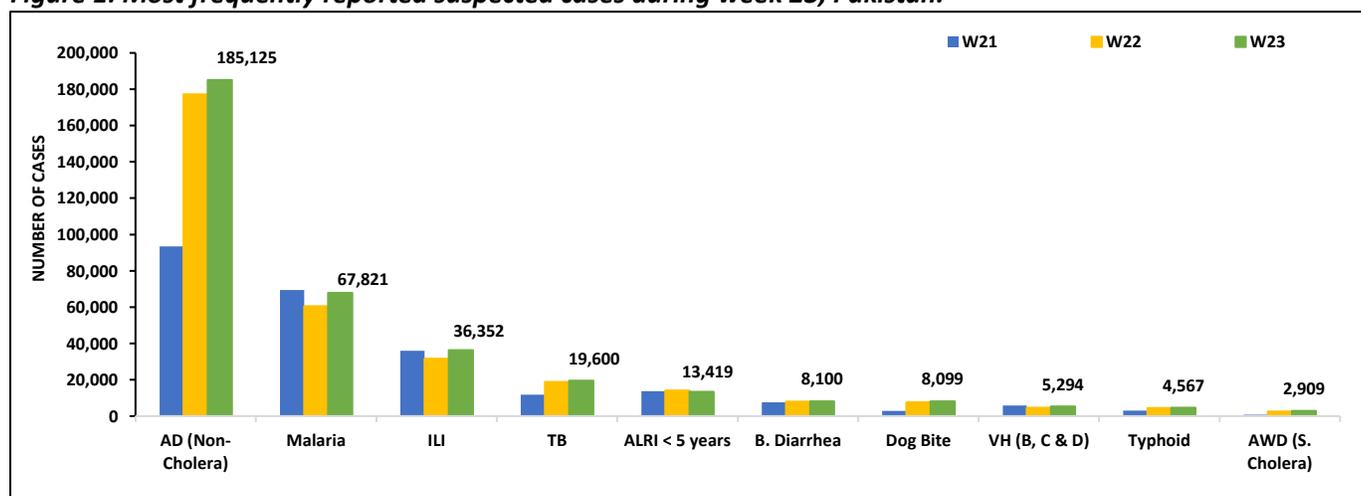
- The national compliance rate for IDSR reporting in 149 implemented districts is 76%
- Gilgit Baltistan and AJK are the top reporting regions with a compliance rate of 99% and 96%, followed by Sindh 93% and ICT 86%
- The lowest compliance rate was observed in KPK.

| Region | Expected Reports | Received Reports | Compliance (%) |
|------------------------------------|------------------|------------------|----------------|
| Khyber Pakhtunkhwa | 2740 | 1627 | 59 |
| Azad Jammu Kashmir | 382 | 368 | 96 |
| Islamabad Capital Territory | 35 | 30 | 86 |
| Balochistan | 1206 | 848 | 70 |
| Gilgit Baltistan | 374 | 370 | 99 |
| Sindh | 2085 | 1949 | 93 |
| National | 6822 | 5192 | 76 |

Table 1: Province/Area wise distribution of most frequently reported suspected cases during week 23, Pakistan.

| Diseases | AJK | Balochistan | GB | ICT | KP | Punjab | Sindh | Total |
|-----------------------|-------|-------------|------|-----|--------|--------|--------|---------|
| AD (Non-Cholera) | 2,192 | 7,519 | 1174 | 485 | 28,455 | 99,184 | 46,116 | 185,125 |
| Malaria | 72 | 4,681 | 1 | 2 | 5,858 | 2,974 | 54,233 | 67,821 |
| ILI | 2023 | 6,487 | 338 | 954 | 3,825 | 12 | 22,713 | 36,352 |
| TB | 67 | 103 | 69 | 6 | 476 | 9,022 | 9,857 | 19,600 |
| ALRI < 5 years | 796 | 1337 | 582 | 0 | 1,515 | 732 | 8,457 | 13,419 |
| B. Diarrhea | 96 | 1822 | 88 | 6 | 1,425 | 1,251 | 3,412 | 8,100 |
| Dog Bite | 103 | 74 | 1 | 0 | 637 | 5,296 | 1,988 | 8,099 |
| VH (B, C & D) | 6 | 96 | 4 | 1 | 120 | 0 | 5,067 | 5,294 |
| Typhoid | 25 | 682 | 51 | 3 | 630 | 1,972 | 1,204 | 4,567 |
| AWD (S. Cholera) | 51 | 419 | 229 | 4 | 59 | 2,118 | 29 | 2,909 |
| Measles | 29 | 117 | 31 | 1 | 454 | 1,529 | 196 | 2,357 |
| SARI | 163 | 538 | 200 | 2 | 1,001 | 0 | 120 | 2,024 |
| Dengue | 2 | 95 | 0 | 0 | 25 | 842 | 96 | 1,060 |
| AVH (A&E) | 40 | 12 | 2 | 0 | 314 | 0 | 384 | 752 |
| CL | 1 | 134 | 0 | 0 | 363 | 4 | 0 | 502 |
| Mumps | 10 | 43 | 7 | 0 | 50 | 2 | 242 | 354 |
| Chikungunya | 0 | 3 | 0 | 0 | 0 | 0 | 217 | 220 |
| Chickenpox/ Varicella | 6 | 32 | 12 | 2 | 62 | 44 | 49 | 207 |
| Gonorrhoea | 0 | 117 | 0 | 0 | 17 | 0 | 13 | 147 |
| Pertussis | 0 | 81 | 3 | 0 | 15 | 2 | 4 | 105 |
| Leprosy | 0 | 20 | 0 | 0 | 1 | 0 | 44 | 65 |
| AFP | 3 | 6 | 2 | 0 | 18 | 6 | 13 | 48 |
| VL | 0 | 12 | 0 | 0 | 29 | 0 | 0 | 41 |
| Meningitis | 0 | 9 | 3 | 0 | 2 | 19 | 7 | 40 |
| HIV/AIDS | 1 | 11 | 0 | 0 | 2 | 6 | 10 | 30 |
| Syphilis | 0 | 6 | 0 | 0 | 3 | 0 | 12 | 21 |
| NT | 0 | 3 | 0 | 0 | 2 | 5 | 9 | 19 |
| CCHF | 0 | 5 | 0 | 0 | 0 | 2 | 9 | 16 |
| Diphtheria (Probable) | 0 | 7 | 0 | 0 | 3 | 5 | 0 | 15 |
| Brucellosis | 0 | 5 | 0 | 0 | 8 | 0 | 0 | 13 |
| Rubella (CRS) | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 10 |

Figure 1: Most frequently reported suspected cases during week 23, Pakistan.

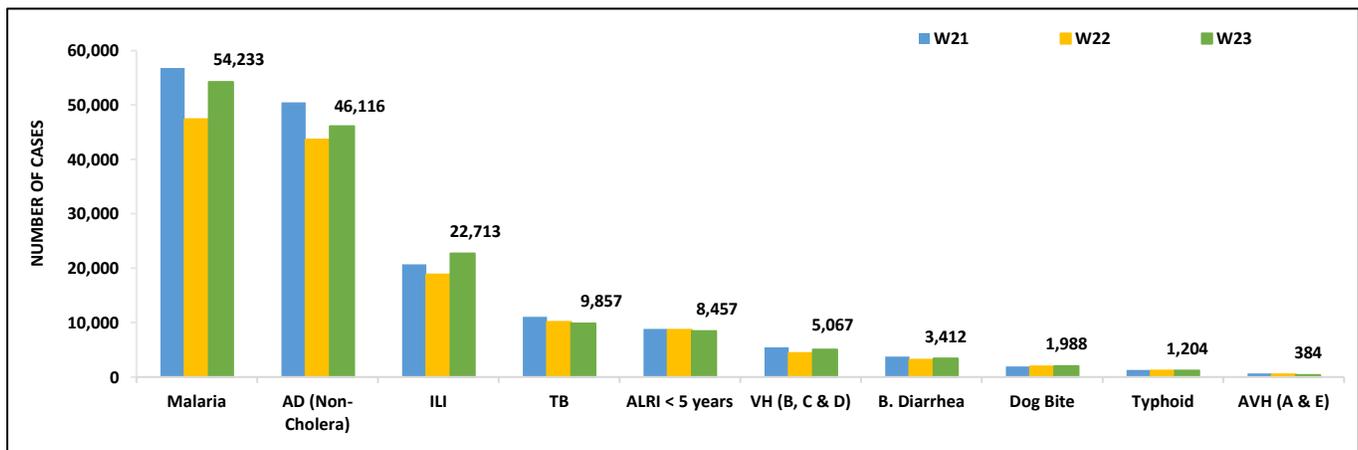


- Malaria cases were maximum followed by AD (Non-Cholera), ILI, TB, ALRI<5 Years, VH (B, C, D), B. Diarrhea, dog bite, Typhoid and AVH (A & E).
- Malaria cases are mostly from Larkana, Khairpur and Dadu whereas AD (Non-Cholera) cases are from Dadu, Khairpur and Badin.
- Thirteen cases of AFP, ten suspected cases of HIV/ AIDS and Nine suspected cases of CCHF reported from Sindh this week. All are suspected cases and need field verification.
- There is an increasing trend observed for Malaria, AD (Non-Cholera), ILI, VH (B, C, D), B. Diarrhea and dog bite cases while a decreasing trend for TB, ALRI<5 Years and AVH (A & E) cases this week.

Table 2: District wise distribution of most frequently reported suspected cases during week 23, Sindh

| Districts | Malaria | AD (Non-Cholera) | ILI | TB | ALRI < 5 years | VH (B, C & D) | B. Diarrhea | Dog Bite | Typhoid | AVH (A&E) |
|---------------------|---------------|------------------|---------------|--------------|----------------|---------------|--------------|--------------|--------------|------------|
| Badin | 3,830 | 2,886 | 312 | 549 | 601 | 100 | 175 | 68 | 62 | 0 |
| Dadu | 4,250 | 3,255 | 269 | 400 | 974 | 63 | 519 | 205 | 141 | 36 |
| Ghotki | 1,540 | 1,074 | 0 | 201 | 271 | 262 | 122 | 157 | 0 | 19 |
| Hyderabad | 452 | 2,539 | 2,810 | 40 | 31 | 51 | 24 | 28 | 11 | 0 |
| Jacobabad | 974 | 916 | 305 | 101 | 393 | 152 | 151 | 132 | 74 | 1 |
| Jamshoro | 1,556 | 2,107 | 314 | 381 | 130 | 103 | 86 | 14 | 34 | 4 |
| Kamber | 3,798 | 1,937 | 0 | 756 | 295 | 163 | 143 | 152 | 16 | 0 |
| Karachi Central | 69 | 1,480 | 1,180 | 508 | 108 | 266 | 28 | 0 | 78 | 3 |
| Karachi East | 52 | 620 | 173 | 16 | 7 | 0 | 8 | 4 | 8 | 0 |
| Karachi Keamari | 1 | 257 | 141 | 1 | 11 | 0 | 0 | 0 | 1 | 1 |
| Karachi Korangi | 34 | 314 | 56 | 4 | 1 | 0 | 4 | 0 | 8 | 3 |
| Karachi Malir | 362 | 1,914 | 2,521 | 86 | 234 | 73 | 74 | 44 | 30 | 8 |
| Karachi South | 44 | 87 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Karachi West | 177 | 857 | 1,709 | 148 | 121 | 101 | 54 | 117 | 39 | 21 |
| Kashmore | 1,290 | 534 | 600 | 264 | 123 | 33 | 57 | 126 | 4 | 1 |
| Khairpur | 5,061 | 3,130 | 4,248 | 794 | 880 | 121 | 509 | 222 | 390 | 3 |
| Larkana | 5,889 | 2,006 | 0 | 849 | 454 | 118 | 366 | 0 | 16 | 2 |
| Matiali | 1,490 | 1,800 | 0 | 438 | 232 | 339 | 80 | 43 | 3 | 4 |
| Mirpurkhas | 2,662 | 2,708 | 2,215 | 462 | 412 | 215 | 68 | 33 | 19 | 7 |
| Naushero Feroze | 996 | 704 | 725 | 333 | 126 | 100 | 110 | 145 | 74 | 0 |
| Sanghar | 3,523 | 1,504 | 52 | 1002 | 392 | 1,034 | 22 | 188 | 22 | 2 |
| Shaheed Benazirabad | 1,556 | 1,858 | 0 | 369 | 241 | 98 | 64 | 143 | 78 | 0 |
| Shikarpur | 2,068 | 1,193 | 0 | 212 | 109 | 727 | 143 | 40 | 6 | 0 |
| Sujawal | 860 | 401 | 0 | 33 | 147 | 0 | 33 | 0 | 0 | 0 |
| Sukkur | 1,730 | 1,401 | 1,227 | 315 | 182 | 116 | 121 | 20 | 5 | 0 |
| Tando Allahyar | 1,556 | 1,382 | 543 | 371 | 186 | 341 | 161 | 33 | 13 | 5 |
| Tando Muhammad Khan | 1,554 | 1,385 | 0 | 410 | 120 | 93 | 60 | 0 | 2 | 0 |
| Tharparkar | 2,095 | 1,902 | 1,311 | 441 | 750 | 196 | 94 | 0 | 36 | 33 |
| Thatta | 2,900 | 2,325 | 1,999 | 20 | 518 | 133 | 82 | 73 | 18 | 229 |
| Umerkot | 1,864 | 1,640 | 0 | 353 | 408 | 69 | 54 | 0 | 16 | 2 |
| Total | 54,233 | 46,116 | 22,713 | 9,857 | 8,457 | 5,067 | 3,412 | 1,988 | 1,204 | 384 |

Figure 2: Most frequently reported suspected cases during week 23 Sindh



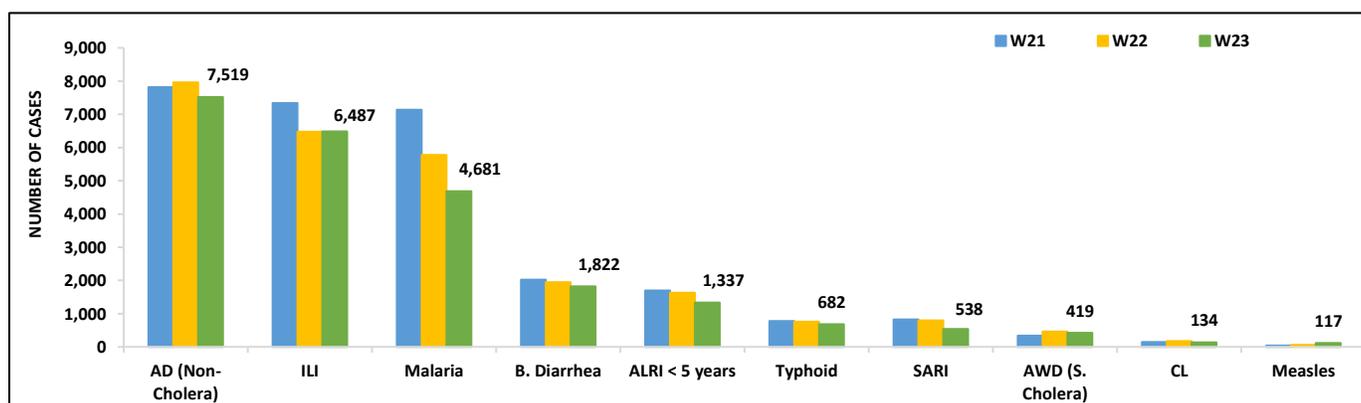
Balochistan

- AD (Non-Cholera), ILI, Malaria, B. Diarrhea, ALRI <5 years, Typhoid, SARI, AWD (S. Cholera), CL and Measles cases were the most frequently reported diseases from Balochistan province.
- AD (non-cholera) cases are mostly reported from Usta Muhammad, Quetta and Gwadar while ILI cases are mostly reported from Gwadar, Quetta and Kohlu.
- AD (Non-Cholera), Malaria, B. Diarrhea, ALRI <5 years, Typhoid, SARI, AWD (S. Cholera) and CL cases showed a decreasing trend this week.
- Six cases of AFP, Eleven suspected case of HIV/ AIDS, and Nine suspected cases of CCHF, Five cases of Brucellosis reported from Balochistan. All are suspected cases and need field verification

Table 3: District wise distribution of most frequently reported suspected cases during week 23, Balochistan

| Districts | AD Non-Cholera) | ILI | Malaria | B. Diarrhea | ALRI < 5 years | Typhoid | SARI | AWD (S.Cholera) | CL | Measles |
|-----------------|-----------------|--------------|--------------|--------------|----------------|------------|------------|-----------------|------------|------------|
| Awaran | 6 | 38 | 49 | 13 | 6 | 2 | 5 | 1 | 0 | 0 |
| Barkhan | 113 | 84 | 114 | 4 | 56 | 47 | 0 | 14 | 0 | 60 |
| Chagai | 167 | 204 | 50 | 48 | 0 | 12 | 0 | 11 | 1 | 1 |
| Chaman | 117 | 204 | 3 | 70 | 0 | 11 | 17 | 31 | 0 | 0 |
| Dera Bugti | 36 | 21 | 66 | 22 | 9 | 7 | 0 | 0 | 0 | 0 |
| Gwadar | 562 | 1,042 | 215 | 111 | 3 | 39 | NR | NR | NR | NR |
| Harnai | 74 | 23 | 65 | 56 | 124 | 0 | 0 | 9 | 0 | 0 |
| Hub | 324 | 54 | 198 | 56 | 12 | 2 | 0 | 0 | 4 | 0 |
| Jaffarabad | 224 | 107 | 278 | 57 | 15 | 5 | 8 | 0 | 0 | 0 |
| Jhal Magsi | 332 | 353 | 367 | 12 | 22 | 5 | 2 | 5 | 1 | 23 |
| Kalat | 50 | 6 | 29 | 8 | 9 | 19 | 0 | 0 | 0 | 0 |
| Kech (Turbat) | 84 | 260 | 121 | 12 | 12 | NR | NR | NR | NR | NR |
| Kharan | 168 | 354 | 80 | 59 | 2 | 9 | 0 | 8 | 0 | 0 |
| Khuzdar | 359 | 309 | 268 | 92 | 11 | 42 | 23 | 34 | 9 | 15 |
| Killa Abdullah | 177 | 92 | 44 | 115 | 26 | 69 | 24 | 106 | 21 | 4 |
| Killa Saifullah | 203 | 0 | 213 | 105 | 103 | 27 | 14 | 2 | 4 | 0 |
| Kohlu | 261 | 403 | 208 | 127 | 19 | 40 | 84 | 4 | 1 | 0 |
| Lasbella | 333 | 75 | 329 | 23 | 79 | 8 | 5 | 0 | NR | NR |
| Loralai | 176 | 230 | 48 | 33 | 30 | 17 | 101 | 4 | 0 | 0 |
| Mastung | 200 | 134 | 143 | 58 | 64 | 20 | 29 | 6 | 2 | 0 |
| Naseerabad | 269 | 9 | 241 | 13 | 18 | 52 | 3 | 0 | 2 | 4 |
| Nushki | 201 | 19 | 39 | 58 | 0 | 0 | 0 | 0 | 0 | 0 |
| Panjgur | 342 | 90 | 237 | 71 | 146 | 11 | 28 | 57 | 2 | 0 |
| Pishin | 409 | 191 | 45 | 122 | 21 | 33 | 8 | 27 | 21 | 2 |
| Quetta | 646 | 1,020 | 29 | 138 | 82 | 56 | 29 | 48 | 43 | 4 |
| Sherani | 37 | 82 | 21 | 20 | 13 | 16 | 30 | 12 | 15 | 1 |
| Sibi | 95 | 258 | 47 | 11 | 8 | 1 | 8 | 14 | 4 | 0 |
| Sohbat pur | 278 | 5 | 448 | 83 | 161 | 36 | 14 | 2 | 4 | 0 |
| Surab | 89 | 194 | 8 | 0 | 0 | 41 | 0 | 0 | 0 | 0 |
| Usta Muhammad | 779 | 110 | 512 | 77 | 94 | 13 | 29 | 0 | 0 | 0 |
| Washuk | 108 | 139 | 19 | 31 | 0 | 0 | 0 | 0 | 0 | 0 |
| Zhob | 117 | 143 | 75 | 44 | 170 | 15 | 71 | 7 | 0 | 3 |
| Ziarat | 183 | 234 | 72 | 73 | 22 | 27 | 6 | 17 | 0 | 0 |
| Total | 7,519 | 6,487 | 4,681 | 1,822 | 1,337 | 682 | 538 | 419 | 134 | 117 |

Figure 3: Most frequently reported suspected cases during week 23, Balochistan

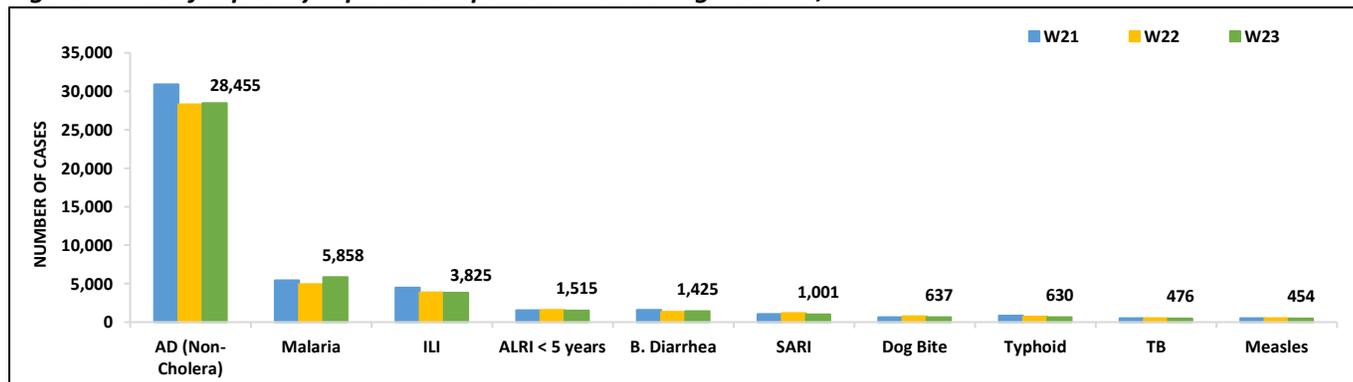


- Cases of AD (Non-Cholera) were maximum followed by Malaria, ILI, ALRI<5 Years, B. Diarrhea, SARI, dog bite, Typhoid, TB and Measles cases.
- AD (Non-Cholera), Malaria and B. Diarrhea cases showed an increasing trend while ILI, ALRI<5 Years, SARI, dog bite, Typhoid, TB and Measles cases showed a decreasing trend this week.
- Eighteen cases of AFP, eight cases of Brucellosis and Two suspected cases of HIV/ AIDS reported from KP. All are suspected cases and need field verification.

Table 4: District wise distribution of most frequently reported suspected cases during week 23, KP

| Districts | AD (Non-Cholera) | Malaria | ILI | ALRI <5 Years | B.Diarrhea | SARI | Dog Bite | Typhoid | TB | Measles |
|----------------|------------------|--------------|--------------|---------------|--------------|--------------|------------|------------|------------|------------|
| Abbottabad | 1,137 | 28 | 165 | 16 | 14 | 13 | 6 | 34 | 35 | 27 |
| Bajaur | 1,370 | 340 | 26 | 268 | 167 | 31 | 14 | 5 | 10 | 24 |
| Bannu | 899 | 1,401 | 0 | 18 | 21 | 12 | 7 | 80 | 18 | 15 |
| Battagram | 79 | 0 | 136 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Buner | 671 | 314 | 0 | 0 | 2 | 0 | 18 | 16 | 0 | 3 |
| Charsadda | 1,679 | 212 | 398 | 124 | 153 | 5 | 4 | 42 | 2 | 41 |
| Chitral Lower | 390 | 10 | 25 | 17 | 20 | 31 | 9 | 15 | 9 | 1 |
| Chitral Upper | 94 | 3 | 11 | 6 | 3 | 0 | 0 | 12 | 2 | 1 |
| D.I. Khan | 1,461 | 330 | 0 | 17 | 25 | 0 | 5 | 1 | 37 | 79 |
| Dir Lower | 1,112 | 232 | 3 | 76 | 131 | 0 | 7 | 15 | 12 | 17 |
| Dir Upper | 695 | 9 | 76 | 11 | 8 | 0 | 0 | 13 | 77 | 12 |
| Hangu | 4 | 21 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Haripur | 1,501 | 17 | 112 | 50 | 7 | 25 | 3 | 25 | 22 | 20 |
| Karak | 366 | 219 | 25 | 20 | 0 | 0 | 26 | 7 | 12 | 36 |
| Khyber | 258 | 184 | 51 | 4 | 64 | 16 | 33 | 58 | 9 | 5 |
| Kohat | 49 | 76 | 41 | 1 | 0 | 2 | 0 | 1 | 0 | 0 |
| Kohistan Lower | 309 | 10 | 0 | 1 | 9 | 0 | 0 | 0 | 0 | 1 |
| Kohistan Upper | 553 | 7 | 37 | 50 | 55 | 0 | 0 | 20 | 0 | 1 |
| Kolai Palas | 98 | 2 | 0 | 4 | 6 | 2 | 0 | 6 | 0 | 0 |
| L & C Kurram | 18 | 1 | 61 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| Lakki Marwat | 595 | 211 | 5 | 2 | 16 | 0 | 33 | 5 | 13 | 4 |
| Malakand | 1,141 | 36 | 46 | 37 | 132 | 39 | 0 | 19 | 3 | 9 |
| Mansehra | 846 | 2 | 375 | 20 | 16 | 68 | 0 | 12 | 4 | 1 |
| Mardan | 758 | 23 | 0 | 304 | 26 | 0 | 46 | 11 | 10 | 2 |
| Mohmand | 141 | 188 | 81 | 2 | 30 | 47 | 10 | 10 | 2 | 4 |
| NWA | 27 | 5 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 9 |
| Nowshera | 2,198 | 121 | 0 | 1 | 47 | 2 | 6 | 8 | 8 | 13 |
| Orakzai | 66 | 18 | 21 | 2 | 8 | 6 | 29 | 1 | 0 | 3 |
| Peshawar | 3,832 | 56 | 497 | 60 | 226 | 44 | 8 | 78 | 36 | 45 |
| SD Peshawar | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SD Tank | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Shangla | 528 | 869 | 0 | 9 | 1 | 0 | 46 | 3 | 58 | 5 |
| SWA | 122 | 173 | 177 | 57 | 23 | 108 | 40 | 41 | 0 | 2 |
| Swabi | 1,837 | 73 | 844 | 250 | 19 | 94 | 220 | 16 | 53 | 41 |
| Swat | 2,923 | 42 | 163 | 61 | 117 | 20 | 53 | 24 | 22 | 8 |
| Tank | 361 | 405 | 103 | 3 | 3 | 0 | 2 | 24 | 16 | 21 |
| Tor Ghar | 84 | 164 | 0 | 13 | 26 | 6 | 3 | 14 | 4 | 0 |
| Upper Kurram | 250 | 52 | 341 | 11 | 47 | 430 | 9 | 10 | 2 | 4 |
| Total | 28,455 | 5,858 | 3,825 | 1,515 | 1,425 | 1,001 | 637 | 630 | 476 | 454 |

Figure 4: Most frequently reported suspected cases during week 23, KP



ICT: The most frequently reported cases from Islamabad were ILI followed by AD (Non-Cholera) and B. Diarrhea. ILI, AD (Non-Cholera) and B. Diarrhea showed an increasing trend in cases this week.

AJK: AD (non-cholera) cases were maximum followed by ILI, ALRI <5 years, SARI, dog bite, B. Diarrhea, Malaria, TB, AWD (S. Cholera) and AVH (A & E) cases. Cases of AD (Non-Cholera), ALRI <5 years and SARI showed a decreasing trend while cases of ILI, dog bite, B. Diarrhea, Malaria, TB, AWD (S. Cholera) and AVH (A & E) showed an increasing trend this week. Three cases of AFP and One suspected case of HIV/AIDs reported from AJK. These are suspected cases and need field verification.

GB: AD (non-cholera) cases were the most frequently reported diseases followed by ALRI <5 Years, ILI, AWD (S. Cholera), SARI, B. Diarrhea, TB and Typhoid cases. Increasing trend for AD (Non-Cholera), ALRI <5 Years, AWD (S. Cholera), SARI, B. Diarrhea and Typhoid cases while a decreasing trend for ILI, and TB cases observed this week. Two suspected cases of AFP reported from GB. This needs field verification.

ICT, AJK & GB

Figure 5: Most frequently reported suspected cases during week 23, ICT

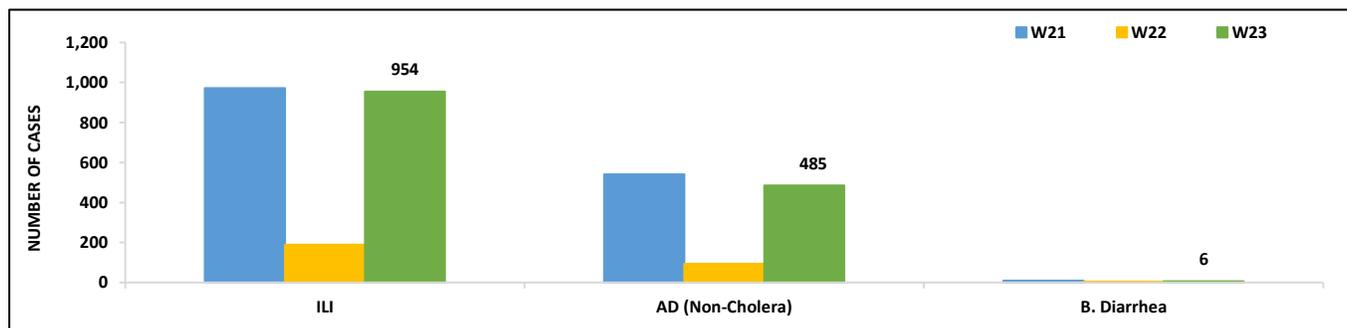


Figure 6: Week wise reported suspected cases of ILI, ICT

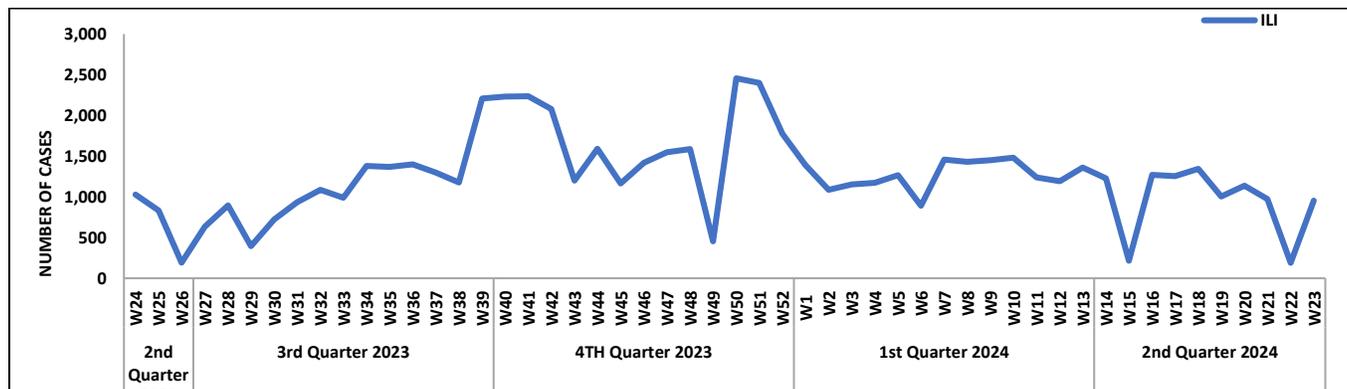


Figure 7: Most frequently reported suspected cases during week 23, AJK

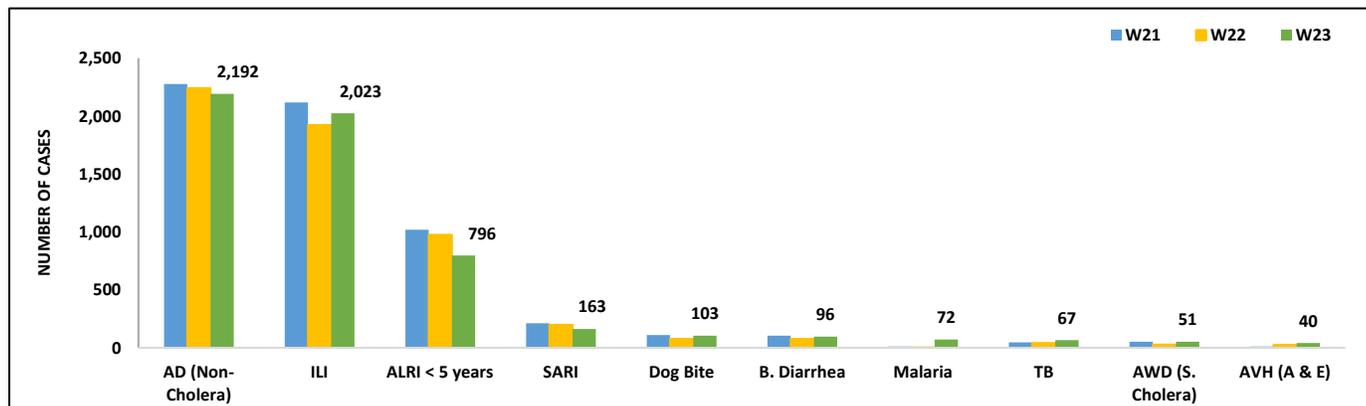


Figure 8: Week wise reported suspected cases of ILI and AD (Non-Cholera) AJK

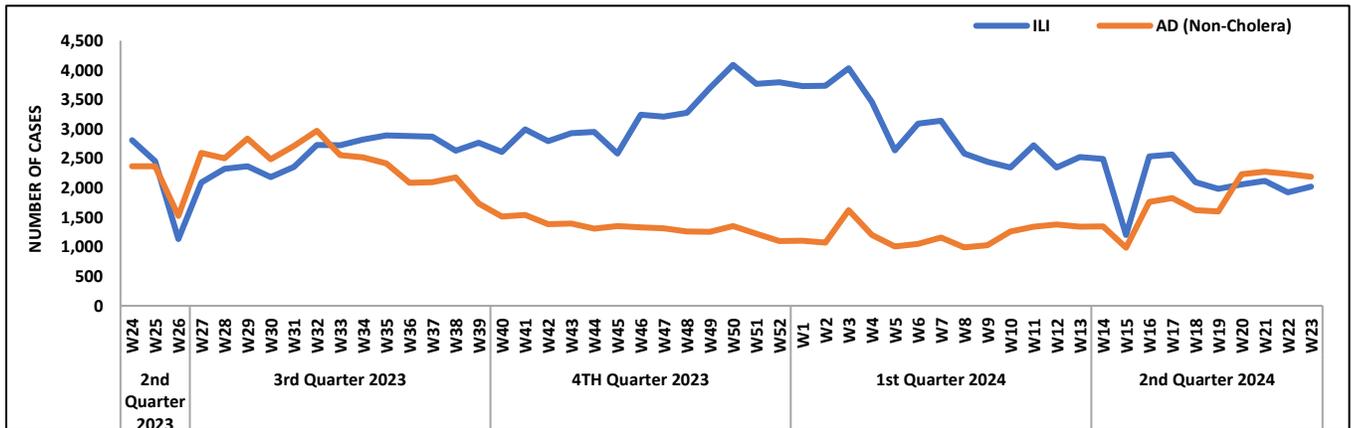


Figure 9: Most frequent cases reported during Week 23, GB

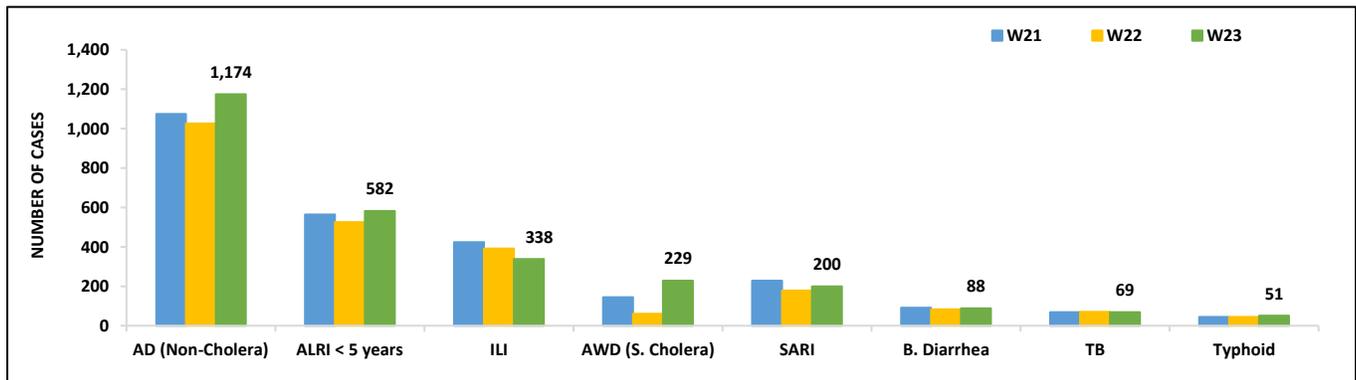
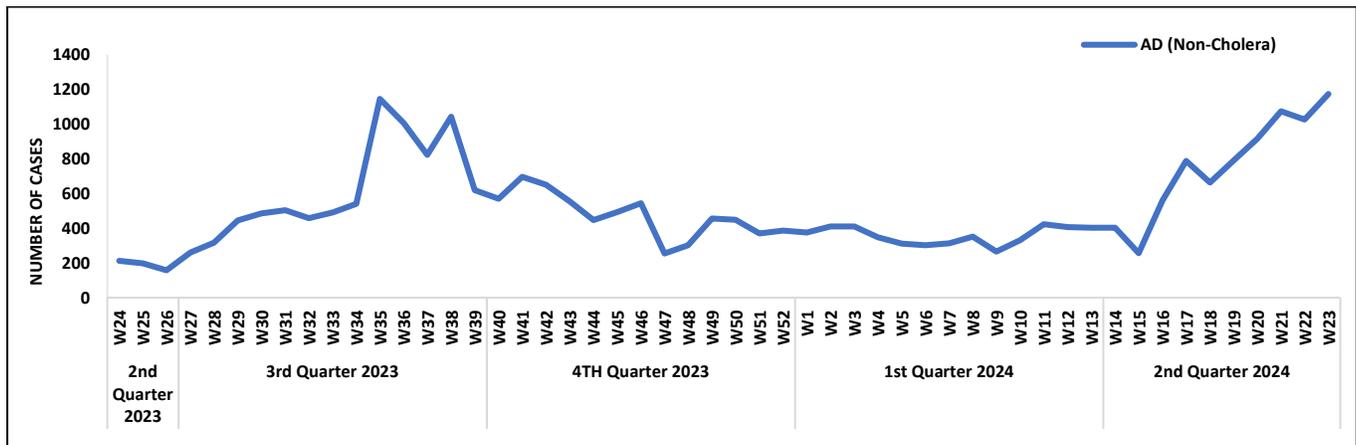


Figure 10: Week wise reported suspected cases of AD (Non-Cholera), GB



- AD (non-cholera) cases were maximum followed by TB, dog bite, Malaria, AWD (S. Cholera), Typhoid, Measles, B. Diarrhea, Dengue and ALRI<5 Years cases.
- AD (Non-Cholera), TB, dog bite and Measles cases showed an increasing trend while AWD (S. Cholera), Typhoid, B. Diarrhea, Dengue and ALRI<5 Years cases showed a decreasing trend this week.
- Six cases of AFP, six suspected cases of HIV/ AIDS, and Two cases of CCHF reported from Punjab. All are suspected cases and need field verification.

Figure 11: Most frequently reported suspected cases during week 23, Punjab.

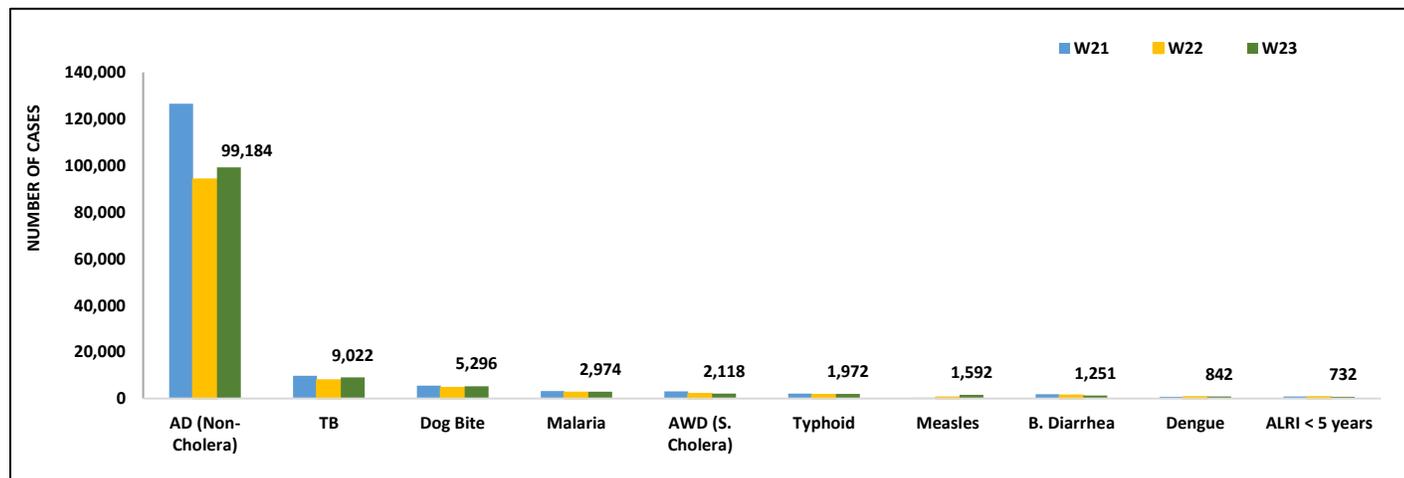


Table 5: Public Health Laboratories confirmed cases of IDSR Priority Diseases during Epid Week 23

| 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) | 10 | 0 | - | - | - | - | - | - | - | - |
| AD (Non-Cholera) | 101 | 0 | - | - | - | - | - | - | - | - |
| Malaria | 3,291 | 152 | - | - | - | - | - | - | - | - |
| CCHF | - | - | 14 | 2* | - | - | - | - | - | - |
| Dengue | 999 | 52 | - | - | - | - | - | - | - | - |
| VH (B) | 3,305 | 333 | 129 | 106 | - | - | - | - | 175 | 2 |
| VH (C) | 3,595 | 288 | 127 | 41 | - | - | - | - | 175 | 0 |
| VH (A&E) | 211 | 0 | - | - | 2 | 0 | - | - | - | - |
| Covid-19 | - | - | 30 | 0 | 1 | 0 | - | - | - | - |
| HIV | 276 | 0 | - | - | - | - | - | - | - | - |
| Diphtheria | - | - | - | - | - | - | - | - | - | - |
| Influenza A | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 1 | 0 | 0 |
| TB | 79 | 0 | - | - | - | - | - | - | - | - |
| Syphilis | 96 | 0 | - | - | - | - | - | - | - | - |
| Pertussis | - | - | - | - | - | - | - | - | - | - |
| Typhoid | 546 | 10 | - | - | - | - | - | - | - | - |

*Reported from PHL Quetta



IDSR Reports Compliance

- Out OF 158 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 23, 2024

| Provinces/Regions | Districts | Total Number of Reporting Sites | Number of Reported Sites for current week | Compliance Rate (%) |
|--------------------|------------------------|---------------------------------|---|---------------------|
| Khyber Pakhtunkhwa | Abbottabad | 111 | 106 | 95% |
| | Bannu | 234 | 128 | 55% |
| | Battagram | 63 | 16 | 25% |
| | Buner | 34 | 29 | 85% |
| | Bajaur | 44 | 24 | 55% |
| | Charsadda | 59 | 53 | 90% |
| | Chitral Upper | 34 | 28 | 82% |
| | Chitral Lower | 35 | 34 | 97% |
| | D.I. Khan | 114 | 107 | 94% |
| | Dir Lower | 74 | 74 | 100% |
| | Dir Upper | 53 | 43 | 81% |
| | Hangu | 22 | 1 | 5% |
| | Haripur | 72 | 69 | 96% |
| | Karak | 35 | 35 | 100% |
| | Khyber | 64 | 14 | 22% |
| | Kohat | 61 | 61 | 100% |
| | Kohistan Lower | 11 | 11 | 100% |
| | Kohistan Upper | 20 | 20 | 100% |
| | Kolai Palas | 10 | 10 | 100% |
| | Lakki Marwat | 70 | 70 | 100% |
| | Lower & Central Kurram | 40 | 3 | 8% |
| | Upper Kurram | 42 | 20 | 48% |
| | Malakand | 42 | 35 | 83% |
| | Mansehra | 136 | 89 | 65% |
| | Mardan | 80 | 75 | 94% |
| | Nowshera | 55 | 51 | 93% |
| | North Waziristan | 380 | 1 | 0% |
| | Peshawar | 151 | 127 | 84% |
| | Shangla | 65 | 12 | 18% |
| | Swabi | 63 | 60 | 95% |
| | Swat | 77 | 69 | 90% |
| | South Waziristan | 134 | 52 | 39% |
| | Tank | 34 | 31 | 91% |
| | Torghar | 14 | 11 | 79% |
| Mohmand | 86 | 39 | 45% | |
| SD Peshawar | 5 | 1 | 20% | |
| SD Tank | 58 | 2 | 3% | |
| Orakzai | 68 | 16 | 24% | |
| | Mirpur | 37 | 37 | 100% |
| | Bhimber | 20 | 20 | 100% |
| | Kotli | 60 | 60 | 100% |
| | Muzaffarabad | 45 | 43 | 96% |



| | | | | |
|-----------------------------|-----------------|----|------|------|
| Azad Jammu Kashmir | Poonch | 46 | 46 | 100% |
| | Haveli | 39 | 39 | 100% |
| | Bagh | 40 | 40 | 100% |
| | Neelum | 39 | 39 | 100% |
| | Jhelum Vellay | 29 | 17 | 59% |
| | Sudhnooti | 27 | 27 | 100% |
| Islamabad Capital Territory | ICT | 21 | 21 | 100% |
| | CDA | 14 | 9 | 64% |
| Balochistan | Gwadar | 25 | 25 | 100% |
| | Kech | 40 | 8 | 20% |
| | Khuzdar | 20 | 20 | 100% |
| | Killa Abdullah | 24 | 19 | 79% |
| | Lasbella | 55 | 55 | 100% |
| | Pishin | 69 | 20 | 29% |
| | Quetta | 43 | 32 | 74% |
| | Sibi | 36 | 32 | 89% |
| | Zhob | 39 | 26 | 67% |
| | Jaffarabad | 16 | 16 | 100% |
| | Naserabad | 32 | 32 | 100% |
| | Kharan | 30 | 30 | 100% |
| | Sherani | 15 | 13 | 87% |
| | Kohlu | 75 | 59 | 79% |
| | Chagi | 35 | 21 | 60% |
| | Kalat | 41 | 40 | 98% |
| | Harnai | 17 | 17 | 100% |
| | Kachhi (Bolan) | 35 | 0 | 0% |
| | Jhal Magsi | 26 | 25 | 96% |
| | Sohbat pur | 25 | 25 | 100% |
| | Surab | 32 | 32 | 100% |
| | Mastung | 45 | 45 | 100% |
| | Loralai | 33 | 23 | 70% |
| | Killa Saifullah | 28 | 26 | 93% |
| | Ziarat | 29 | 20 | 69% |
| | Duki | 31 | 0 | 0% |
| | Nushki | 32 | 29 | 91% |
| | Dera Bugti | 45 | 10 | 22% |
| | Washuk | 46 | 12 | 26% |
| | Panjgur | 38 | 21 | 55% |
| | Awaran | 23 | 7 | 30% |
| | Chaman | 25 | 23 | 92% |
| Barkhan | 20 | 18 | 90% | |
| Hub | 33 | 33 | 100% | |
| Musakhel | 41 | 0 | 0% | |
| Usta Muhammad | 34 | 34 | 100% | |
| Gilgit Baltistan | Hunza | 32 | 30 | 94% |
| | Nagar | 20 | 20 | 100% |
| | Ghizer | 40 | 40 | 100% |
| | Gilgit | 40 | 39 | 98% |



| | | | | |
|-------|---------------------|-----|-----|------|
| | Diamer | 62 | 62 | 100% |
| | Astore | 54 | 53 | 98% |
| | Shigar | 27 | 27 | 100% |
| | Skardu | 52 | 52 | 100% |
| | Ganche | 29 | 29 | 100% |
| | Kharmang | 18 | 18 | 100% |
| Sindh | Hyderabad | 73 | 68 | 93% |
| | Ghotki | 64 | 63 | 98% |
| | Umerkot | 43 | 43 | 100% |
| | Naushahro Feroze | 107 | 62 | 58% |
| | Tharparkar | 282 | 244 | 87% |
| | Shikarpur | 60 | 59 | 98% |
| | Thatta | 52 | 52 | 100% |
| | Larkana | 67 | 67 | 100% |
| | Kamber Shadadkot | 71 | 71 | 100% |
| | Karachi-East | 23 | 17 | 74% |
| | Karachi-West | 20 | 20 | 100% |
| | Karachi-Malir | 37 | 37 | 100% |
| | Karachi-Kemari | 18 | 10 | 56% |
| | Karachi-Central | 11 | 9 | 82% |
| | Karachi-Korangi | 18 | 16 | 89% |
| | Karachi-South | 4 | 4 | 100% |
| | Sujawal | 54 | 33 | 61% |
| | Mirpur Khas | 106 | 104 | 98% |
| | Badin | 124 | 122 | 98% |
| | Sukkur | 63 | 63 | 100% |
| | Dadu | 90 | 90 | 100% |
| | Sanghar | 100 | 100 | 100% |
| | Jacobabad | 44 | 44 | 100% |
| | Khairpur | 169 | 165 | 98% |
| | Kashmore | 59 | 59 | 100% |
| | Matiari | 42 | 42 | 100% |
| | Jamshoro | 69 | 69 | 100% |
| | Tando Allahyar | 54 | 54 | 100% |
| | Tando Muhammad Khan | 40 | 40 | 100% |
| | Shaheed Benazirabad | 122 | 122 | 100% |



Pakistan Strengthens Public Health System with Rapid Response Team Training on Monitoring, Evaluation, and Learning (MEL)

In a significant development for Pakistan's public health sector, a collaborative effort between the National Institute of Health (NIH), the Ministry of National Health Services Regulation and Coordination (NHSR&C), and the World Health Organization (WHO) successfully concluded a Rapid Response Team Training on Monitoring, Evaluation, and Learning (MEL) in Islamabad. This intensive training program wasn't just about lectures; it aimed to equip participants with the essential tools to become effective public health champions.

The focus on MEL provided participants with critical skills. They learned to meticulously track the progress of public health interventions, analyse health data with a detective's keen eye, and utilize these insights to refine programs with laser focus.

This newfound expertise empowers health professionals to make data-driven decisions, move away from guesswork, and optimize resource allocation for maximum impact. Ultimately, this training has the potential to significantly improve health outcomes for the Pakistani population, marking a turning point for the nation's public health system.

A note from Field Activities.

Malaria Outbreak Investigation Report at THQ Hospital Puran, District Shangla, 2024

Salahudin Khan Marwat, Entomologist
Muhammad Ajmal Khan, Entomologist
Dr. Sohail Farooqi, FETP Alumnus
Dr. Majid Salim, TSO, PDSRSU KP

Background and Significance

Malaria, a mosquito-borne parasitic infection caused by Plasmodium species, is a major global public health concern. Pakistan experiences both Plasmodium vivax (dominant) and Plasmodium falciparum malaria. Children under five and pregnant women are particularly vulnerable. Risk factors include socioeconomic conditions, population movement, inadequate vector control, and limited preventive practices like insecticide-treated bed nets (LLINs), indoor residual spraying (IRS), and community education initiatives.

Outbreak Alert

On March 13, 2024, THQ Hospital Puran reported a significant increase in malaria cases to the provincial health authorities. An analysis of data from the past five years revealed a doubling of cases, exceeding established thresholds and prompting a full investigation. A team led by Dr. Majid Salim, TSO, PDSRSU KP, was formed to investigate the outbreak alert. The team comprised provincial and district members.

Objectives

This investigation aimed to achieve the following objectives:

- To Verify the accuracy of malaria case data reported in the DHIS-2 (District Health Information System 2) platform.
- To Conduct an epidemiological investigation to understand the outbreak's scope, characteristics, and potential causes.



- To Perform an entomological investigation to assess mosquito populations and potential breeding sites.
- To Evaluate adherence to national guidelines for malaria treatment.
- To Assess the quality assurance procedures for malaria microscopy slides.

METHODS

To gain a comprehensive understanding of the Shangla District malaria outbreak, a descriptive cross-sectional study was employed. Delving into the past five years, a comprehensive analysis of reported malaria cases was undertaken to identify trends and potential risk factors that might have fuelled the outbreak. High-burden areas, known as hotspots, were pinpointed within the catchment population, and actively searching for malaria cases within the catchment area.

To identify the specific mosquito species transmitting the disease and their breeding grounds, targeted investigations were conducted. This entailed collecting and analysing mosquito samples, alongside inspections of potential breeding sites for stagnant water.

The accuracy of malaria diagnosis using microscopy was also evaluated. This involved reviewing slides from confirmed cases or conducting proficiency testing of laboratory personnel to ensure adherence to proper diagnostic practices.

An assessment of essential supplies at healthcare facilities was conducted. This included checking the availability of critical supplies like antimalarial medications, rapid diagnostic tests (RDTs), and Long-Lasting Insecticide Nets (LLINs) to ensure adequate stock levels.

Finally, the adherence to prescribed malaria treatment regimens within the community was evaluated. This involved interviewing patients or reviewing pharmacy records to determine if individuals were completing their full course of medication.

To facilitate data collection activities, particularly during active surveillance and treatment compliance monitoring, collaboration was established with the District Health Officer (DHO) and their team.

RESULTS:

In April 2024, a significant malaria outbreak emerged in the region, with a total of 844 cases reported. This surge affected both males (470) and females (374) with a male-to-female ratio of 1.25:1, suggesting a slightly higher prevalence among males. The mean age of infected individuals was 34 years, SD \pm 5.2 years, indicating cases across various age groups. Notably, 66 cases (nearly 8%) involved children under 15 years old. A review of daily malaria suspect logs (FM-1 registers) and consultations with field personnel (FP) identified seven high-burden areas within the catchment area.

Health Facility Situation

The investigation team visited THQ Hospital Puran. Mr. Javed Khan, the Malaria Focal Person, was present. The following key issues were identified:

- **Treatment:** Tab. Primaquine (PQ), essential for preventing relapses in vivax malaria, was not prescribed due to doctor hesitancy and lack of G6PD test kits.
- **Microscopy:** RDTs were used instead of microscopy for diagnosis. Used RDTs were unavailable for quality assurance.
- **Hospital admissions:** PV patients were admitted without severe complications and treated with non-artemisinin combination therapies (ACTs) instead of the available AMDs (antimalarial drugs).

Entomological Investigation

The investigation focused on larval breeding sites and adult mosquito collection in KayKor, a hotspot area.

- **Larval breeding sites:** Suitable breeding sites for Anopheles mosquitoes were identified, including slow-running water channels, ponds, and rice fields with inadequate drainage.
- **Adult mosquito collection:** Pyrethrum spray sheet collection was used to collect adult mosquitoes. The species identified were Anopheles stephensi, Anopheles culicifacies, and female Anopheles spp.



Treatment Compliance

A major finding was the lack of treatment compliance with National Treatment Guidelines. Tab. PQ was not prescribed by doctors, leading to a high number of relapse cases. Community members also expressed hesitancy towards PQ due to misconceptions about its side effects.

LLINs Coverage

No mass LLIN distribution campaigns had been conducted in Shangla. ANC LLINs were distributed in hotspot areas, but utilization was negligible.

Conclusion

The investigation identified several factors contributing to the malaria outbreak in Shangla District. Incomplete treatment due to under-prescription of Primaquine (PQ) and community misconceptions surrounding its safety led to a high number of relapse cases. Additionally, non-functional microscopy and limited record-keeping of rapid diagnostic tests (RDTs) hampered accurate diagnosis. Mosquito breeding grounds were abundant, but the density seemed lower than expected, suggesting potential under-reporting or misdiagnosis. Finally, insufficient use of Long-Lasting Insecticide Nets (LLINs) and negligible social behavior change communication (SBCC) activities in high-burden areas contributed to the outbreak's spread.

Recommendations

- **Mass Drug Administration (MDA):** Conduct MDA campaigns in hotspot villages using RDTs or microscopy to eliminate malaria parasites from the population and reduce relapses.
- **Indoor Residual Spraying (IRS):** Implement IRS to protect vulnerable populations and respond to the outbreak as per protocol.
- **Integrated Community Case Management (iCCM):** Expand the iCCM program to Shangla district's scattered communities. This would provide prompt treatment at doorsteps and reduce reliance on potentially unqualified quacks, similar to programs in D.I. Khan and Nowshera.

- **Focused BCC Campaigns:** Organize targeted BCC sessions to address community misconceptions and dispel myths about Primaquine.
- **National Treatment Guideline (NTG) Adherence:** Issue a letter to the DHO and MS of THQ Pura emphasizing strict adherence to NTGs for malaria treatment.
- **Improved Laboratory Facilities:** Separate the malaria laboratory from the general lab to reduce workload. Repair or replace the non-functional microscope to ensure proper diagnosis.

Measles Outbreak Response Immunization and Investigation Report UC No. CTR 10, Rawalpindi, May 2024.

Mr. Muhammad Nadeem
District Superintendent Vaccination
DHA, Rawalpindi

Introduction:

Three laboratory-confirmed measles cases were reported within a week in UC No. CTR 10, Rawalpindi, signifying a potential measles outbreak in the area. This prompted an immediate investigation and public health response.

Investigation:

Data on the confirmed cases, including vaccination history and contact tracing, were analysed to assess the outbreak's scope and determine the source of infection. The investigation revealed:

- Two male children above 15 months lacked complete vaccination records (EPI cards). One reportedly received two Measles-Rubella (MR) vaccine doses, while the other received one dose according to their parents.
- The third child, female at 13 months old, had received one documented MR vaccine dose.

All three cases had contact with each other, suggesting a common source of infection. No additional cases were identified during the investigation.



Public Health Response:

To effectively contain the outbreak, a rapid response immunization campaign was conducted in UC No. CTR 10 from May 8th to 13th, 2024. The campaign targeted children aged 6 months to 59 months across residential and urban areas.

- Target population: 6,423 children
- Achieved coverage: 93% (5,952 children vaccinated with MR vaccine)

No additional Vaccine Preventable Disease (VPD) cases (AFP/Diphtheria/Pertussis) or adverse reactions (AEFI) were reported during the campaign.

Conclusion:

The prompt investigation and high-coverage immunization campaign effectively contained the measles outbreak in UC No. CTR 10. No new cases were identified following the campaign.

Recommendations:

- Continued surveillance for any new measles cases.
- Increased efforts to promote measles vaccination coverage within the community.
- Community education campaigns to raise awareness about the importance of measles vaccination.

Knowledge Hub

Acute Watery Diarrhea (AWD) in Pakistan: A Deeper Look.

Public Health Threat

Acute Watery Diarrhea (AWD) is a significant public health burden in Pakistan, particularly impacting children under five. Characterized by frequent, watery stools lasting several days, AWD leads to dehydration, a life-threatening condition if left untreated.

Etiological Agents:

- **Viral:** Rotavirus reigns supreme as the most common culprit of AWD in Pakistani children, mirroring the global trend.

- **Bacterial:** Bacterial foes like *E. coli*, *Vibrio cholerae* (causing cholera), *Shigella*, and *Salmonella* frequently contribute to AWD.
- **Parasitic:** *Giardia lamblia* and *Cryptosporidium*, unwelcome intestinal parasites, can also induce AWD.

Transmission Highways:

- **Contaminated water and food:** Ingesting water or food harbouring these pathogens is the primary route of transmission. Contaminated sources like untreated surface water, improperly stored food, and inadequate food hygiene practices create a breeding ground for AWD.
- **Poor sanitation and hygiene:** Limited access to proper sanitation facilities and inadequate handwashing practices significantly contribute to AWD spread.

Vulnerable Populations:

- **Children under five:** Immature immune systems and less-developed hygiene practices make young children particularly susceptible to AWD.
- **Poor communities:** Limited access to clean water, sanitation, and hygiene facilities puts these communities at higher risk.
- **Post-disaster settings:** Floods and natural disasters often disrupt water supplies and sanitation infrastructure, creating ideal conditions for AWD outbreaks.
- **Travelers:** Unfamiliar food and water sources can increase the risk of AWD for travellers visiting Pakistan.

Clinical Presentation:

- **Intestinal distress:** Frequent passage of loose or watery stools (more than three times a day) is the hallmark symptom.
- **Abdominal discomfort:** Cramping and abdominal pain can accompany the diarrhea.
- **Nausea and vomiting:** These symptoms may further exacerbate dehydration.
- **Fever:** While not always present, fever can be a sign of AWD.



- **Dehydration signs:** Thirst, dry mouth, decreased urination, sunken eyes, and lethargy indicate dehydration, a dangerous complication of AWD.

Treatment Strategies:

- **Oral Rehydration Solution (ORS):** The cornerstone of AWD treatment, ORS replenishes lost fluids and electrolytes, preventing dehydration and promoting recovery.
- **Zinc supplementation:** Recommended by the World Health Organization (WHO) for children with AWD, zinc shortens illness duration and improves recovery.
- **Antibiotics:** While not a first-line treatment, antibiotics may be prescribed for specific bacterial infections but are not routinely used for viral AWD.
- **Intravenous fluids:** In severe cases of dehydration, intravenous fluids are necessary to rapidly restore hydration.

Prevention is Key:

- **Improved water, sanitation, and hygiene (WASH) infrastructure:** Providing access to clean water, sanitation facilities, and promoting proper handwashing practices are fundamental for long-term AWD reduction.
- **Vaccination:** The inclusion of the rotavirus vaccine in Pakistan's Expanded Program on Immunization (EPI) offers crucial protection against a leading cause of AWD in children.
- **Safe food handling practices:** Proper food storage, preparation, and cooking techniques can prevent contamination of food items.
- **Waste management:** Adequate disposal of human waste is essential to prevent contamination of water sources and the spread of AWD.
- **Community education:** Raising awareness about AWD causes, prevention methods, and the importance of seeking medical attention is critical for behaviour change and preventing outbreaks.

Challenges and the Road Ahead:

Pakistan faces significant challenges in addressing AWD due to limited access to clean water and sanitation facilities, particularly in rural areas. Continued efforts are needed to improve infrastructure, strengthen public health education, and expand vaccination programs. By addressing these challenges, Pakistan can effectively control AWD and protect its population, especially children, from this preventable disease.



Subject Advisory for the Prevention and Control of Measles

Introduction:

Measles, also known as rubeola, is a highly contagious air-borne viral infectious disease primarily of upper respiratory tract but can infect other systems if complicated. The infection may occur at any age but children less than 15 years of age especially non-immunized are more vulnerable to contract the infection.

Epidemiology:

Measles is an entirely human disease caused by a virus that belongs to the Paramyxovirus family, genus Morbillivirus. It is one of the oldest human infections but since the development of an effective Measles vaccine in 1963, transmission of measles has drastically decreased, still it remains an important cause of global mortality and morbidity accounting for about 100,000 deaths annually. Pakistan like other Asian countries is endemic to measles and it is included as national priority disease. Peak season for measles infection starts from late October to May.

Objectives:

The objective of this advisory is to sensitize the health care providers and other relevant stakeholders on the management of measles and role of preventing measures in containing the transmission of this highly contagious disease.

Transmission:

Measles may be transmitted from 4 days before to 4 days after rash onset. It transmits via respiratory droplets/aerosols in closed areas or by direct contact with the nasal and throat secretions of infected persons. Risk factors for contracting measles infection include poor socio-economic conditions, overcrowding, and travel to endemic areas of measles or contact with measles cases.

Clinical Presentation:

Incubation period ranges from 7-21 days after exposure to the virus. Prodromal phase lasts 2-4 days (range 1-7 days) characterized by fever followed by the 3 Cs i.e. cough, coryza (runny nose) or conjunctivitis. Measles rash is a maculopapular eruption that usually lasts 5-6 days. It begins at the hairline behind the neck, and then involves the face and upper neck. During the next 3 days, the rash gradually proceeds downward and outward, reaching the hands and feet.

Koplik's spots are considered to be pathognomonic for measles. It occurs 1-2 days before the rash to 1-2 days after the rash and appears as punctate blue-white spots on the bright red background of the buccal mucosa opposite the 1 and 2 lower molars. Measles can cause serious complications in malnourished children, people with compromised

Complications:

Measles can cause serious complications in malnourished children, people with compromised immunity and pregnant women. Complications include pneumonia, otitis media, diarrhea, dehydration. Otitis may lead to hearing loss. Pregnant women with measles are at increased risk for maternal death, premature labor, spontaneous abortion, intrauterine fetal death and low birth weight infants. Measles keratoconjunctivitis occurs mostly in children with vitamin A deficiency and can lead to blindness may occur. Encephalitis may occur in 1 out of every 1000 infected children manifesting with seizures and progressive loss of cognitive and motor function. 1-2 of all infected children will die of neurologic or respiratory complications from measles

Specimen collection:

- Collect throat swab (nasopharyngeal) for virus isolation and genotyping preserved in VTM
- Collect 5 ml blood, centrifuged for serum separation at 3000 rpm for 5 minutes. If centrifugation is not possible blood should be kept in refrigerator until there is complete retraction of the clot from the serum. Carefully remove the serum and transfer aseptically to a sterile labelled vial

Timings:

- 5 samples should be taken from fresh cases, less than 5 days from rash onset, in documented outbreaks
- Real-Time Polymerase chain Reaction (RT-PCR): 1-3 days after appearance of rash
 - Measles specific IgM: 3 days after appearance of rash

Storage and transportation:

Store serum at 4-8 degrees for not more than 48 hours. Do not freeze the whole blood. Transport the specimens with complete request form maintaining cold chain.

Laboratory Confirmation: is achieved by means of the following

- Serologic testing for measles specific IgM antibodies
- Reverse transcriptase polymerase chain reaction (RT-PCR) evaluation

Case Definition:

Immediately reporting any suspected case of measles to a local or state health department is imperative.

- **Suspected case:** Any person in whom clinician suspects measles infection or any person with fever, maculopapular rash (non-vesicular), cough, conjunctivitis and coryza
- **Probable:** Any person with history of fever, rash and linked with a confirmed case of measles.
- **Confirmed:** Suspected or probable case confirmed through detection of Measles RNA virus through PCR or Measles specific IgM

Management:

- There is no specific anti-viral therapy for measles treatment is essentially supportive and most people recover within 2-3 weeks. Supportive management includes control of fever, prevention and correction of dehydration, and infection control measures including appropriate isolation.
- Any complicated case should be referred to tertiary care settings for further management.
- All children 6-months to 5 years of age should also receive prophylactic vitamin-A in two doses given 24 hours apart. Vitamin A supplementation is 50,000 IU in younger than 6-month-old, 100,000 IU in 6-11 months old, 200,000 IU in older than 1 year.
- For children with ophthalmologic evidence of vitamin A deficiency, doses should be repeated administered on day 2 and day 28.
- Ensure adequate nutrition and liquids.

Prevention and control measures.

Measles is an easily preventable infection through 2 doses of safe, inexpensive and effective measles vaccine. The vaccine is a live attenuated measles strain that is used either as a single component or as a combination vaccine (MMR, MMR-V). Measles routine immunization first dose is given at 9 months and second at 15 months of age. During a measles campaign, priority is to immunize children 9 months to 5 years old, regardless of vaccination status or history of disease.

Post Exposure Prophylaxis:

- Live measles vaccine provides permanent protection and may also prevent disease if given within 72 hours of exposure.
- If available, Immunoglobulin (IG) may prevent or modify disease and provide temporary protection once given within 6 days of exposure. The dose is 0.5 ml/kg body weight, with a maximum of 15ml intramuscularly and the recommended dose of IG given intravenously is 400mg/kg. IG may be specially indicated for susceptible household contacts of measles patients, particularly contacts younger than 1 year of age. IG should not be used to control measles outbreaks.
- If the child is 12 months or older, live measles vaccine should be given about 5 months later when the passive measles antibodies have waned away.

Infection Control:

- Keeping in view the various routes of transmission, contact, droplet and aerosol precautions are recommended along with standard precautions.
- Health care providers should follow respiratory etiquette and airborne precautions should be adopted in healthcare settings.
- Similar measures need to be adapted by the care givers of the patients.

For any further assistance in this context, the CDC (051-9255237 and Fax No. 051-9255099) and Virology Department of Public Health Laboratories Division (051-9255082), NIH may be contacted.



PUBLIC HEALTH BULLETIN



Eid

MUBARAK

May this joyous occasion bring you and your loved ones blessings, good health, and enduring happiness.

From the team at PHB Pakistan

