PUBLIC HEALTH BULLETIN-PAKISTAN

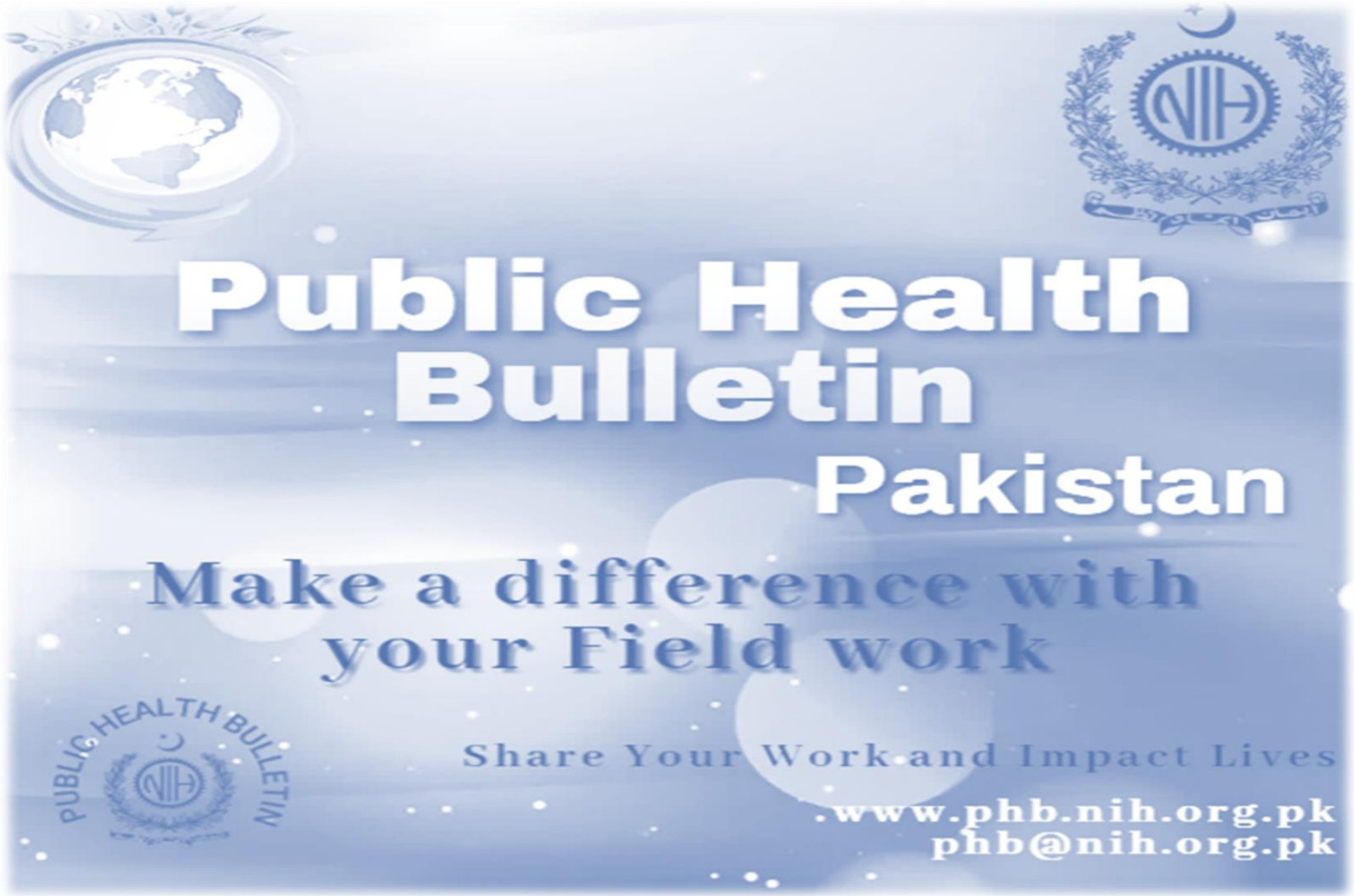
Vol. 4 | Week 32
04th Aug – 11th August
20th August, 2024

# 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 32, 2024**

Evolving from a basic disease registry, Pakistan's Public Health Bulletin has become an indispensable tool for safeguarding public health. By meticulously tracking disease trends, the Bulletin serves as an early warning system, enabling timely interventions to prevent outbreaks.

Beyond data compilation, this week's bulletin also includes an update on the Antimicrobial Resistance (AMR) national action plan, information on Mpox as a Public Health Emergency of International Concern and Pakistan's response, a comparison of chickenpox and Mpox, and a knowledge review on Viral Monkeypox Disease.

Stay well-informed about public health matters. Subscribe to the Weekly Bulletin today! By equipping everyone with knowledge, the Public Health Bulletin empowers Pakistanis to build a healthier nation.

Sincerely,
The Chief Editor

- *During week 32, 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).*
- *Twenty-two cases of AFP reported from KP, eleven from Sindh, nine from Punjab, six from AJK and one from Balochistan. All are suspected cases and need field verification.*
- *Nine suspected cases of HIV/ AIDS reported from Sindh, four from KP and one from GB. Field investigation required to verify the cases.*
- *Thirty-one suspected cases of Brucellosis reported from KP. Field investigation required to verify the cases.*
- *One suspected case of CCHF reported from Punjab. Field investigation required to verify the case.*
- *There is an increasing trend observed for AD (Non-cholera), Malaria, ILI, TB, ALRI <5 years, B. Diarrhea, dog bite and Typhoid cases this week.*

## *IDSR compliance attributes*

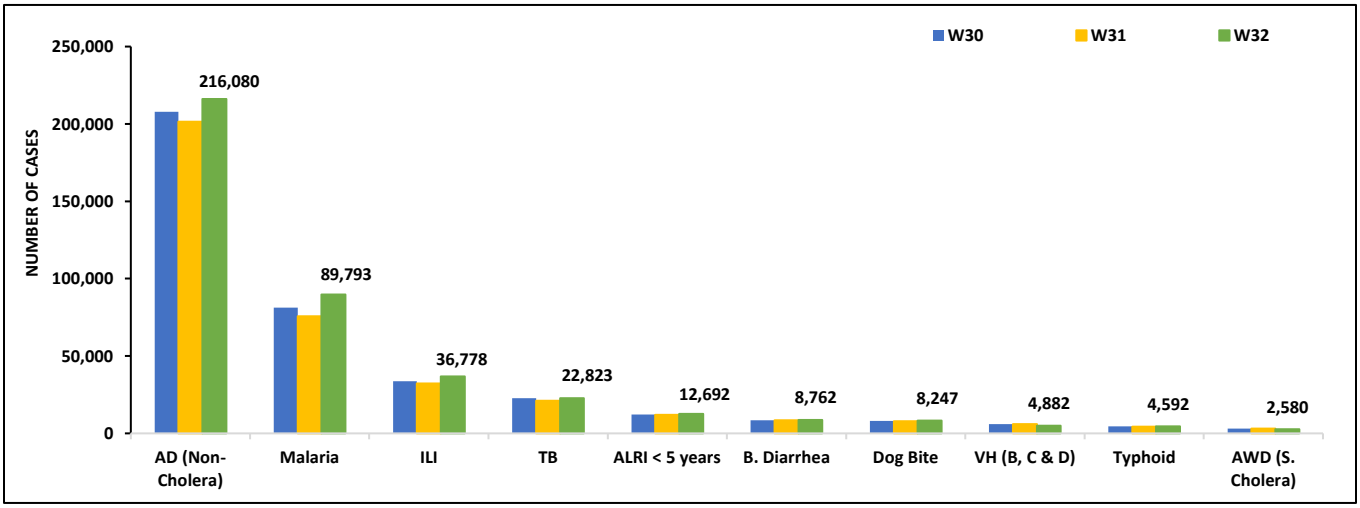
- *The national compliance rate for IDSR reporting in 158 implemented districts* is 81%
- *Gilgit Baltistan and AJK are the top reporting regions with a compliance rate of 100% and 98%, followed by Sindh 94% and ICT 74%*
- *The lowest compliance rate was observed in Balochistan.*

| *Region* | Expected Reports | Received Reports | Compliance (%) |
|---|---|---|---|
| ***Khyber Pakhtunkhwa*** | *2348* | *1656* | *71* |
| ***Azad Jammu Kashmir*** | *381* | *374* | *98* |
| ***Islamabad Capital Territory*** | *35* | *26* | *74* |
| ***Balochistan*** | *1206* | *792* | *66* |
| ***Gilgit Baltistan*** | *374* | *374* | *100* |
| ***Sindh*** | *2085* | *1959* | *94* |
| ***National*** | *6429* | *5181* | *81* |

***Table 1: Province/Area wise distribution of most frequently reported suspected cases during week 32, Pakistan.***

| Diseases | AJK | Balochistan | GB | ICT | KP | Punjab | Sindh | Total |
|---|---|---|---|---|---|---|---|---|
| AD (Non-Cholera) | 2,890 | 6,710 | 3,525 | 518 | 34,960 | 106,409 | 61,068 | 216,080 |
| Malaria | 45 | 4,389 | 0 | 1 | 7,452 | 3,172 | 74,734 | 89,793 |
| ILI | 1,247 | 4,620 | 317 | 977 | 3,112 | 3 | 26,502 | 36,778 |
| TB | 51 | 99 | 102 | 13 | 436 | 10,294 | 11,828 | 22,823 |
| ALRI < 5 years | 874 | 1,104 | 556 | 3 | 1,435 | 634 | 8,086 | 12,692 |
| B.Diarrhea | 121 | 1,402 | 180 | 8 | 1,633 | 972 | 4,446 | 8,762 |
| Dog Bite | 69 | 99 | 8 | 0 | 582 | 5,438 | 2,051 | 8,247 |
| VH (B, C & D) | 9 | 67 | 1 | 1 | 150 | 0 | 4,654 | 4,882 |
| Typhoid | 27 | 632 | 116 | 0 | 757 | 2,069 | 991 | 4,592 |
| AWD (S. Cholera) | 105 | 151 | 149 | 0 | 147 | 2,001 | 27 | 2,580 |
| SARI | 190 | 448 | 218 | 0 | 1,275 | 1 | 146 | 2,278 |
| AVH (A&E) | 25 | 34 | 0 | 0 | 332 | 0 | 881 | 1,272 |
| Dengue | 0 | 0 | 0 | 0 | 18 | 1,121 | 67 | 1,206 |
| Measles | 20 | 9 | 2 | 0 | 260 | 351 | 32 | 674 |
| CL | 2 | 69 | 0 | 0 | 261 | 1 | 0 | 333 |
| Mumps | 5 | 36 | 10 | 0 | 61 | 0 | 139 | 251 |
| Meningitis | 0 | 0 | 0 | 0 | 3 | 16 | 204 | 223 |
| Chickenpox/ Varicella | 9 | 2 | 8 | 0 | 96 | 15 | 43 | 173 |
| Gonorrhea | 0 | 87 | 0 | 0 | 18 | 0 | 26 | 131 |
| Chikungunya | 0 | 2 | 0 | 0 | 0 | 0 | 101 | 103 |
| AFP | 6 | 1 | 0 | 0 | 22 | 9 | 11 | 49 |
| Pertussis | 0 | 24 | 0 | 0 | 7 | 0 | 0 | 31 |
| Brucellosis | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 31 |
| HIV/AIDS | 0 | 0 | 1 | 0 | 4 | 0 | 9 | 14 |
| Syphilis | 0 | 1 | 0 | 0 | 0 | 0 | 9 | 10 |
| NT | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 6 |
| Diphtheria (Probable) | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 4 |
| VL | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 3 |
| CCHF | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |

***Figure 1: Most frequently reported suspected cases during week 32, Pakistan.***



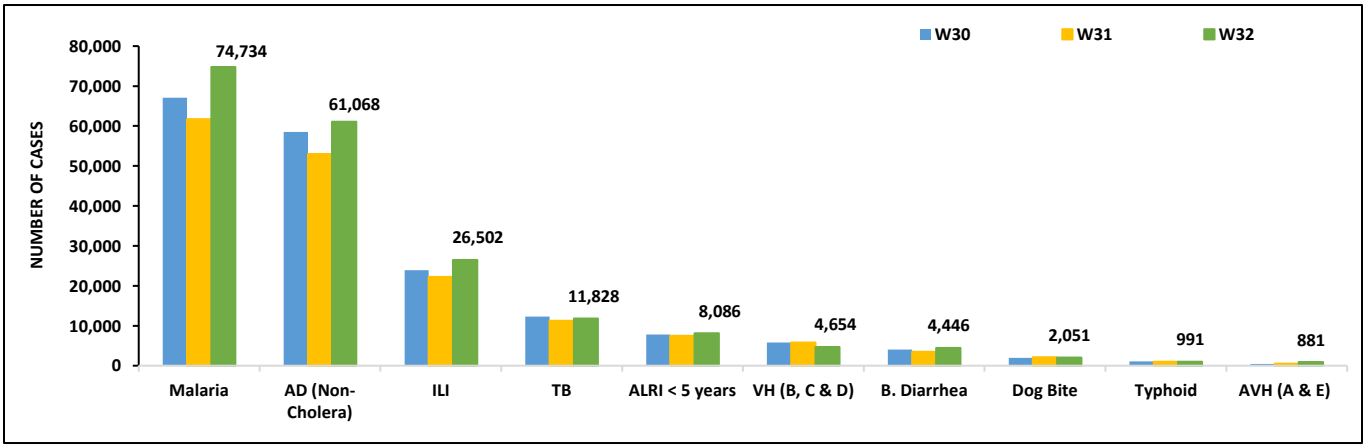
## Sindh

- 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 Badin, Larkana and Khairpur whereas AD (Non-Cholera) cases are from Badin, Thatta and Mirpurkhas.
- Eight cases of AFP, six cases of HIV/ AIDS and Two suspected cases of Brucellosis reported from Sindh All are suspected cases and need field verification.
- There is a decreasing trend observed for Malaria, AD (Non-Cholera), ILI, TB, ALRI<5 Years, VH (B, C, D), B. Diarrhea and Typhoid cases this week.

***Table 2: District wise distribution of most frequently reported suspected cases during week 32, Sindh***

| Districts | Malaria | AD (Non-Cholera) | ILI | TB | ALRI < 5 years | VH (B, C & D) | B. Diarrhea | Dog Bite | Typhoid | AVH (A&E) |
|---|---|---|---|---|---|---|---|---|---|---|
| Badin | 7,188 | 4,910 | 683 | 911 | 519 | 252 | 336 | 85 | 64 | 15 |
| Dadu | 4,205 | 2,980 | 157 | 410 | 645 | 27 | 470 | 140 | 113 | 26 |
| Ghotki | 1,891 | 1,651 | 0 | 258 | 354 | 409 | 124 | 222 | 0 | 5 |
| Hyderabad | 280 | 2,510 | 2,280 | 96 | 114 | 39 | 3 | 0 | 16 | 0 |
| Jacobabad | 627 | 802 | 405 | 130 | 294 | 110 | 104 | 127 | 42 | 0 |
| Jamshoro | 1,633 | 1,291 | 2 | 387 | 168 | 196 | 76 | 14 | 21 | 3 |
| Kamber | 4,999 | 2,460 | 0 | 806 | 247 | 170 | 234 | 198 | 14 | 0 |
| Karachi Central | 10 | 1,264 | 1,038 | 301 | 21 | 7 | 40 | 29 | 48 | 2 |
| Karachi East | 63 | 522 | 203 | 8 | 11 | 1 | 11 | 7 | 2 | 0 |
| Karachi Keamari | 5 | 338 | 128 | 0 | 34 | 0 | 0 | 0 | 6 | 9 |
| Karachi Korangi | 41 | 419 | 8 | 3 | 0 | 0 | 4 | 0 | 0 | 3 |
| Karachi Malir | 428 | 2,176 | 3,074 | 167 | 261 | 82 | 91 | 38 | 36 | 3 |
| Karachi South | 37 | 100 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Karachi West | 167 | 988 | 1,515 | 145 | 236 | 126 | 61 | 69 | 23 | 12 |
| Kashmore | 1,771 | 635 | 295 | 264 | 141 | 21 | 82 | 188 | 6 | 0 |
| Khairpur | 5,167 | 3,045 | 4,536 | 972 | 891 | 260 | 480 | 195 | 239 | 11 |
| Larkana | 7,467 | 2,833 | 1 | 909 | 200 | 128 | 445 | 15 | 27 | 2 |
| Matiari | 2,167 | 2,110 | 9 | 586 | 265 | 417 | 96 | 41 | 6 | 4 |
| Mirpurkhas | 5,144 | 4,159 | 3,840 | 740 | 509 | 59 | 151 | 39 | 20 | 89 |
| Naushero Feroze | 1,846 | 1,425 | 944 | 340 | 303 | 26 | 116 | 153 | 86 | 19 |
| Sanghar | 3,920 | 1,699 | 2 | 1028 | 360 | 606 | 56 | 175 | 19 | 1 |
| Shaheed Benazirabad | 2,050 | 2,273 | 12 | 404 | 171 | 79 | 97 | 105 | 89 | 4 |
| Shikarpur | 2,651 | 1,496 | 2 | 230 | 153 | 800 | 178 | 36 | 3 | 0 |
| Sujawal | 3,786 | 2,514 | 0 | 122 | 156 | 0 | 142 | 0 | 0 | 71 |
| Sukkur | 2,686 | 1,432 | 1,245 | 499 | 271 | 106 | 253 | 19 | 5 | 0 |
| Tando Allahyar | 2,650 | 2,413 | 799 | 715 | 227 | 394 | 235 | 62 | 15 | 4 |
| Tando Muhammad Khan | 3,053 | 1,925 | 0 | 480 | 116 | 22 | 153 | 0 | 0 | 0 |
| Tharparkar | 3,649 | 3,550 | 1,797 | 424 | 584 | 176 | 216 | 0 | 41 | 51 |
| Thatta | 2,798 | 4,211 | 3,526 | 36 | 429 | 100 | 116 | 94 | 13 | 539 |
| Umerkot | 2,355 | 2,937 | 0 | 457 | 406 | 41 | 76 | 0 | 37 | 8 |
| Total | 74,734 | 61,068 | 26,502 | 11,828 | 8,086 | 4,654 | 4,446 | 2,051 | 991 | 881 |

***Figure 2: Most frequently reported suspected cases during week 32 Sindh***



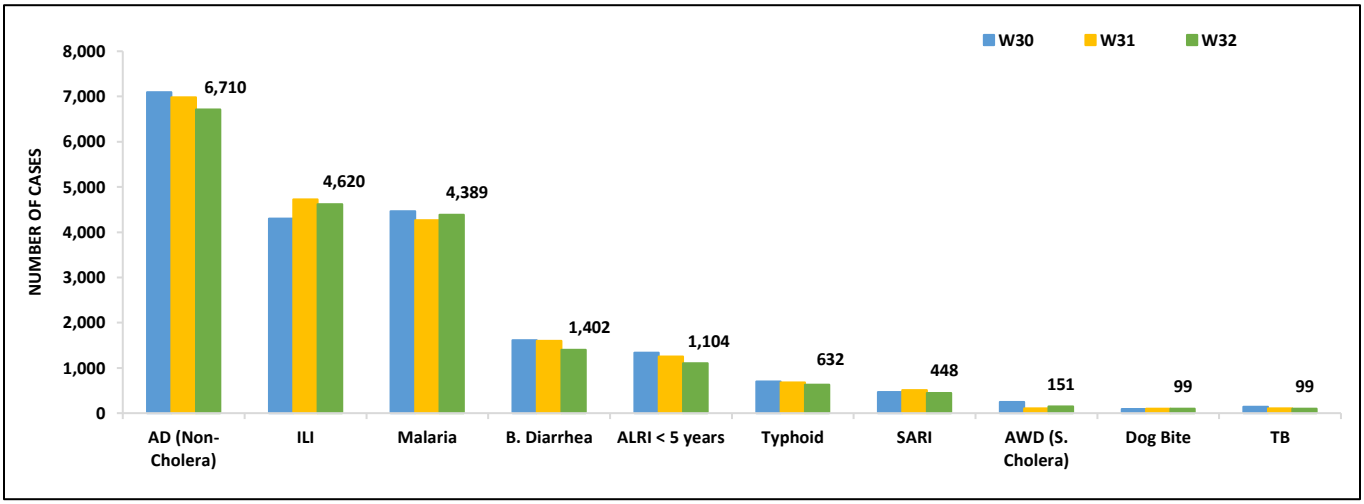
# Balochistan

- AD (Non-Cholera), ILI, Malaria, B. Diarrhea, ALRI <5 years, Typhoid, SARI, AWD (S. Cholera), dog bite and TB cases were the most frequently reported diseases from Balochistan province.
- AD (Non-Cholera) cases are mostly reported from Usta Muhammad, Quetta and Lasbella while ILI cases are mostly reported from Quetta, Khuzdar and Kohlu.
- AD (Non-Cholera), ILI, B. Diarrhea, ALRI <5 years, Typhoid, SARI and TB cases showed a decreasing trend this week.
- One suspected case of AFP reported from Balochistan. It needs field verification.

***Table 3: District wise distribution of most frequently reported suspected cases during week 32, Balochistan***

| Districts | AD Non-Cholera) | ILI | Malaria | B. Diarrhea | ALRI < 5 years | Typhoid | SARI | AWD (S.Cholera) | Dog Bite | TB |
|---|---|---|---|---|---|---|---|---|---|---|
| Awaran | 23 | 65 | 51 | 22 | 11 | 7 | 5 | 10 | 0 | 0 |
| Barkhan | 115 | 53 | 126 | 15 | 31 | 53 | 0 | 2 | 5 | 8 |
| Chagai | 142 | 248 | 53 | 44 | 1 | 26 | 5 | 17 | 3 | 0 |
| Chaman | 147 | 157 | 80 | 77 | 13 | 19 | 28 | 18 | 0 | 2 |
| Dera Bugti | 96 | 36 | 166 | 46 | 22 | 12 | 26 | 0 | 0 | 0 |
| Duki | 55 | 38 | 16 | 24 | 14 | 9 | 5 | 4 | 2 | 0 |
| Hub | 112 | 59 | 80 | 16 | 4 | 1 | 0 | 0 | 0 | 0 |
| Jaffarabad | 525 | 80 | 828 | 81 | 7 | 4 | 19 | 0 | 20 | 28 |
| Jhal Magsi | 277 | 221 | 351 | 4 | 11 | 7 | 1 | 2 | 10 | 10 |
| Kalat | 72 | 1 | 82 | 7 | 9 | 38 | 1 | 0 | 0 | 0 |
| Kharan | 152 | 288 | 40 | 61 | 0 | 4 | 5 | 0 | 0 | 0 |
| Khuzdar | 324 | 395 | 292 | 137 | 6 | 39 | 25 | 25 | 2 | 1 |
| Killa Abdullah | 177 | 63 | 25 | 46 | 10 | 33 | 4 | 2 | 0 | 0 |
| Killa Saifullah | 257 | 0 | 172 | 63 | 77 | 17 | 0 | 0 | 0 | 0 |
| Kohlu | 307 | 363 | 210 | 138 | 13 | 60 | 84 | 2 | 1 | 1 |
| Lasbella | 498 | 122 | 328 | 15 | 104 | 4 | 3 | 1 | 4 | 2 |
| Loralai | 277 | 308 | 79 | 41 | 51 | 21 | 24 | 2 | 12 | 0 |
| Mastung | 297 | 119 | 165 | 70 | 66 | 45 | 26 | 6 | 16 | 1 |
| Naseerabad | 291 | 17 | 153 | 16 | 11 | 54 | 1 | 0 | 10 | 0 |
| Panjgur | 117 | 89 | 116 | 22 | 42 | 5 | 6 | 30 | 0 | 0 |
| Quetta | 532 | 991 | 20 | 103 | 30 | 65 | 5 | 5 | 1 | 0 |
| Sherani | 29 | 72 | 18 | 12 | 13 | 9 | 38 | 2 | 0 | 0 |
| Sibi | 54 | 9 | 64 | 8 | 13 | 9 | 9 | 2 | 0 | 0 |
| Sohbat pur | 355 | 0 | 211 | 71 | 133 | 21 | 7 | 1 | 1 | 8 |
| Surab | 24 | 39 | 25 | 4 | 0 | 1 | 0 | 0 | 0 | 0 |
| Usta Muhammad | 913 | 81 | 313 | 65 | 70 | 13 | 13 | 0 | 8 | 0 |
| Washuk | 248 | 298 | 104 | 110 | 22 | 9 | 31 | 2 | 1 | 0 |
| Zhob | 208 | 209 | 112 | 37 | 309 | 21 | 70 | 1 | 0 | 37 |
| Ziarat | 86 | 199 | 109 | 47 | 11 | 26 | 7 | 17 | 3 | 1 |
| Total | 6,710 | 4,620 | 4,389 | 1,402 | 1,104 | 632 | 448 | 151 | 99 | 99 |

***Figure 3: Most frequently reported suspected cases during week 32, Balochistan***

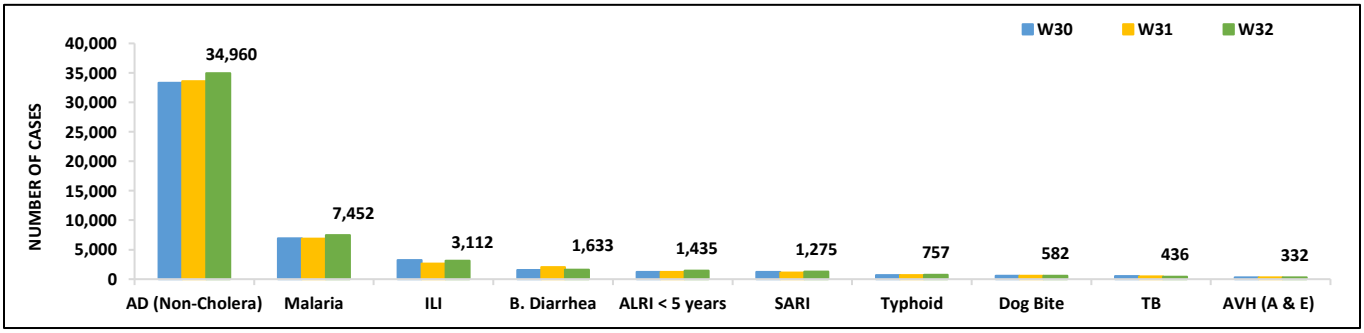


- Cases of AD (Non-Cholera) were maximum followed by Malaria, ILI, B. Diarrhea, ALRI<5 Years, SARI, Typhoid, dog bite, TB and AVH (A & E) cases.
- AD (Non-Cholera), by Malaria, ILI, ALRI<5 Years, SARI, Typhoid, dog bite and AVH (A & E) cases showed an increasing trend this week.
- Twenty-two cases of AFP reported from KP. All are suspected cases and need field verification.
- Thirty-one suspected cases of Brucellosis and Four suspected cases of HIV/ AIDS reported from KP. Field investigation required to verify the cases.

***Table 4: District wise distribution of most frequently reported suspected cases during week 32, KP***

| Districts | AD (Non-Cholera) | Malaria | ILI | B.Diarrhea | ALRI <5 Years | SARI | Typhoid | Dog Bite | TB | AVH (A&E) |
|---|---|---|---|---|---|---|---|---|---|---|
| Abbottabad | 1,454 | 32 | 155 | 14 | 11 | 0 | 38 | 22 | 26 | 6 |
| Bajaur | 1,437 | 273 | 24 | 136 | 344 | 69 | 5 | 79 | 7 | 42 |
| Bannu | 918 | 1,785 | 2 | 48 | 16 | 13 | 124 | 3 | 24 | 0 |
| Battagram | 165 | 0 | 185 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Buner | 434 | 360 | 0 | 2 | 0 | 0 | 16 | 12 | 1 | 0 |
| Charsadda | 703 | 246 | 430 | 27 | 44 | 0 | 30 | 3 | 0 | 17 |
| Chitral Lower | 1,261 | 31 | 72 | 79 | 10 | 15 | 15 | 6 | 7 | 0 |
| Chitral Upper | 227 | 5 | 13 | 7 | 19 | 4 | 13 | 0 | 1 | 1 |
| D.I. Khan | 1,232 | 356 | 0 | 29 | 8 | 0 | 0 | 8 | 41 | 0 |
| Dir Lower | 2,317 | 195 | 3 | 117 | 94 | 0 | 47 | 25 | 8 | 12 |
| Dir Upper | 1,627 | 16 | 57 | 11 | 30 | 0 | 6 | 0 | 18 | 6 |
| Hangu | 84 | 143 | 0 | 6 | 13 | 0 | 0 | 0 | 1 | 4 |
| Haripur | 1,426 | 23 | 150 | 17 | 59 | 2 | 27 | 4 | 18 | 68 |
| Karak | 326 | 227 | 35 | 0 | 14 | 0 | 3 | 13 | 9 | 0 |
| Khyber | 441 | 316 | 28 | 122 | 4 | 20 | 34 | 31 | 10 | 9 |
| Kohat | 536 | 174 | 34 | 0 | 30 | 0 | 11 | 21 | 5 | 0 |
| Kohistan Lower | 221 | 4 | 2 | 14 | 3 | 69 | 0 | 1 | 0 | 0 |
| Kohistan Upper | 581 | 18 | 1 | 34 | 33 | 1 | 10 | 4 | 15 | 0 |
| Kolai Palas | 61 | 6 | 0 | 1 | 0 | 6 | 1 | 0 | 3 | 0 |
| L & C Kurram | 56 | 29 | 67 | 26 | 6 | 26 | 10 | 5 | 0 | 5 |
| Lakki Marwat | 750 | 228 | 0 | 9 | 6 | 0 | 9 | 18 | 4 | 0 |
| Malakand | 1,238 | 95 | 18 | 267 | 13 | 8 | 40 | 0 | 2 | 26 |
| Mansehra | 1,143 | 4 | 254 | 21 | 28 | 32 | 22 | 17 | 5 | 0 |
| Mardan | 855 | 48 | 0 | 24 | 353 | 0 | 0 | 13 | 13 | 0 |
| Mohmand | 158 | 218 | 100 | 47 | 4 | 87 | 16 | 13 | 1 | 0 |
| North Waziristan | 32 | 10 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 2 |
| Nowshera | 2,244 | 97 | 24 | 54 | 0 | 6 | 20 | 14 | 28 | 9 |
| Orakzai | 4 | 10 | 6 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peshawar | 3,754 | 71 | 551 | 188 | 50 | 37 | 82 | 9 | 25 | 30 |
| SD Peshawar | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SD Tank | 37 | 84 | 2 | 3 | 0 | 0 | 0 | 1 | 0 | 0 |
| Shangla | 2,278 | 1,562 | 0 | 24 | 24 | 0 | 12 | 47 | 100 | 6 |
| SWA | 118 | 158 | 74 | 29 | 29 | 101 | 34 | 6 | 2 | 0 |
| Swabi | 1,891 | 77 | 391 | 30 | 76 | 65 | 50 | 106 | 39 | 48 |
| Swat | 4,263 | 67 | 93 | 152 | 70 | 0 | 30 | 61 | 8 | 28 |
| Tank | 361 | 206 | 49 | 0 | 23 | 0 | 39 | 27 | 10 | 0 |
| Tor Ghar | 101 | 240 | 0 | 46 | 0 | 16 | 0 | 1 | 1 | 1 |
| Upper Kurram | 222 | 36 | 292 | 43 | 21 | 698 | 12 | 12 | 4 | 12 |
| Total | 34,960 | 7,452 | 3,112 | 1,633 | 1,435 | 1,275 | 757 | 582 | 436 | 332 |

***Figure 4: Most frequently reported suspected cases during week 32, KP***



## ICT, AJK & GB

*ICT*: The most frequently reported cases from Islamabad were ILI followed by AD (Non-Cholera) and TB. ILI and TB cases showed an increasing trend while AD (Non-Cholera) cases showed a decreasing trend this week.

*AJK:* AD (Non-Cholera) cases were maximum followed by ILI, ALRI <5 years, SARI, B. Diarrhea, AWD (S. Cholera), dog bite, TB, Malaria and Typhoid cases. An increasing trend observed for AD (Non-Cholera), ALRI <5 years, SARI and AWD (S. Cholera) cases while a decreasing trend observed for ILI, B. Diarrhea, dog bite, TB, Malaria and Typhoid cases this week. Six suspected cases of AFP reported from AJK. Field investigation required to verify the cases

*GB:* AD (Non-Cholera) cases were the most frequently reported diseases followed by ALRI <5 Years, ILI, SARI, B. Diarrhea, AWD (S. Cholera), Typhoid and TB cases. An increasing trend observed for AD (Non-Cholera), ALRI <5 Years, Typhoid and TB cases while a decreasing trend observed for ILI, SARI and AWD (S. Cholera) cases this week. One suspected case of HIV/ AIDs reported from GB. It needs field verification..

***Figure 5: Most frequently reported suspected cases during week 32, ICT***

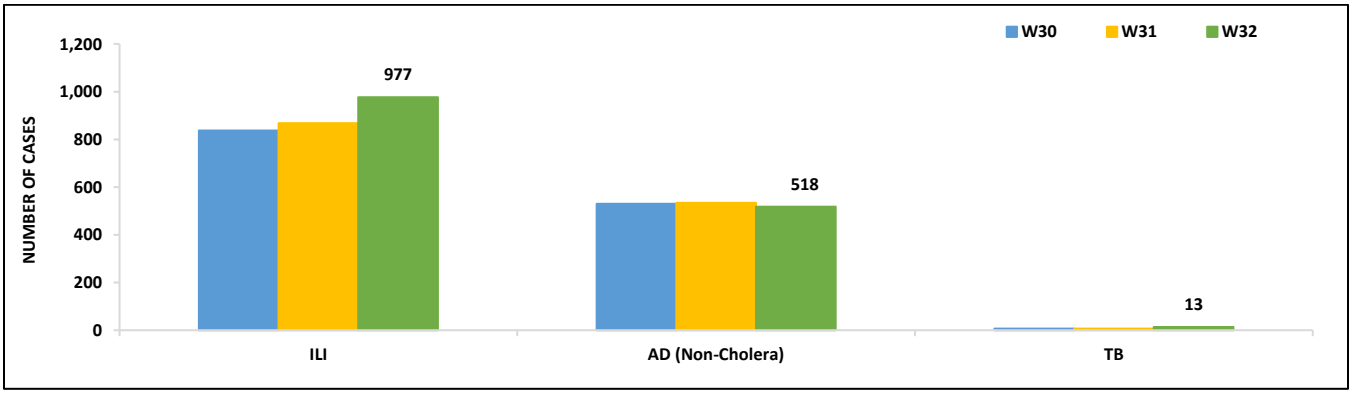



***Figure 6: Week wise reported suspected cases of ILI, ICT***

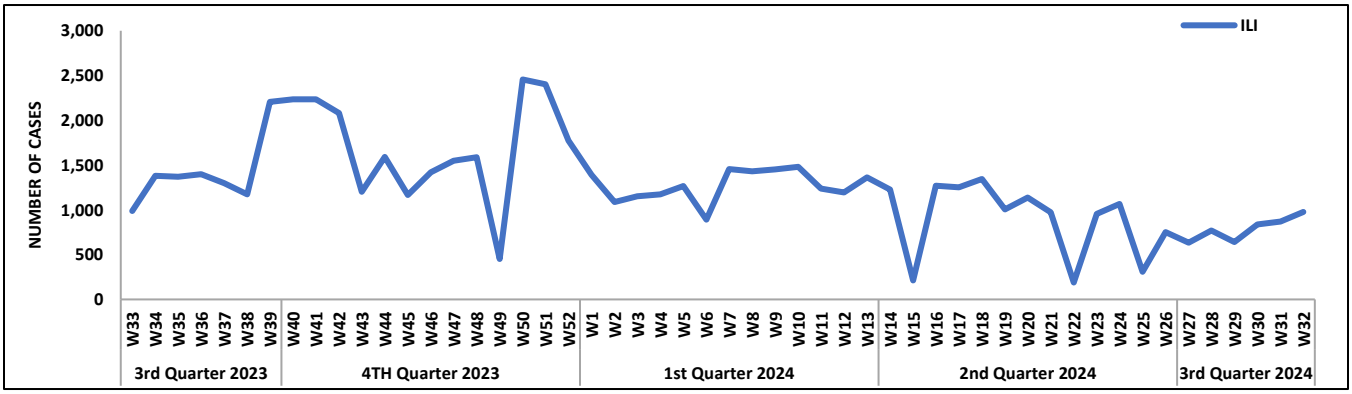



***Figure 7: Most frequently reported suspected cases during week 32, AJK***

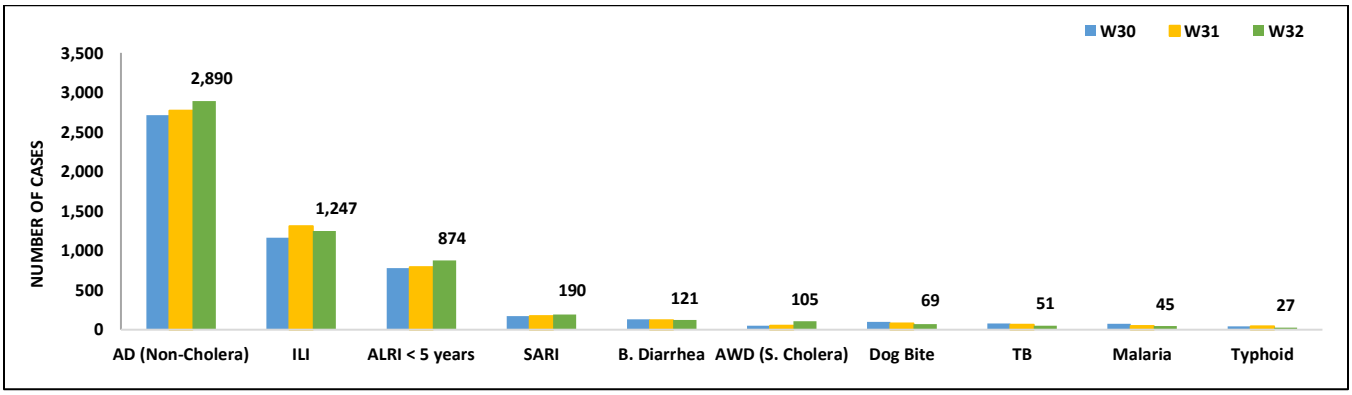


*Figure 8: Week wise reported suspected cases of ILI and AD (Non-Cholera) AJK*

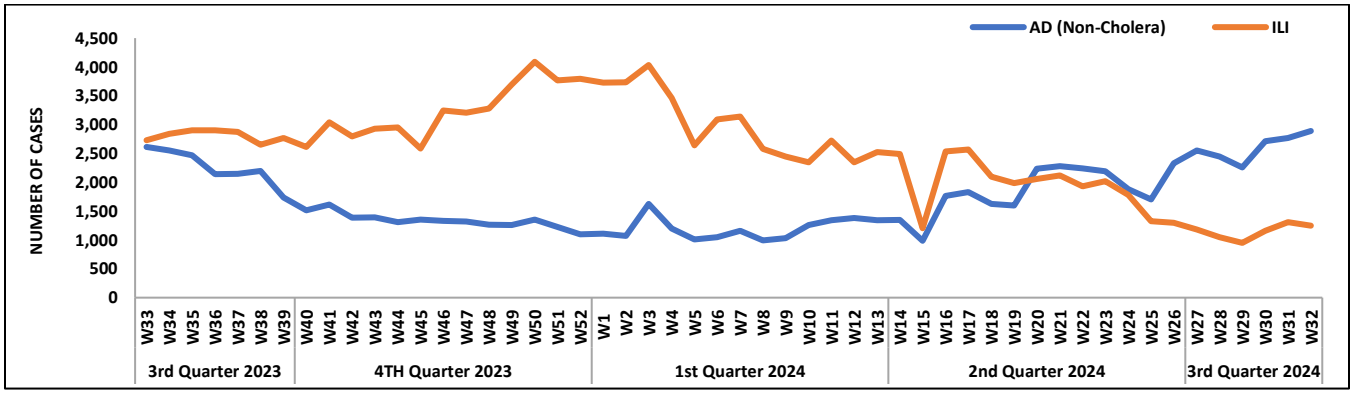



*Figure 9: Most frequent cases reported during Week 32, GB*

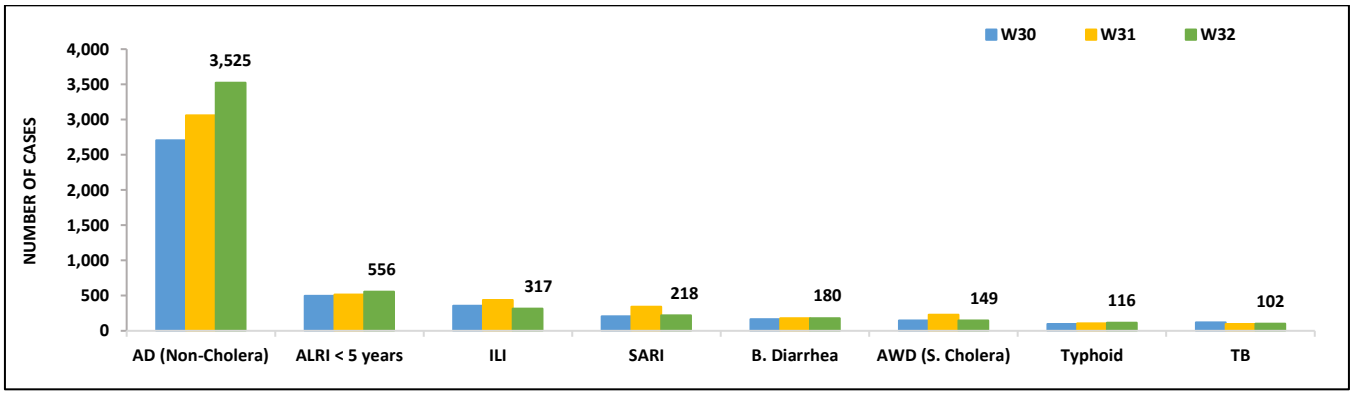
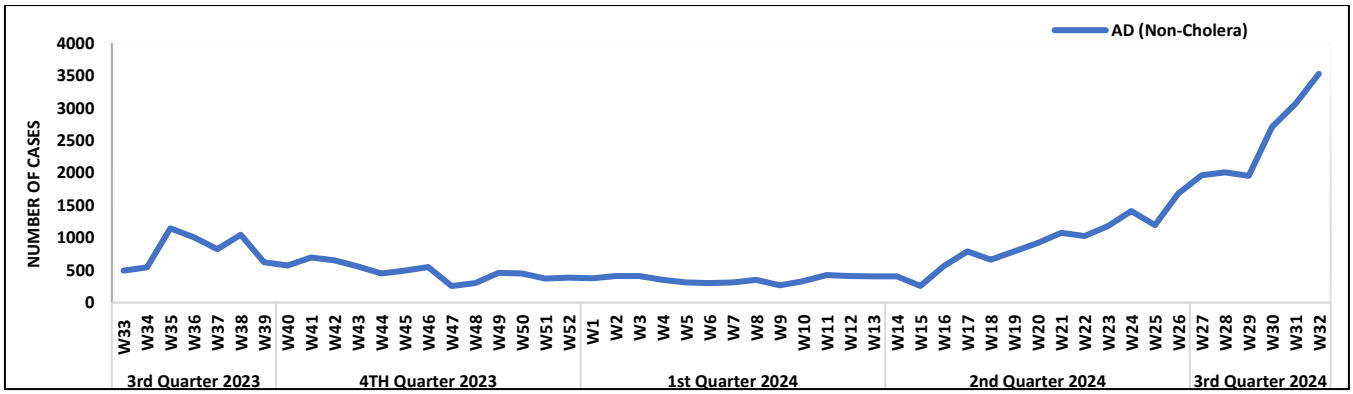



*Figure 10: Week wise reported suspected cases of AD (Non-Cholera), GB*



## Punjab

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

***Figure 11: Most frequently reported suspected cases during week 32, Punjab.***

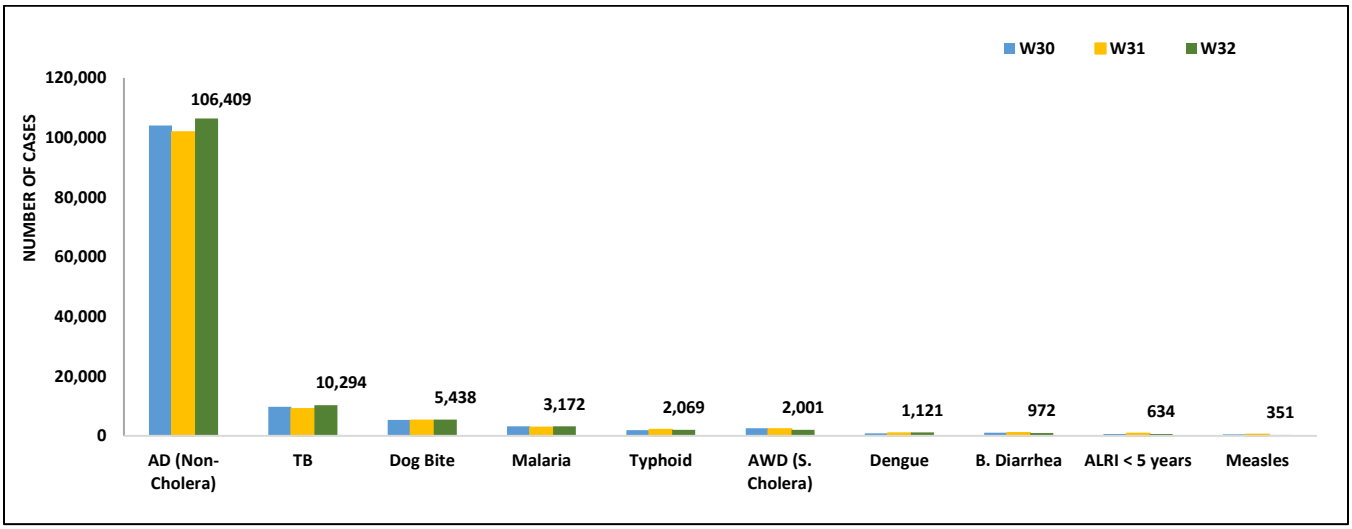



***Table 5: Public Health Laboratories confirmed cases of IDSR Priority Diseases during Epid Week 32***

| 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) | 11 | 0 | - | - | 4 | 0 | | | - | - |
| AD (Non-Cholera) | 113 | 0 | - | - | - | - | - | - | - | - |
| Malaria | 1,734 | 85 | - | - | - | - | - | - | - | - |
| CCHF | - | - | 6 | 2 | 2 | 0 | 3 | 0 | - | - |
| Dengue | 674 | 14 | - | - | - | - | 8 | 0 | - | - |
| VH (B) | 3,630 | 94 | 238 | 148 | - | - | - | - | 163 | 13 |
| VH (C) | 3,639 | 290 | 90 | 28 | - | - | - | - | 138 | 0 |
| VH (A&E) | 0 | 0 | 70 | 1 | - | - | - | - | - | - |
| Covid-19 | - | - | 8 | 0 | 3 | 0 | 4 | 0 | 35 | 0 |
| HIV | 54 | 0 | - | - | | - | - | - | - | - |
| Influenza A | 0 | 0 | 0 | 0 | 6 | 0 | 30 | 0 | 0 | 0 |
| TB | 38 | 0 | - | - | - | - | - | - | - | - |
| Syphilis | 38 | 0 | - | - | - | - | - | - | - | - |
| Typhoid | 551 | 10 | - | - | - | - | - | - | - | - |
| Diptheria (Probabale) | - | - | - | - | - | - | - | - | - | - |
| Pertussis | - | - | - | - | - | - | - | - | - | - |

# IDSR Reports Compliance

- Out OF 158 IDSR implemented districts, compliance is low from KP and Balochistan districts. Green color showing >50% compliance while red color is <50% compliance

***Table 6: IDSR reporting districts Week 32, 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 | 239 | 136 | 57% |
| | Battagram | 63 | 17 | 27% |
| | Buner | 34 | 27 | 79% |
| | Bajaur | 44 | 35 | 80% |
| | Charsadda | 59 | 55 | 93% |
| | Chitral Upper | 34 | 28 | 82% |
| | Chitral Lower | 35 | 34 | 97% |
| | D.I. Khan | 114 | 107 | 94% |
| | Dir Lower | 74 | 74 | 100% |
| | Dir Upper | 53 | 42 | 79% |
| | Hangu | 22 | 16 | 73% |
| | Haripur | 72 | 59 | 82% |
| | Karak | 35 | 35 | 100% |
| | Khyber | 52 | 20 | 38% |
| | 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 | 42 | 22 | 52% |
| | Upper Kurram | 41 | 28 | 68% |
| | Malakand | 42 | 27 | 64% |
| | Mansehra | 136 | 94 | 69% |
| | Mardan | 80 | 75 | 94% |
| | Nowshera | 55 | 52 | 95% |
| | North Waziristan | 12 | 2 | 17% |
| | Peshawar | 151 | 106 | 70% |
| | Shangla | 37 | 14 | 38% |
| | Swabi | 63 | 61 | 97% |
| | Swat | 77 | 61 | 79% |
| | South Waziristan | 134 | 52 | 39% |
| | Tank | 34 | 30 | 88% |
| | Torghar | 14 | 12 | 86% |
| | Mohmand | 86 | 38 | 44% |
| | SD Peshawar | 5 | 1 | 20% |
| | SD Tank | 58 | 8 | 14% |
| | Orakzai | 68 | 10 | 15% |
| | Mirpur | 36 | 36 | 100% |
| | Bhimber | 20 | 19 | 95% |
| | Kotli | 60 | 59 | 98% |
| | Muzaffarabad | 45 | 44 | 98% |
| | Poonch | 46 | 46 | 100% |
| | Haveli | 39 | 39 | 100% |

| | | | | |
|---|---|---|---|---|
| **Azad Jammu Kashmir** | Bagh | 40 | 38 | 95% |
| | Neelum | 39 | 39 | 100% |
| | Jhelum Vellay | 29 | 27 | 93% |
| | Sudhnooti | 27 | 27 | 100% |
| **Islamabad Capital Territory** | ICT | 21 | 18 | 86% |
| | CDA | 15 | 8 | 53% |
| **Balochistan** | Gwadar | 25 | 0 | 0% |
| | Kech | 44 | 0 | 0% |
| | Khuzdar | 74 | 68 | 92% |
| | Killa Abdullah | 26 | 17 | 65% |
| | Lasbella | 55 | 55 | 100% |
| | Pishin | 69 | 0 | 0% |
| | Quetta | 43 | 30 | 70% |
| | Sibi | 36 | 10 | 28% |
| | Zhob | 39 | 30 | 77% |
| | Jaffarabad | 16 | 0 | 100% |
| | Naserabad | 32 | 32 | 100% |
| | Kharan | 30 | 30 | 100% |
| | Sherani | 15 | 15 | 100% |
| | Kohlu | 75 | 59 | 79% |
| | Chagi | 35 | 28 | 80% |
| | Kalat | 41 | 40 | 98% |
| | Harnai | 17 | 0 | 0% |
| | Kachhi (Bolan) | 35 | 11 | 31% |
| | Jhal Magsi | 28 | 25 | 89% |
| | Sohbat pur | 25 | 25 | 100% |
| | Surab | 32 | 13 | 41% |
| | Mastung | 45 | 40 | 89% |
| | Loralai | 33 | 32 | 97% |
| | Killa Saifullah | 28 | 27 | 96% |
| | Ziarat | 29 | 14 | 48% |
| | Duki | 31 | 8 | 26% |
| | Nushki | 32 | 0 | 0% |
| | Dera Bugti | 45 | 36 | 80% |
| | Washuk | 46 | 32 | 70% |
| | Panjgur | 38 | 12 | 32% |
| | Awaran | 23 | 7 | 30% |
| | Chaman | 25 | 23 | 92% |
| | Barkhan | 20 | 20 | 100% |
| | Hub | 33 | 19 | 58% |
| | 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 | 65 | 89% |
| | Ghotki | 64 | 63 | 98% |
| | Umerkot | 43 | 43 | 100% |
| | Naushahro Feroze | 107 | 84 | 79% |
| | Tharparkar | 282 | 227 | 80% |
| | Shikarpur | 59 | 59 | 100% |
| | 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 | 36 | 97% |
| | Karachi-Kemari | 18 | 12 | 67% |
| | Karachi-Central | 11 | 10 | 91% |
| | Karachi-Korangi | 18 | 18 | 100% |
| | Karachi-South | 4 | 4 | 100% |
| | Sujawal | 54 | 54 | 100% |
| | Mirpur Khas | 106 | 102 | 96% |
| | Badin | 124 | 118 | 95% |
| | Sukkur | 63 | 60 | 95% |
| | Dadu | 88 | 88 | 99% |
| | Sanghar | 100 | 100 | 100% |
| | Jacobabad | 44 | 44 | 100% |
| | Khairpur | 169 | 165 | 98% |
| | Kashmore | 59 | 58 | 98% |
| | Matiari | 42 | 40 | 95% |
| | Jamshoro | 72 | 68 | 94% |
| | Tando Allahyar | 54 | 52 | 96% |
| | Tando Muhammad Khan | 40 | 40 | 100% |
| | Shaheed Benazirabad | 122 | 122 | 100% |

***Table 7: IDSR reporting Tertiary care hospital Week 32, 2024***

| | | | | |
|---|---|---|---|---|
| **AJK** | Mirpur | 1 | 1 | 100% |
| | Muzaffarabad | 1 | 1 | 100% |
| | Poonch | 1 | 1 | 100% |
| **Sindh** | Karachi-South | 1 | 0 | 0% |
| | Sukkur | 1 | 0 | 0% |
| | Shaheed Benazirabad | 1 | 0 | 0% |

**********

## Strengthening Pakistan's Fight Against Antimicrobial Resistance

The National Institute of Health (NIH) Pakistan, in collaboration with the Food and Agriculture Organization (FAO-UN) and Integral Global, has taken a significant step towards combating antimicrobial resistance (AMR) in the country's animal health sector. The NIH has spearheaded a comprehensive revision of Pakistan's AMR National Action Plan (NAP) 1.0.

A gathering of representatives from Provincial Livestock Departments, academia, private organizations, and the human health sector convened in Islamabad to evaluate the five objectives of the existing NAP. Through a collaborative effort, these stakeholders are working to develop new activities and recommendations for NAP 2.0.

Antimicrobial resistance is a growing global health threat, posing a significant risk to both human and animal health. The overuse and misuse of antibiotics in agriculture and healthcare have contributed to the development of drug-resistant bacteria, making infections more difficult to treat and increasing the risk of mortality.

The revised NAP aims to address the challenges posed by AMR in Pakistan's animal health sector. By incorporating new activities and recommendations, the plan will provide a more effective framework for combating AMR and ensuring the continued availability of essential antimicrobials for animal health.

This collaborative effort between the NIH, FAO-UN, Integral Global, and various stakeholders demonstrates Pakistan's commitment to addressing the AMR crisis. By strengthening the country's AMR response, Pakistan can protect the health of its livestock, reduce the risk of antimicrobial resistance transmission to humans, and ensure the sustainability of animal agriculture.

## Mpox Resurges in Africa: WHO Declares Public Health Emergency of International Concern (PHEIC)

The World Health Organization (WHO) has officially declared the recent surge in mpox cases, primarily concentrated in the Democratic Republic of Congo (DRC) and neighboring African nations, as a Public Health Emergency of International Concern (PHEIC). This decision follows a thorough assessment of the latest epidemiological data by a panel of independent experts.

The committee expressed deep concern over the rapid spread of a new, highly contagious variant of the virus, known as clade 1b. They warned of the potential for this strain to spread globally.

Mpox has been a reported health issue in the DRC for over a decade, with a steady increase in cases each year. In the past year, there has been a significant rise in confirmed cases, and this year has already surpassed that number.

The WHO Director-General emphasized the seriousness of the outbreak and the urgent need for a coordinated global response.

This declaration marks the second time mpox has been classified as a PHEIC. The first declaration was issued in July 2022 in response to a global outbreak primarily affecting regions outside of Africa. It was later lifted in May 2023 due to a significant decrease in cases worldwide.

The PHEIC designation calls for increased international cooperation and action to contain the outbreak. The WHO will work closely with affected countries to strengthen surveillance, contact tracing, and vaccination programs. Additionally, research and development efforts to develop new treatments and vaccines will be accelerated.

## Strengthening Pakistan's Response to Mpox

A specialized meeting focused on mpox preparedness was convened at the National Command and Operations Center (NCOC) within the National Institutes of Health (NIH) in Islamabad. At the direction of the Prime Minister's Health Coordinator, the meeting was attended by senior health officials, including the Federal Secretary of Health, the Director-General of Health, provincial health department representatives, and a Border Health Services delegate.

The objective of the meeting was to comprehensively review and enhance existing strategies for preventing, detecting, and managing mpox, ensuring a robust national response to this public health challenge.

The activation of the National Command and Operations Center (NCOC) at the National Institutes of Health (NIH) in Islamabad is a crucial step towards bolstering Pakistan's preparedness for the mpox outbreak. The National Command and Operations Center (NCOC), a specialized platform for coordinating national responses to public health emergencies, is holding daily meetings to monitor the progress of mpox efforts and review and refine existing strategies for preventing, detecting, and managing the disease.

The National Command and Operations Center (NCOC) has outlined several key initiatives to combat the mpox outbreak in Pakistan. These ongoing activities include:

- **Public Awareness Campaigns:** The National Institute of Health (NIH) is actively disseminating advisories to raise public awareness about mpox symptoms, prevention measures, and the importance of seeking medical attention.
- **Strengthening Local Surveillance:** Provincial Health Organization Committees are being reactivated to enhance local surveillance efforts and ensure early detection of cases.
- **Establishing Quarantine Facilities:** Designated healthcare facilities are being prepared to isolate individuals suspected of having mpox, helping to prevent further transmission.
- **Capacity Building for Healthcare Professionals:** Training programs are being conducted to equip healthcare professionals at Border Health Services and provincial health departments with the skills necessary for mpox surveillance, screening, detection, and prevention.
- **Procurement of Testing Kits:** The government is actively working to procure sufficient testing kits to meet the needs of public health laboratories across Pakistan.
- **Adherence to International Standards:** Pakistan is strictly adhering to international guidelines and World Health Organization recommendations for mpox prevention and control.

- **Vaccine Procurement:** The government is exploring options to procure vaccines in collaboration with international partners, ensuring timely access for at-risk populations.
- **Centralized Data Management:** A centralized database is being established to facilitate efficient data sharing and coordination among provincial authorities.
- **Prompt Reporting of Suspected Cases:** Relevant authorities at entry/exit points and hospitals are required to report any suspected cases of mpox promptly, enabling rapid response and containment efforts.

The NCOC will serve as a centralized command and control center, ensuring a unified and coordinated response to the mpox outbreak. Through regular meetings and effective communication, the NCOC will facilitate resource allocation and decision-making, ensuring a comprehensive and effective approach to addressing this public health emergency.

# Commentary

## Mpox vs. Chickenpox: What Are the Differences

Mpox (formerly known as monkeypox) and chickenpox are two contagious viral diseases. They both have "pox" in their names because they cause pockmark skin lesions. But mpox is caused by a virus similar to smallpox, while a type of herpesvirus causes chickenpox.

While they share similar symptoms (like fever, fatigue, headaches, and a blistering rash), mpox and chickenpox differ by how the viruses are spread, the locations of the rashes, the populations they most commonly affect, and how each is treated. This article describes the differences between mpox and chickenpox in symptoms, causes, diagnosis, and treatment.

### Symptoms

No less than three dozen viral diseases have "pox" in their names, the most familiar of which are chickenpox, smallpox, and mpox. All of these diseases share an itchy, blistering rash. Mpox and chickenpox progress in a similar way. Flu-like symptoms, such as headache, fever, and fatigue, precede the outbreak of the rash. These are referred to as prodromal symptoms. Within days, a rash will appear as small dots or pimples that quickly enlarge and fill with a clear or yellowish fluid. This blistering rash, typically itchy and sometimes painful, erupts, scabs over, and begins to heal. Despite these similarities, there are a number of key differences between mpox and chickenpox, including:

- **Asymptomatic infection:** Studies reveal that around 1 in 14 people with mpox are asymptomatic, meaning that they have no symptoms but can still transmit the virus to others. Chickenpox is rarely asymptomatic but can sometimes be so mild as to go unrecognized.
- **Prodromal symptoms:** Lymphadenopathy (swollen lymph nodes) is characteristic of mpox but not chickenpox. Also, many children with chickenpox have no prodromal symptoms.
- **Distribution of rashes:** Mpox may only cause a single lesion or a few lesions. But at other times it can cause thousands of lesions, most often on the face and extremities rather than the trunk. Chickenpox rashes tend to be more widespread, affecting the face, scalp, torso, upper arms, and legs.
- **Location of rashes:** With mpox, the rash can develop on the palms of the hands and soles of the feet, around the genitals and anus, and on the eyes (where they can cause corneal scarring). These are uncommon locations for chickenpox.
- **Duration of symptoms:** Mpox takes longer to resolve than chickenpox. Mpox rashes develop three to 17 days after exposure,

with symptoms lasting two to three weeks. With chickenpox, the rash will appear within 10 to 21 days, with symptoms lasting four to seven days.

- While mpox and chickenpox can be distressing and cause extreme discomfort, they are rarely life-threatening.

## Causes

The main difference between mpox and chickenpox is the virus that causes them. Mpox is caused by the mpox virus (MPV), one of several viruses, along with smallpox, that are classified as Orthopoxviruses. By contrast, chickenpox is caused by a herpesvirus known as the varicella-zoster virus (VZV), not by a true poxvirus. Chickenpox is also a much milder disease than smallpox was before it was eradicated.

VZV has many of the same characteristics as herpes simplex virus type 1 (HSV-1), commonly linked to cold sores, and herpes simplex virus type 2 (HSV-2), commonly linked to genital herpes. Chief among these is the risk of recurrence.

## Mpox vs. Chickenpox Transmission

Because the two viruses are completely different, the ways in which mpox and chickenpox are transmitted (passed) also differ, as follows:

**Mpox transmission:** The mpox virus is transmitted by direct contact with rashes and scabs as well as contact with saliva and respiratory secretions (saliva and mucus) of a person with the virus. Mpox can also be transmitted through oral, vaginal, or anal sex or by touching the genitals or anus of someone with mpox.

**Chickenpox transmission:** VZV is spread by contact with the rash or scabs, but it can also be passed by inhaling aerosolized fluids from a chickenpox sore that contains the virus. It may also be possible for VZV to be passed through respiratory (airborne) droplets. Chickenpox is not sexually transmitted. Of the two, chickenpox is far more contagious as the virus can be transmitted through the air.

## Affected Populations

Mpox can affect people of any age, although adults 31 to 45 accounted for most infections during the 2022 outbreak in the United States. Intimate exposure, such as during sexual contact, appeared to be the primary mode of transmission in that outbreak.

Chickenpox most commonly affects children under age 10, most of whom have mild disease. Only around 7% of cases involve adults over age 20, who are far more likely to experience severe illness.

## Diagnosis

The preferred means of testing both mpox and chickenpox is with a polymerase chain reaction (PCR) test. The test is performed on fluids taken from a sore with a cotton swab. A PCR can detect minute amounts of the virus's DNA (genetic makeup) and is currently the most accurate means of diagnosing both of these viral diseases.

When used correctly, both the mpox PCR and VZV PCR have a sensitivity rate (the ability to correctly detect when a person has a disease) of over 97% and a specificity rate (the ability to correctly detect when a person doesn't have a disease) of 100%.

Even so, healthcare providers can generally diagnose chickenpox based on the looks of the rash, particularly if the child is under 10 and has not been vaccinated. A healthcare provider may also consider whether the person has herpes simplex, a drug reaction, impetigo (a bacterial skin infection), or other viral rashes.

By contrast, if mpox is suspected, a healthcare provider may simultaneously test for other illnesses with similar symptoms, such as chickenpox, herpes, shingles, scabies, syphilis, molluscum contagiosum (an infection caused by a poxvirus), and hand, foot, and mouth disease (a mild, contagious infection common in children).

## Treatment

The treatment approach for mpox and chickenpox are similar. For people with mild disease, the treatment is mainly focused on managing symptoms. This may include using oral pain relievers, topical steroids, and topical anesthetics to help ease the pain. Oral antihistamines, calamine lotion,

petroleum jelly, and colloidal oatmeal may help relieve itching.

If a person is at risk of severe illness or complications, antiviral drugs may be used. With that said, the types of antiviral drugs and indications for treatment vary significantly for mpox and chickenpox.

**Mpox Treatment:** When needed, mpox is treated with an antiviral drug known as Tpoxx (tecovirimat). The drug was first used to treat smallpox and comes in both an oral formulation (taken by mouth) and an intravenous formulation (delivered into a vein). Tpoxx is generally reserved for these two groups with a high incidence:

- People with severe symptoms, including those with encephalitis (brain inflammation), mpox eye infections, or widespread severe outbreaks of lesions (in which the risk of bacterial infections and sepsis is high)
- People in whom scarring may be harmful, including those with lesions on the pharynx (windpipe) who may develop swallowing or feeding problems, or those with genital or rectal lesions that may interfere with urination or bowel movements

**Chickenpox Treatment:** When needed, chickenpox is most commonly treated with the antiviral drug Zovirax (acyclovir). It is typically given in an oral form and works best if taken within 24 hours of the rash outbreak. This is especially true in adults who tend to have more severe symptoms. Zovirax is recommended for the following groups with chickenpox:

- Otherwise healthy people older than 12
- People with chronic skin diseases like psoriasis or eczema
- People with chronic lung diseases like chronic obstructive pulmonary disease (COPD)
- People on long-term salicylate therapy for arthritis
- People on long-term steroid therapy for autoimmune or inflammatory diseases
- Pregnant women
- People with weakened immune systems

## Prevention

Vaccines are generally the best ways to prevent infectious viral diseases like mpox and chickenpox. And, while there are vaccines for both, they are used differently. For those who are unvaccinated, other preventive measures are needed.

**Mpox Vaccination:** A live, non-replicating vaccine (JYNNEOS) approved by the FDA to prevent smallpox and mpox in adults 18 years and older. It's made from a modified, weakened orthopoxvirus that cannot replicate in the human body. JYNNEOS is a two-dose vaccine that can protect against mpox. The shots are given four weeks apart. Both shots are needed to provide optimal protection. It is generally recommended for adults at the greatest risk of exposure, especially for gender diverse sexually active

**Chickenpox Vaccine:** The chickenpox vaccine is a common childhood vaccine given in two doses to children under age 13. Anyone over 13 who hasn't been vaccinated should also get two shots.

There are two vaccines: Varivax (varicella virus vaccine live), which protects against chickenpox alone, and ProQuad, which protects against chickenpox as well as measles, mumps, and rubella. When used as directed, chickenpox vaccines are up to 98% effective in preventing the disease.

While the chickenpox vaccine can provide lifelong protection against chickenpox, another two-dose vaccine called Shingrix (recombinant zoster vaccine) is recommended for adults age 50 and over to prevent the reactivation of VZV and an outbreak of shingles.

## Other Prevention Tips

Beyond vaccines, the best way to avoid mpox and chickenpox is to avoid people with mpox and chickenpox. This is sometimes easier said than done.

With mpox, it is important to avoid skin-to-skin contact with someone who has a rash that looks like mpox, including sex partners. You also need to avoid sharing utensils, personal care items, clothing, bedding, and towels with someone who has mpox

and to wash your hands frequently with soap and water or an alcohol-based hand sanitizer.

With chickenpox, the same rules apply. But because the virus is so much more contagious, people with chickenpox need to be isolated until the symptoms fully resolve. Disposable gloves and face masks should be worn around the sick individual, and all surfaces (including door knobs) should be regularly sanitized.

### Summary

Mpox and chickenpox may look the same but are caused by two different viruses. While both can be passed by skin-to-skin contact, chickenpox can also be spread via the air, and mpox is commonly spread through sexual contact.

The symptoms of mpox and chickenpox are also similar, but mpox tends to be longer-lasting and causes swollen lymph nodes.

Mpox and chickenpox are treated with different antiviral drugs, which are typically reserved for people with severe symptoms or at risk of severe complications. While there are vaccines for both mpox and chickenpox, the mpox vaccine is reserved for adults who have a high prevalence toward acquiring the infection. The chickenpox vaccine is recommended for everyone, especially as part of childhood vaccinations.

# Knowledge Hub

## Mpox: A Public Health Concern in Pakistan

Mpox, a viral disease that can be transmitted from animals to humans, has become a significant global health issue. To effectively address this threat, it's essential to raise public awareness and implement preventive measures. While historically confined to certain African countries, the recent spread of mpox worldwide highlights its potential for widespread transmission.

This article provides a detailed overview of mpox, including how it's transmitted, its symptoms, prevention strategies, and the importance of strong public health measures in Pakistan.

### Understanding Mpox:

Mpox is a zoonotic viral infection caused by the mpox virus, a member of the Orthopoxvirus genus within the Poxviridae family. It shares a close evolutionary relationship with the variola virus, the causative agent of smallpox.

The mpox virus is characterized by two distinct genetic clades: clade I and clade II. While the overall mortality rate for mpox ranges from 1% to 10%, there is significant variation between the two clades. Clade I is associated with a higher case fatality rate of 1.4% to over 10%, whereas clade II has a lower case fatality rate of 0.1% to 3.6%.

Mpox was first identified in humans in 1970 in the Democratic Republic of Congo. Although it often presents with milder symptoms compared to smallpox, mpox can still cause severe illness and, in some cases, death.

### Transmission of Mpox

Primarily, mpox transmission occurs through close physical contact with an infected individual, involving direct contact with the characteristic cutaneous lesions, bodily fluids, respiratory droplets, and contaminated fomites.

**Human-to-Human Transmission:** Mpox primarily spreads through close physical contact with an infected individual. This includes skin-to-skin contact, such as touching or sexual activity; mouth-to-mouth or mouth-to-skin contact, such as kissing; and face-to-face contact, which can generate infectious respiratory particles. During the recent global outbreak, the virus predominantly spread through sexual contact. However, further research is needed to understand transmission dynamics in various settings and conditions.

Individuals with mpox are considered contagious until all lesions have crusted over, scabs have fallen off, and new skin has formed. Additionally, any lesions on

the eyes, mouth, throat, vagina, or anus must have healed. This typically takes 2 to 4 weeks.

The mpox virus can persist on clothing, bedding, towels, objects, electronics, and surfaces touched by an infected person. Others who touch these items may become infected, especially if they have cuts or abrasions or touch their eyes, nose, mouth, or mucous membranes without washing their hands. Cleaning and disinfecting surfaces and practicing good hand hygiene can help prevent this type of transmission.

The virus can also spread from an infected pregnant woman to the fetus or newborn during or after childbirth. While asymptomatic transmission has been reported, more information is needed on the risk of transmission before symptom onset or after lesion healing. Although live virus has been isolated from semen, the extent of transmission through semen, vaginal fluids, amniotic fluids, or breastmilk is unclear.

- **Zoonotic Transmission:** Individuals who come into physical contact with infected animals, such as certain monkeys or rodents, may develop mpox. This can occur through bites, scratches, or handling infected animals during activities like hunting, skinning, or preparing food. Consuming undercooked contaminated meat can also pose a risk. To reduce the risk of mpox from animals, avoid unprotected contact with wild animals, especially those that are sick or dead. In countries where animals carry the virus, thoroughly cook any food containing animal parts or meat.

- **Human-to- Animal Transmission:** While there have been reports of the virus being identified in pet dogs, it is uncertain if these were true infections or due to surface contamination. Many animal species are susceptible to the virus, raising the potential for spillover from humans to animals. Individuals with confirmed or suspected mpox should avoid close physical contact with animals, including pets, livestock, and wildlife.

## Disease Progression:

The incubation period for mpox typically extends from five to twenty-one days, with a mean duration of six to thirteen days. The initial febrile stage is characterized by the onset of fever, lymphadenopathy, headache, chills, pharyngitis, malaise, and fatigue, with a duration of approximately one to four days. Subsequently, a rash erupts, marking the onset of the exanthemous stage, which typically persists for two to four weeks. Recovery from the illness can occur within several days to weeks following the resolution of the rash

## Symptoms of Mpox

The prodromal phase of mpox is characterized by a constellation of systemic symptoms including fever, chills, myalgia, back pain, lymphadenopathy, and fatigue. The subsequent exanthemous phase commences within one to three days of fever onset. The cutaneous eruption progresses through distinct stages, evolving from macules to papules, vesicles, pustules, and ultimately scabs. Unlike the cutaneous lesions of variola, mpox lesions are often deeply seated, firm, well-circumscribed, and exhibit a central umbilication. The distribution of mpox lesions primarily affects the extremities and head, with a relatively sparse distribution on the trunk. Unlike variola, mpox lesions demonstrate a synchronous developmental pattern within a given anatomical site. The presence of lesions on the palms and soles is a characteristic feature of mpox.

# Mpox in Pakistan

While the prevalence of mpox within Pakistan currently lags behind that observed in other nations, the necessity for sustained vigilance remains paramount. To date, no indigenous cases of mpox

have been documented within the country. However, a cumulative total of eleven confirmed mpox cases were reported commencing from 2022, exclusively classified as clade II and epidemiologically linked to travel history within the UAE and KSA. Notably, the inaugural mpox case in Pakistan was officially recorded on April 20, 2023, with a travel history associated with the case. From a pool of one hundred and sixty suspected cases, eleven were definitively confirmed through diagnostic testing, and subsequent genetic sequencing unequivocally identified the circulating strain as clade II. Since this initial cluster of cases, no indigenous transmission of mpox has been reported within the country.

The nation's diverse ecological milieu and substantial population density present potential conduits for the introduction and subsequent dissemination of the virus. Consequently, the reinforcement of surveillance systems, healthcare infrastructure, and public health education programs is imperative to facilitate the early detection and effective management of potential outbreaks.

## *Prevention and Control:*

Effective mpox prevention and control necessitate a multidimensional approach. Key interventions encompass:

- **Vaccination:** While smallpox vaccination confers partial protection against mpox, the availability of a specific mpox vaccine remains limited. Prioritization of vaccination for high-risk populations is imperative.
- **Isolation and Contact Tracing:** Expeditious isolation of confirmed or suspected mpox cases coupled with rigorous contact tracing is crucial for mitigating disease transmission.
- **Hygiene Practices:** Adherence to stringent hygiene practices, including frequent handwashing, respiratory hygiene, and avoidance of close contact with infected individuals, contributes to infection prevention.
- **Safe Animal Handling:** Individuals handling wild or exotic animals should implement appropriate precautions to avert virus transmission.
- **Public Awareness:** Dissemination of accurate information regarding mpox, its clinical manifestations, and preventive measures is essential for fostering public cooperation and compliance with recommended guidelines

## Conclusion

Mpox constitutes a significant public health challenge necessitating a coordinated global response. Within the Pakistani context, the implementation of comprehensive prevention and control measures, including vaccination, isolation, contact tracing, and public awareness campaigns, is paramount for safeguarding public health. Collaborative efforts among healthcare providers, government agencies, and the community are essential for mitigating the impact of mpox and preserving population well-being.

***Pakistan's diverse ecosystems and large population make it vulnerable to the introduction and spread of infectious diseases.*** *To effectively detect and manage potential outbreaks, it is essential to strengthen surveillance systems, healthcare infrastructure, and public health education programs.*

# Subject: Advisory on the Unprecedented Multi-country Mpox Outbreak in Non- Endemic Countries

**No.F.1-22/Advisory/CDC/2024**
**15th August 2024**

Recently, a rapid spread of new clade of Mpox cases has been observed in eastern DRC, neighboring countries that had not previously reported Mpox. Currently, this disease has been reported in all WHO regions including 122 countries with a total of 99,518 confirmed cases and 208 deaths till date. While in Pakistan, a total of 11 cases with 01 death has been reported since first cases detected in April, 2023. World Health Organization has declared Mpox as the Public Health Emergency of International Concern (PHEIC) on 14 August 2024. It is worthwhile to mention here that Mpox has previously been declared PHEIC in 2022 by WHO.

## Objectives:

This advisory aim to provide global and country-wide situation of Mpox disease, to facilitate and provide directions for all the relevant stakeholders on prevention, early detection and response to Mpox.

## Background:

Mpox is a rare viral zoonotic disease that is caused by infection with Mpox virus. Although natural reservoir of Mpox remains unknown however, African rodents and non-human primates (like monkeys) may harbor the virus and infect people. The patient develops a rash within 1 to 3 days after the appearance of fever, often beginning on the face then spreading to other parts of the body. Lesions progress through these stages before falling off: Macules → Papules → Vesicles → Pustules → Scabs. Other symptoms include headache, muscle aches, exhaustion and lymphadenopathy. The incubation period is usually 7-14 days but can range from 5-21 days. The illness typically lasts for 2-4 weeks.

There are two types of Mpox virus: **clade I** (Congo Basin) and **clade II** (West African). Clade I which is more associated with recent upsurge causes more severe illness and deaths. Some outbreaks have killed up to 10% of the people who get sick, although more recent outbreaks have had lower death rates. Clade I is endemic to Central Africa. Clade II is the type that is involved in global outbreak since in 2022. Infections from clade II Mpox are less severe. More than 99.9% of people survive. Clade II is endemic to West Africa.

## Transmission:

Transmission occurs via contact with infected animal, human, or materials contaminated with the virus. The virus enters the body through broken skin (even if not visible), respiratory tract, or the mucous membranes (eyes, nose, or mouth). Other human-to-human methods of transmission include direct or indirect contact with body fluids, lesion material or through contaminated clothing or linens.

## Case Definitions:

**Suspected Cases:** Any person having skin rash/lesion (may include single or multiple oral, conjunctival, urethral, penile, vaginal, or ano-rectal lesions) with or without fever (>38.3°C), headache, lymphadenopathy, myalgia (muscle pain/body aches), back pain, profound weakness, any respiratory symptom and fatigue. Contact of probable/confirmed case developing febrile prodromal illness compatible with Mpox including Sexual and vertical transmission.

**Probable case:** A suspected case with an epidemiological link to confirmed cases or probable case during last 21 days.

**Confirmed case:** A person with laboratory confirmed MPXV infection by detection of unique sequences of viral DNA by real-time polymerase chain reaction (PCR) and/or sequencing.

## Specimen Collection, transportation and Confirmation:

The recommended specimen type for laboratory confirmation of Mpox virus is skin lesion material, including swabs of lesion surface and/or exudate, roofs from more than one lesion, or lesion crusts. Lesions swabs, crusts and vesicular fluids should not be mixed in the same viral transport medium (VTM). The collected specimen should be transported to the designated laboratory with triple packaging maintaining cold chain accompanied by case summary. Moreover, the positive samples should be sent to virology lab-NIH for genomic sequencing.

## Case Management:

Case management of a confirmed Mpox patient involves several steps to ensure proper treatment and prevent the spread of the virus including:

**Isolation:** The patient should be isolated in a single room with a private bathroom and provided with appropriate personal protective equipment (PPE) to prevent transmission of the virus to healthcare workers and other patients.

**Symptomatic treatment:** Treatment for Mpox is primarily supportive and symptomatic. Patients should be given antipyretics for fever, analgesics for pain relief, and fluids to maintain hydration. There is no specific antiviral treatment for Mpox, but some antiviral medications, such as cidofovir as advised by the physician, have shown efficacy in treating severe cases.

## Infection prevention and control:

Strict infection prevention and control measures should be followed, including hand hygiene, environmental cleaning, and disinfection. Healthcare workers should wear appropriate PPE at all times when caring for the patient. However, close contacts of the patient should be identified, monitored for symptoms, and isolated if necessary. Public health reporting: Confirmed cases of Mpox must be reported to local district and provincial health departments, who will provide guidance on additional measures to prevent the spread of the virus.

The situation has urged other countries to enhance surveillance and vigilance. NCOC- NIH is monitoring the situation and will keep the stakeholders updated. Please contact NIH for any further information / clarification. However, revised updated guidelines for Mpox are available at website (www.nih.org.pk)

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

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