

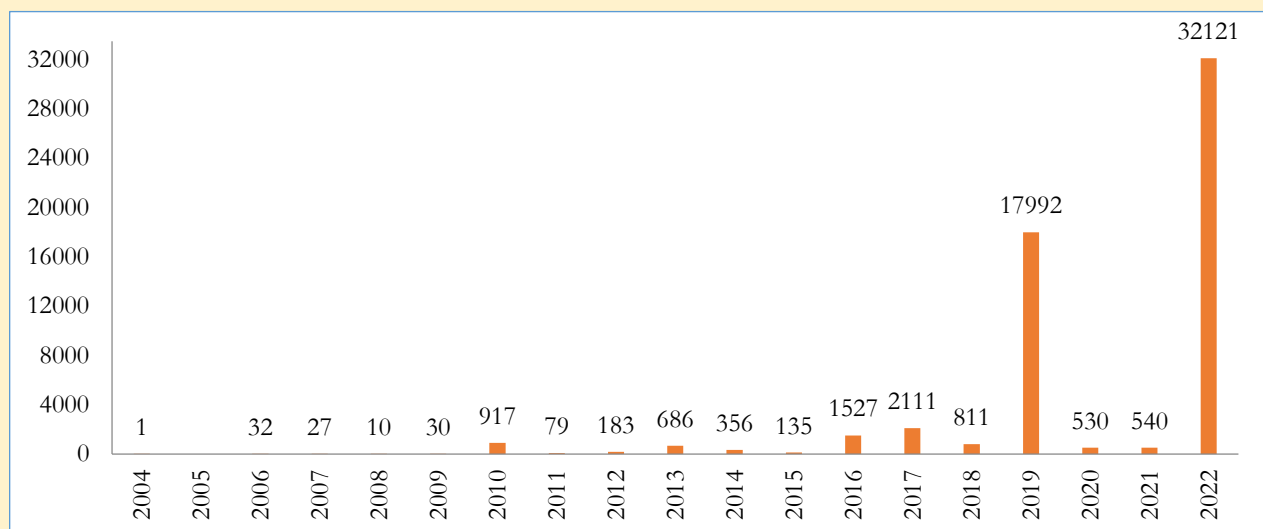


## Situation update of Dengue 2022 (As of 6 oct,2022)

Dengue is a viral infection transmitted to humans through the bite of infected *Aedes* mosquitoes. Dengue is widespread throughout the tropics, with local variations in risk influenced by climate parameters as well as social and environmental factors. Dengue is caused by a virus of the Flaviviridae family and there are four distinct, but closely related, serotypes of the virus that cause dengue (DENV-1, DENV-2, DENV-3 and DENV-4). Recovery from infection is believed to provide lifelong immunity against that serotype. However, cross-immunity to the other serotypes after recovery is only partial, and temporary. Subsequent infections (secondary infection) by other serotypes increase the risk of developing severe dengue (WHO, 2022).

In Nepal, dengue is a rapidly emerging disease. Endemic across most provinces, dengue incidence has increased in recent years largely due to expansion of the vector *Aedes aegypti* and *Aedes albopictus*, as well as the movement of people and the introduction of imported cases. All 4 dengue serotypes exist in Nepal, with DENV-1 and 2 historically contributing the highest burden (EDCD, 2019).

Figure 1: Trend of dengue cases in Nepal (2004-2022) (Source: EDCD)



The first case of dengue in Nepal was reported in 2004. Since, then dengue cases have been gradually reported in Nepal (**Figure 1**). In 2019, there was an outbreak in Nepal with a total of 17,992 reported dengue cases from 68 districts: comprising all seven Provinces. The major outbreaks were in Sunsari District comprised (3431) followed by Chitwan (3402), Kaski (2824), Kathmandu (1589), Lalitpur (596) and Jhapa (525). There were six death case reported from five districts of Nepal (2 deaths in Chitwan, and one each death in Sunsari, Sindhupalanchok, Kathmandu and Doti) in the 2019.



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As of 6 Oct, 2022, a total of 32121 dengue cases have been identified, with Bagmati province reporting highest number followed by Lumbini province. As seen in the Table 1, the increment in cases aligns with the rainy season with cases peaking in each province. The majority of cases (31926, 99 %) have been reported during the same time period (July to Sept). In case of Nepal, there is a dengue outbreak, usually in an interval of 2-3 years, and the same data trend is being observed in this year as of now.

Table 1: Number of Dengue cases by Provinces (2022, EWARS and district line list)

| Dengue Cases As Of 6 Oct 2022 |     |     |     |     |     |     |      |      |       |       |
|-------------------------------|-----|-----|-----|-----|-----|-----|------|------|-------|-------|
| Province                      | Jan | Feb | Mar | Apr | May | Jun | July | Aug  | Sep   | Total |
| Province 1                    | 2   | 0   | 1   | 2   | 3   | 18  | 47   | 136  | 671   | 880   |
| Madhesh Province              | 1   | 0   | 1   | 0   | 5   | 5   | 4    | 51   | 380   | 447   |
| Bagmati Province              | 0   | 1   | 1   | 1   | 1   | 38  | 427  | 2899 | 21568 | 24936 |
| Gandaki Province              | 0   | 0   | 0   | 3   | 1   | 3   | 28   | 56   | 636   | 727   |
| Lumbini Province              | 2   | 2   | 11  | 8   | 9   | 19  | 192  | 496  | 2743  | 3482  |
| Karnali Province              | 1   | 0   | 0   | 3   | 2   | 2   | 9    | 13   | 566   | 596   |
| Sudhur Paschim                | 5   | 0   | 1   | 1   | 4   | 8   | 13   | 57   | 964   | 1053  |
| Total                         | 11  | 3   | 15  | 18  | 25  | 93  | 720  | 3708 | 27528 | 32121 |

The top 10 districts have reported the highest number of cases (27610, 86%), with sporadic cases reported from other districts, as highlighted in Table 3. Out of the top 10 districts reporting dengue cases, the highest numbers of cases are being reported from Kathmandu (10655), Lalitpur (7674), Makwanpur (3010), Dang (1728), Bhaktapur (1243), Chitwan (1026) and Rupandehi (809) as shown in Table 2. Till date, 42 deaths due to dengue are verified.

Table 2: Top 10 districts reporting dengue cases by months (2022, EWARS and District line list)

| 01 Jan - 6 Oct 2022 |               |     |     |     |     |     |     |     |      |       |             |
|---------------------|---------------|-----|-----|-----|-----|-----|-----|-----|------|-------|-------------|
| Province            | Districts     | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug  | Sept  | Grand Total |
| 3                   | 306 Kathmandu | 0   | 0   | 0   | 0   | 1   | 1   | 35  | 727  | 9891  | 10655       |
| 3                   | 308 Lalitpur  | 0   | 0   | 0   | 0   | 0   | 1   | 99  | 1558 | 6016  | 7674        |
| 3                   | 312 Makwanpur | 0   | 0   | 0   | 0   | 0   | 0   | 221 | 337  | 2452  | 3010        |
| 5                   | 510 Dang      | 0   | 0   | 0   | 0   | 1   | 1   | 5   | 19   | 1702  | 1728        |
| 3                   | 307 Bhaktapur | 0   | 0   | 0   | 0   | 0   | 0   | 6   | 86   | 1151  | 1243        |
| 3                   | 313 Chitawan  | 0   | 0   | 0   | 0   | 0   | 3   | 4   | 24   | 995   | 1026        |
| 5                   | 508 Rupandehi | 1   | 0   | 2   | 1   | 0   | 7   | 109 | 315  | 374   | 809         |
| 3                   | 304 Dhading   | 0   | 0   | 0   | 0   | 0   | 32  | 24  | 54   | 483   | 593         |
| 6                   | 610 Surkhet   | 0   | 0   | 0   | 3   | 2   | 0   | 0   | 1    | 451   | 457         |
| 7                   | 708 Kailali   | 2   | 0   | 1   | 1   | 0   | 0   | 3   | 13   | 395   | 415         |
| Total               |               | 3   | 0   | 3   | 5   | 4   | 45  | 506 | 3134 | 23910 | 27610       |

### Intervention conducted in response to dengue



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- ✓ EDCD conducted a virtual interaction meeting with provinces, districts and local levels to discuss on the current situation, responses from districts and local level and possible coordinated efforts to curve the increasing cases of dengue.
- ✓ For the response of dengue, EDCD has allocated budget for 139 palikas, 60 districts and all 7 provinces for 'search and destroy' to control the dengue. Moreover, EDCD has allocated budget to conduct stakeholders meeting for advocacy on dengue prevention during the peak month on same palika, districts and provinces.
- ✓ EDCD conducted a stakeholder meeting with hotel association of Nepal as well as school association as a preparation of outbreak especially in schools and hotels.
- ✓ EDCD has developed the dengue prevention and control flyer in coordination with NHEICC.
- ✓ Some provinces and districts are conducting the advocacy/public message through social media for dengue control and prevention among general public.
- ✓ EDCD is coordinating with districts as well as provinces who are reporting higher number of cases for the control of dengue. However, the penetration at local level needs improvement for control of dengue in Nepal
- ✓ EDCD is providing dengue test diagnostic kits to provinces and districts as per their request and availability in EDCD store.
- ✓ In last week of August, District health office, Lalitpur and Kathmandu started mass dengue search and destroy campaign as well as awareness activities in close collaboration with the metropolitan city/wards.
- ✓ In last week of August, the Kathmandu Metropolitan city conducted the ward levels meeting (1-32 wards) with health worker and stakeholders at district coordination office, Babarmahal, Kathamandu.
- ✓ Regular update and sharing of the information regarding current cases and deaths due to dengue with all officials (MoHP, DoHS, province, districts and palikas)
- ✓ EDCD is in regular consultation with technical experts for dengue response (prevention efforts, vector surveillance, and advocacy) to curtail the surge of disease.
- ✓ A joint meeting among MoHP, EDCD and hub hospitals was conducted to share the situation update, ongoing intervention and outbreak preparedness.
- ✓ EDCD conducted an interaction meeting with elected officials of Kathmandu districts, health coordinators, with focus on sensitizing on dengue prevention and control efforts in Kathmandu districts.
- ✓ EDCD conducted technical orientation program with physicians/Medical officers all over the country to sensitize physicians on proper case management of dengue, referral and support in surveillance system. Over 105 doctors joined virtually from all over the country and 40 doctors joined physically in the program.
- ✓ EDCD conducted technical orientation program with physicians/Medical officers all over the country to sensitize physicians on proper case management of dengue, referral and support in surveillance system. Over 120 doctors joined virtually from all over the country and 25 doctors joined physically in the program.
- ✓ Vector surveillance activity has started at Lalitpur, Kathmandu from 13 Sept, 2022 with several wards.



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- ✓ EDCD conducted an interaction meeting with elected members, government officials and health coordinators of Bhaktapur and Lalitpur districts, with focus on sensitizing on dengue prevention and control efforts in both districts.
- ✓ EDCD held an interaction meeting with Dang district elected members, government officials, and health coordinators, with the goal of raising awareness about dengue prevention and control efforts.
- ✓ At Dang, several wards have participated in dengue vector surveillance activities and search and destroy activity.
- ✓ The EDCD has distributed LLINs (Long-lasting insecticidal nets) to high-reporting hospitals (both public and private) in Kathmandu valley for dengue control.

| Summary Of Dengue Reported Cases Based On EWARS Reporting |                    |     |     |     |     |     |     |     |      |      |             |
|---|--------------------|-----|-----|-----|-----|-----|-----|-----|------|------|-------------|
| 01 Jan - 6 Oct, 2022                                      |                    |     |     |     |     |     |     |     |      |      |             |
| Province  | Districts          | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug  | Sept | Grand Total |
| 3   | 306 KATHMANDU      | 0   | 0   | 0   | 0   | 1   | 1   | 35  | 727  | 9891 | 10655       |
| 3   | 308 LALITPUR       | 0   | 0   | 0   | 0   | 0   | 1   | 99  | 1558 | 6016 | 7674        |
| 3   | 312 MAKWANPUR      | 0   | 0   | 0   | 0   | 0   | 0   | 221 | 337  | 2452 | 3010        |
| 5   | 510 DANG           | 0   | 0   | 0   | 0   | 1   | 1   | 5   | 19   | 1702 | 1728        |
| 3   | 307 BHAKTAPUR      | 0   | 0   | 0   | 0   | 0   | 0   | 6   | 86   | 1151 | 1243        |
| 3   | 313 CHITAWAN       | 0   | 0   | 0   | 0   | 0   | 3   | 4   | 24   | 995  | 1026        |
| 5   | 508 RUPANDEHI      | 1   | 0   | 2   | 1   | 0   | 7   | 109 | 315  | 374  | 809         |
| 3   | 304 DHADING        | 0   | 0   | 0   | 0   | 0   | 32  | 24  | 54   | 483  | 593         |
| 6   | 610 SURKHET        | 0   | 0   | 0   | 3   | 2   | 0   | 0   | 1    | 451  | 457         |
| 7   | 708 KAILALI        | 2   | 0   | 1   | 1   | 0   | 0   | 3   | 13   | 395  | 415         |
| 5   | 504 GULMI          | 0   | 0   | 0   | 0   | 2   | 3   | 17  | 33   | 244  | 299         |
| 7   | 703 DARCHULA       | 0   | 0   | 0   | 0   | 0   | 2   | 0   | 10   | 270  | 282         |
| 3   | 309 KAVREPALANCHOK | 0   | 0   | 0   | 0   | 0   | 0   | 5   | 29   | 177  | 211         |
| 7   | 709 KANCHANPUR     | 2   | 0   | 0   | 0   | 2   | 4   | 3   | 14   | 121  | 146         |
| 1   | 108 TERHATHUM      | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 88   | 50   | 138         |
| 5   | 505 ARGHAKHANCHI   | 0   | 0   | 0   | 1   | 0   | 1   | 13  | 36   | 87   | 138         |
| 3   | 305 NUWAKOT        | 0   | 0   | 0   | 0   | 0   | 0   | 2   | 12   | 113  | 127         |
| 5   | 506 PALPA          | 0   | 1   | 1   | 2   | 0   | 3   | 12  | 26   | 82   | 127         |
| 1   | 102 SANKHUWASABHA  | 0   | 0   | 0   | 1   | 0   | 11  | 30  | 15   | 64   | 121         |
| 1   | 113 SUNSARI        | 0   | 0   | 0   | 0   | 0   | 0   | 2   | 4    | 114  | 120         |
| 3   | 310 RAMECHHAP      | 0   | 1   | 1   | 1   | 0   | 0   | 4   | 17   | 93   | 117         |
| 3   | 311 SINDHULI       | 0   | 0   | 0   | 0   | 0   | 1   | 27  | 38   | 46   | 112         |
| 2   | 207 BARA           | 1   | 0   | 0   | 0   | 2   | 0   | 0   | 9    | 87   | 99          |
| 3   | 302 SINDHUPALCHOK  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 7    | 89   | 96          |
| 5   | 512 BARDIYA        | 0   | 0   | 7   | 4   | 6   | 0   | 4   | 6    | 68   | 95          |
| 4   | 405 KASKI          | 0   | 0   | 0   | 1   | 0   | 0   | 3   | 6    | 84   | 94          |
| 4   | 401 GORKHA         | 0   | 0   | 0   | 0   | 0   | 1   | 2   | 9    | 81   | 93          |
| 4   | 407 TANAHU         | 0   | 0   | 0   | 0   | 0   | 0   | 2   | 1    | 86   | 89          |
| 4   | 411 BAGLUNG        | 0   | 0   | 0   | 0   | 0   | 0   | 6   | 12   | 70   | 88          |
| 2   | 205 SARLAHI        | 0   | 0   | 0   | 0   | 2   | 1   | 1   | 19   | 63   | 86          |
| 4   | 409 SYANGJA        | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 5    | 80   | 86          |
| 4   | 410 PARBAT         | 0   | 0   | 0   | 0   | 1   | 0   | 3   | 3    | 77   | 84          |



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|   |                      |           |          |           |           |           |           |            |             |              |              |
|---|----------------------|-----------|----------|-----------|-----------|-----------|-----------|------------|-------------|--------------|--------------|
| 5 | 509 KAPILBASTU       | 0         | 0        | 1         | 0         | 0         | 2         | 6          | 21          | 53           | 83           |
| 1 | 111 JHAPA            | 1         | 0        | 1         | 0         | 1         | 1         | 2          | 5           | 68           | 79           |
| 1 | 105 KHOTANG          | 0         | 0        | 0         | 0         | 1         | 0         | 0          | 2           | 75           | 78           |
| 2 | 206 RAUTAHAT         | 0         | 0        | 0         | 0         | 1         | 0         | 2          | 5           | 70           | 78           |
| 4 | 408 NAWALPARASI EAST | 0         | 0        | 0         | 0         | 0         | 0         | 2          | 12          | 64           | 78           |
| 1 | 112 MORANG           | 1         | 0        | 0         | 1         | 0         | 3         | 2          | 3           | 65           | 75           |
| 2 | 208 PARSA            | 0         | 0        | 0         | 0         | 0         | 3         | 1          | 3           | 68           | 75           |
| 7 | 706 DOTI             | 0         | 0        | 0         | 0         | 0         | 0         | 1          | 1           | 72           | 74           |
| 5 | 507 NAWALPARASI WEST | 0         | 0        | 0         | 0         | 0         | 1         | 16         | 23          | 33           | 73           |
| 3 | 301 DOLAKHA          | 0         | 0        | 0         | 0         | 0         | 0         | 0          | 10          | 56           | 66           |
| 4 | 406 LAMJUNG          | 0         | 0        | 0         | 1         | 0         | 2         | 8          | 6           | 44           | 61           |
| 1 | 107 DHANKUTA         | 0         | 0        | 0         | 0         | 0         | 0         | 0          | 4           | 54           | 58           |
| 5 | 511 BANKE            | 0         | 1        | 0         | 0         | 0         | 0         | 2          | 6           | 49           | 58           |
| 1 | 114 UDAYAPUR         | 0         | 0        | 0         | 0         | 0         | 0         | 0          | 3           | 53           | 56           |
| 4 | 404 MYAGDI           | 0         | 0        | 0         | 1         | 0         | 0         | 1          | 1           | 43           | 46           |
| 1 | 106 BHOJPUR          | 0         | 0        | 0         | 0         | 0         | 2         | 7          | 3           | 29           | 41           |
| 2 | 204 MAHOTTARI        | 0         | 0        | 0         | 0         | 0         | 0         | 0          | 5           | 36           | 41           |
| 7 | 704 BAITADI          | 0         | 0        | 0         | 0         | 0         | 0         | 3          | 4           | 34           | 41           |
| 5 | 503 PYUTHAN          | 1         | 0        | 0         | 0         | 0         | 1         | 6          | 6           | 25           | 39           |
| 1 | 104 OKHALDHUNGA      | 0         | 0        | 0         | 0         | 0         | 1         | 3          | 4           | 27           | 35           |
| 1 | 110 ILAM             | 0         | 0        | 0         | 0         | 1         | 0         | 1          | 2           | 29           | 33           |
| 7 | 705 DADEL DHURA      | 0         | 0        | 0         | 0         | 0         | 1         | 1          | 5           | 23           | 30           |
| 6 | 608 RUKUM WEST       | 0         | 0        | 0         | 0         | 0         | 0         | 1          | 3           | 25           | 29           |
| 2 | 201 SAPTARI          | 0         | 0        | 0         | 0         | 0         | 0         | 0          | 3           | 24           | 27           |
| 6 | 609 SALYAN           | 0         | 0        | 0         | 0         | 0         | 0         | 1          | 0           | 26           | 27           |
| 7 | 707 ACHHAM           | 0         | 0        | 0         | 0         | 1         | 1         | 1          | 1           | 21           | 25           |
| 1 | 109 PANCHTHAR        | 0         | 0        | 0         | 0         | 0         | 0         | 0          | 1           | 23           | 24           |
| 2 | 202 SIRAHA           | 0         | 0        | 0         | 0         | 0         | 1         | 0          | 5           | 17           | 23           |
| 6 | 604 JUMLA            | 1         | 0        | 0         | 0         | 0         | 0         | 6          | 6           | 10           | 23           |
| 7 | 702 BAJHANG          | 1         | 0        | 0         | 0         | 0         | 0         | 0          | 4           | 17           | 22           |
| 6 | 605 KALIKOT          | 0         | 0        | 0         | 0         | 0         | 1         | 0          | 0           | 20           | 21           |
| 5 | 501 RUKUM EAST       | 0         | 0        | 0         | 0         | 0         | 0         | 2          | 3           | 14           | 19           |
| 2 | 203 DHANUSA          | 0         | 0        | 1         | 0         | 0         | 0         | 0          | 2           | 15           | 18           |
| 7 | 701 BAJURA           | 0         | 0        | 0         | 0         | 1         | 0         | 1          | 5           | 11           | 18           |
| 1 | 103 SOLUKHUMBU       | 0         | 0        | 0         | 0         | 0         | 0         | 0          | 2           | 14           | 16           |
| 6 | 606 DAILEKH          | 0         | 0        | 0         | 0         | 0         | 0         | 1          | 1           | 13           | 15           |
| 5 | 502 ROLPA            | 0         | 0        | 0         | 0         | 0         | 0         | 0          | 2           | 12           | 14           |
| 6 | 607 JAJARKOT         | 0         | 0        | 0         | 0         | 0         | 1         | 0          | 0           | 11           | 12           |
| 6 | 602 MUGU             | 0         | 0        | 0         | 0         | 0         | 0         | 0          | 1           | 7            | 8            |
| 1 | 101 TAPLEJUNG        | 0         | 0        | 0         | 0         | 0         | 0         | 0          | 0           | 6            | 6            |
| 3 | 303 RASUWA           | 0         | 0        | 0         | 0         | 0         | 0         | 0          | 0           | 6            | 6            |
| 4 | 402 MANANG           | 0         | 0        | 0         | 0         | 0         | 0         | 0          | 1           | 5            | 6            |
| 4 | 403 MUSTANG          | 0         | 0        | 0         | 0         | 0         | 0         | 0          | 0           | 2            | 2            |
| 6 | 601 DOLPA            | 0         | 0        | 0         | 0         | 0         | 0         | 0          | 1           | 1            | 2            |
| 6 | 603 HUMLA            | 0         | 0        | 0         | 0         | 0         | 0         | 0          | 0           | 2            | 2            |
|   | <b>Grand Total</b>   | <b>11</b> | <b>3</b> | <b>15</b> | <b>18</b> | <b>25</b> | <b>93</b> | <b>720</b> | <b>3708</b> | <b>27528</b> | <b>32121</b> |



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