

# Arboviral Surveillance and Response Capacity Survey 2021

## Section I: Respondent details

### 1. Country

Nepal

### 2. Respondent/person to be contacted for clarification, if needed (last name, first name, e-mail address)

### 3. Professional title and affiliation

### 4. Date (dd/mm/yyyy)

28/5/2021

## Section II: Arboviral disease surveillance system

### 5. Which arboviruses have circulated in your country at any time since the year 2000? This refers only to arboviruses with autochthonous i.e., local mosquito-borne transmission.

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Chikungunya	Not selected
Dengue	Yes
Yellow fever	Not selected
Zika	Not selected

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### 6. Do you have any written arbovirus surveillance and control plan(s) and/or guideline(s) for your country?

Yes, we have arbovirus-specific plans(s) or guidelines(s)

**6b. For which of the following arboviruses do you have written surveillance and control plans for your country? Please choose all that apply.**

Chikungunya	Not selected
Dengue	Yes
Yellow fever	Not selected
Zika	Not selected

**6c. Please upload surveillance and control plan(s) or protocol(s), or guideline(s)**

1 file(s) submitted

**7. Is there a specific national programme for arboviral diseases surveillance or is it integrated in another programme? Please select the appropriate answer:**

Specific programme

**7b. Please specify the programme into which arboviral diseases is integrated**

**8. For which level of the health structure are individual and aggregated data available? (Select all relevant levels)**

	Individual level	Aggregated
Primary health care level	Not selected	Yes
District level	Yes	Yes
Regional level	Yes	Yes
National level	Yes	Yes

**9. What are the tools used for recording case data for surveillance purposes? Select all that apply**

National	Mixed methods
State/provincial	Mixed methods
District	Mixed methods

**10. Which training has been provided to the staff working on arboviral disease surveillance data?**

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One-time basic training on data capture and analysis (MS Excel, MS Access, EpiInfo) and/or geographic information systems (GIS)	Not selected
Repeated/continuing basic training on data capture, analysis, and/or GIS	Yes
One-time advanced training on statistical software for data analysis (e.g. STATA, R, SAS, Tableau, etc)) and GIS	Not selected
Repeated/continuing training on advance statistical software for data analysis (eg STATA, R, SAS, etc) and GIS	Not selected
No training	Not selected

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**11. Is reporting mandatory for any arboviral disease cases in your country?**

No

**11b. For which of the following arboviral disease cases is reporting mandatory in your country?**

**11c. For which other arboviral diseases is reporting mandatory?**

**11d. Please upload document(s) containing surveillance case definitions used for reporting of arboviral diseases**

**12. In the last 2 years, did your country conduct national epidemiological surveillance for human cases of arboviral disease?**

Yes

**12b. How frequently are surveillance data reported to the national level?**

Weekly

**12c. What type of national epidemiological surveillance was conducted?**

Primarily passive

For reference, here are the relevant definitions:

**Active surveillance** is defined as having dedicated systems and staff that routinely and with effort survey for cases of disease or detection of vectors and associated pathogens by the public health department.

**Passive surveillance** is defined as having a reporting system where physicians, laboratories, mosquito control districts, academic institutions or others routinely report cases of disease or detection of vectors and associated pathogens to the public health department.

**12d. If available, please upload the most recent report(s) on arboviral surveillance in humans**

0 file(s) submitted

**13. Does your country provide regular training sessions for healthcare workers on notification of *Aedes*-borne arboviral diseases?**

Yes : Notification of dengue cases is conducted through two platform, 1. Health Management Information System (HMIS)- aggregated data on dengue is reported from all level of health facilities within the country, 2- Early Warning and Reporting System (EWARS)- reporting done by district hospital and above level which includes both private and public, detail dengue data is reported, however the limitation is data are only reported from sentinel sites which is currently 118 sites across the country. Medical recorders from EWARS sites are provided regular training on notification of dengue cases integrated with trainings for all EWARS listed other 5 diseases. HW in HF reporting through HMIS (all public and most private HF) have less frequent trainings on dengue notification

**14. What do the arboviral disease surveillance staff perceive as factors contributing to the a) success and b) barriers/challenges to arboviral disease surveillance in humans?**

Success: Dengue notification through EWARS which covers all public hospitals at district level and above and few big private hospitals. The national guidelines for dengue has a specific section on disease surveillance and has categorized dengue disease as suspected, probable and confirmed for notification purposes. 118 EWARS sentinel sites are reporting dengue cases through this platform.

Barriers/Challenges: Dengue cases are categorized into suspected (clinically), probable (based on RDT both antigen and antibody detection) and confirmed cases (PCR OR Viral Culture, OR IgM seroconversion in paired sera OR IgG seroconversion in paired sera OR four fold IgG titer increase in paired sera). Mostly diagnosis are made clinically or based on RDT. Due to availability of various kind of RDTs in the country and health workers not using the right kind of RDT at the right point of time during illness, there are many false positive or false negative cases. Since there is no WHO-PQ RDT for the national program to procure, RDTs from various companies are used at the peripheral level. This has impacted in disease surveillance. Also, during large outbreak, the health staff responsible for notifying diseases are overburden to report huge number of cases with detailed information.

### Section III: Arbovirus laboratory capacity

15. Is arbovirus diagnostic laboratory testing performed for confirmation of suspected cases in your country? (Please select the applicable option during outbreak periods and during non-outbreak periods, respectively)

Outbreak periods	Subset of suspect cases tested
Non-outbreak periods	Subset of suspect cases tested

15b. On average, for what percentage of suspected arboviral disease cases your country is laboratory confirmatory testing performed? Please indicate for outbreak and non-outbreak periods, respectively

16. In the last two years, were the positive cases of arboviruses confirmed by a national reference laboratory?

Yes, but only for some arboviral infections. Please specify them:

For dengue using Dengue ELISA test kits and RDTs

16b. If your country does not have capacity to type and serotype arboviruses, do you send samples for typing to other countries?

No

17. Overall, what arboviral testing capacity(ies) is(are) available in your country? Please check all applicable boxes

	Antigen testing	IgM antibody testing	IgG antibody testing	Neutralizing antibody testing	Virus isolation	RT-PCR or other nucleic acid amplification test	Viral gene/genome Sequencing
Chikungunya	Yes	Yes	Yes				
Dengue	Yes	Yes	Yes			Yes	
Yellow fever							
Zika							
Other							

18. Which additional resources are most needed for your country to perform adequate testing for arboviral diseases? Please describe what would be needed for each checked resource in the adjacent comment field

19. Do you perform virological surveillance on humans, ie, tracking of prevailing genotypes/serotypes? Please select all that apply

No: NA

19b. Which samples do you use for virological surveillance?

19c. For which viruses do you perform virological surveillance? (check all that apply)

19d. Does your country provide regular training sessions for healthcare workers on arboviruses virological surveillance?

20. What do the arboviral diagnostic laboratory staff perceive as factors contributing to the a) success and b) barriers/challenges with respect to laboratory testing for arboviral infections?

Success- Availability of ELISA and RDTs for Dengue and Chikungunya tests.  
Challenges- With COVID-19 pandemic the country has capacity to perform RT-PCR, however support will be required for laboratory reagents and

## Section IV: Management of arboviral disease cases

21. Does your country have clinical guidelines for healthcare workers on diagnosis and clinical management of cases and severe cases of *Aedes*-borne arboviral diseases?

Yes

21b. Please upload the clinical guideline(s) for arboviral disease management

1 file(s) submitted

**22. Are severe cases of arboviral diseases managed in a special area (part of the hospital, isolation beds)?**

No. If so, where are patients with severe disease treated? Please specify in comments field.

There is no special area designated for treatment of severe dengue cases. They are treated in same areas where other severe disease cases are treated.

**23. How many hospital beds are available per 100,000 population?**

30

**24. Does your country provide regular training sessions for healthcare workers on clinical diagnosis and management of *Aedes*-borne arboviral diseases?**

Yes, specific training is provided. If so, please specify:

Training on clinical diagnosis and management of dengue is a part of the MBBS, MD training course. Also, some training sessions are organized by DoHS on dengue management.

**25. What do the arboviral disease surveillance/clinical staff perceive as factors contributing to the a) success and b) barriers/challenges with respect to case management?**

Success: Since the first reporting of dengue cases in the country in 2004, clinical staffs keep dengue as a differential diagnosis of fever cases and perform tests accordingly. The MoHP developed its national guidelines for dengue case management and the latest revised version is of 2019 which is very helpful for the clinicians.

Barriers/Challenges: Sometimes due to unavailability and unreliability of rapid diagnostic test kits for dengue, case diagnosis is missed only based upon the clinical evaluation.

## **Section V: Routine vector surveillance and control**

**26. Is there a disease programme, agency, or service in charge of arbovirus vector surveillance in your country?**

No

**27. Which institution/department is in charge of reporting entomologic surveillance data to the national ministry of health/health department? (Check all that apply)**

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State/provincial health agencies	Not selected
Other national agency	Yes
City/country health departments	Not selected
Local mosquito control districts or similar organisations	Not selected
Universities or academic institutions	Not selected
Private companies	Not selected

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**28. For the last 2 years, did your country conduct entomologic surveillance for arboviral infections in mosquito vectors?**

No

**28b. Please upload the most recent national vector surveillance report**

**28c. Did the entomologic surveillance entail country wide programmes or was it restricted to specific locations?**

**28d. How many sentinel surveillance sites do you have?**

**28e. How often was the surveillance conducted? Please choose one of the following:**

**29. Do you conduct adult mosquito surveillance?**

No

**30. Do you conduct larval/pupal mosquito surveillance?**

No

**31. Are trapped mosquitoes identified to species?**

No



**32. Does your country either calculate minimum infection rates (MIR) for any *Aedes*-borne arboviruses with your mosquito data or receive such data from other agencies? Please choose only one of the following:**

No

**33. Which laboratories performed testing for arboviruses on mosquito pools collected in your country in the last two years? (check all that apply)**

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National public health laboratory	Not selected
State/provincial/regional public health laboratory	Not selected
Local health department laboratory	Not selected
University or academic institution	Not selected
Local MCD (if different from county health dep't)	Not selected
Mosquito surveillance done, but no testing done on mosquito pools	Not selected
Not applicable (no mosquito surveillance done)	Yes

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**34. Is there a record of *Aedes aegypti* or *Aedes albopictus* being found in your country in the past 5 years? Please choose only one of the following**

Yes, both *Aedes aegypti* and *Aedes albopictus*

**34b. Please describe the potential public health threat from *Aedes aegypti* in your country**

Dengue cases are reported from almost all of the districts in recent years which was previously reported from few districts, so based on this assumption can be made that *aedes aegypti* or *albopictus* are spreading to a wider geographical areas within the country, but since vector surveillance has not been conducted at national level it is difficult to say whether *aedes aegypti* or *albopictus* is most dominant.

**34c. Please describe the potential public health threat from *Aedes albopictus* in your country**

Dengue cases are reported from almost all of the districts in recent years which was previously reported from few districts, so based on this assumption can be made that *aedes aegypti* or *albopictus* are spreading to a wider geographical areas within the country, but since vector surveillance has not been conducted at national level it is difficult to say whether *aedes aegypti* or *albopictus* is most dominant.

**35. Over the past two years, did your country use any of the following vector control methods in local jurisdictions (either using government staff and resources, or subcontracting to a different entity to do so)? Please select all that apply**

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Adulticiding (insecticide application against adult mosquitoes)	Yes
Larviciding	Not selected
Insect growth regulators (eg , pyriproxyfen)	Not selected
Wolbachia method	Not selected
Sterile insect release	Not selected
None	Not selected
Other	also search and destroying of mosquito larva

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**35b. Would your country have conducted or financially supported adulticiding/larviciding or source reduction activities in the last two years if sufficient funding were available?**

**35c. Which adulticides and/or larvicides (brand and product name) were used?**

There is no uniformity on adulticides used as fogging because of the self purchase of different local levels.

**36. Does your country provide regular training sessions for staff in charge of vector control and vector surveillance?**

Yes, only for vector control

**37. For the last two years, did your country have a plan for mosquito-borne disease control that includes a threshold (eg, level of vector mosquito abundance or minimum infection rate) that would result in a recommendation for mosquito adulticiding/other mosquito reduction measures?)**

No – do not have a formal plan that includes adulticiding to control mosquito-borne diseases

**37b. Which indicator(s) is(are) used as threshold(s)?**

**38. Overall, are data on any of the following arboviral outbreak risk factors routinely collected and analysed? (Select all that apply)**

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House Index	Not selected
Breteau Index	Not selected
Container Index	Not selected
Temperatures	Not selected
Rainfall	Not selected
Migration of a non-immune population	Not selected
None	Yes

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**39. Is there a surveillance system in place for monitoring *Aedes* resistance to the insecticide(s) used?**

No

**40. What do the vector surveillance staff perceive as factors contributing to the a) success and b) barriers/challenges with respect to vector surveillance and control in the country?**

There are very limited vector surveillance staffs in the country with no routine vector surveillance conducted.

## **Section VI: Animal surveillance**

**41. During the last 2 years, did your country conduct national epidemiological surveillance for arboviral disease in animals (eg, epizootic surveillance for yellow fever in endemic areas)?**

I don't know

**41b. How often was the animal surveillance conducted?**

**41c. What type of surveillance was conducted in animals?**

**41d. Please upload a report on the animal surveillance**

42. Does your country (or local jurisdictions within the country) perform sentinel animal surveillance or epizootic surveillance, eg, for yellow fever in nonhuman primates in endemic regions?

I don't know

42b. For which viruses is sentinel surveillance conducted and in which animal species?

42c. Please upload the most recent report(s) on sentinel animal surveillance

## Section VII: Community sensitization and participation

43. Does your country have a community outreach program that also covers arboviral diseases?

No

43b. What entity(ies) is(are) in charge of the outreach program in your country?

43c. What is the geographical coverage of the outreach program in your country?

43d. Is the community outreach/social mobilization program sufficiently funded to cover staff time, prevention and outreach activities as needed?

43e. Which resources would help ensure adequate capacity?

44. Did your national arboviral disease program issue notifications to the public about local transmission risk and/or possible vector-control activities (eg larviciding, adulticiding, community mobilization and participation, etc) as a prevention message for arboviral diseases within last 2 years? (Check all that apply)

	During outbreaks	During non-outbreak periods
Issued by national public health agency	Not selected	Not selected
Issued by state/local health agencies	Not selected	Not selected
No risk in the past two years	Not selected	Not selected
No notifications even though risk was present	Yes	Yes

**44b. Which means does your program use for community sensitization, mobilisation and acceptance of interventions in your country? (Check all that apply)**

Press releases to electronic and printed media	Not selected
Public service announcements on television or radio	Not selected
Passive distribution of informational brochures	Yes
Active distribution of informational brochures	Not selected
Town, community, or neighborhood meetings	Yes
Posting information on the home page of your agency's website	Not selected
Social media outlets (Facebook, Twitter, etc)	Yes
Door-to-door outreach in selected locations	Yes
Participation in community clean-ups	Yes
Modification of messages for all local languages	Not selected

**45. Does your country provide regular training sessions for staff in charge of community sensitization, mobilisation and acceptance of interventions dedicated to control arboviral diseases?**

Yes. If yes, please describe in comments field:

Yes but regular means most of the times annually. But this does not guarantee that all staff are trained.

**46. What do the community outreach staff perceive as factors contributing to the a) success and b) barriers/challenges with respect to community participation**

Barriers: It is difficult for limited health staffs to reach out to the entire community.

## Section VIII: Preparedness for arboviral outbreaks/epidemics

47. Is there either a surveillance and outbreak response committee in your country, or a steering committee for that purpose?

Yes

48. Does your country have a contingency plan to organize healthcare services during an outbreak (including outbreaks of arboviral diseases)?

No

48b. Please upload the contingency plan

49. Are there defined or established criteria for declaring an outbreak of arboviral disease outbreak in your country?

No

50. Do you have established collaborations with national/regional research institutions / international agencies that are planned to be activated in case of arboviral outbreak?

No

51. What vector control interventions are deployed in case of an emergency?

Mostly fogging using adulticides, search and destroy of mosquito pupa/larva

52. For the last 2 years, which of the following government levels had an emergency fund or a specified emergency funding mechanism for arbovirus outbreak response?

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National level	Not selected
State/local level	Not selected
None	Yes

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53. Does your country provide regular training sessions for staff/committee in charge of preparedness for arboviral outbreaks/epidemics?

No

**54. What do the arboviral disease surveillance staff perceive as factors contributing to the a) success and b) barriers/challenges with respect to preparedness of arboviral diseases epidemics in your country?**

success: allocation of budget for province/district and local level for community sensitization and search and destroy of mosquito larval. Supply of few numbers of RDTs for dengue diagnosis.

barriers: no system in place for routine vector surveillance that helps predict the dengue outbreak, lack of national contingency plan, lack of entomological staffs at various level of health system.

**Section IX: Arboviral disease surveillance data**

**55. Please provide total number of cases and deaths for the following arboviral diseases from 2015 to 2020 (if available).**

	Dengue	Chikungunya	Yellow fever	Zika
2015 Cases	135	NA	NA	NA
2015 Deaths	1	NA	NA	NA
2016 Cases	1527	NA	NA	NA
2016 Deaths	1	NA	NA	NA
2017 Cases	2111	NA	NA	NA
2017 Deaths	4	NA	NA	NA
2018 Cases	3424	NA	NA	NA
2018 Deaths	NA	NA	NA	NA
2019 Cases	NA	NA	NA	NA
2019 Deaths	NA	NA	NA	NA
2020 Cases	NA	NA	NA	NA
2020 Deaths	NA	NA	NA	NA

(NA = Not Available)

**55b. Were cases of other mosquito-borne arboviruses, not listed in the previous question, reported in your country from 2015-2020?**

No

**55c. Please select any of the following other mosquito-borne viruses that have been reported in your country from 2015-2020**

**55d. Please provide total number of cases and deaths due to each of the following other arboviruses that you selected from 2015-2020**

**56. Please provide the number of cases of locally acquired, mosquito-borne *Aedes*-borne arbovirus infections by case classification for 2020 and, if not available, for 2019**

**57. Do arbovirus surveillance staff have any perceived reasons for increasing trends in arboviral disease incidence? Check all answers that apply.**

Climate change (as evidenced by changes in meteorological data)	Yes
Construction activities	Yes
Population migration (within the country or between countries)	Yes
Increased availability of peri-domestic water-bearing containers suitable for mosquito egg deposition	Yes

## **Section X: Surveillance staffing**

**58. During 2019 (prior to the Covid-19 pandemic), indicate below the number of arbovirus surveillance staff at the national level.**

	Number of personnel
Clinicians	1
Laboratorians	1
Entomologists/ vector control specialists	1
Support staff (administration; logistics; other)	1

**59. Indicate below how many total staff persons are needed at the national level in your country to achieve full epidemiology and laboratory capacity\* to conduct arbovirus surveillance.**



	Number of personnel
Clinicians	2
Epidemiologists	1
Laboratorians	3
Entomologists/vector control specialists	3
Support staff (administration; logistics; other)	3

**60. Optional comments to explain responses to questions 58 and 59 above**

However, only related staffs at the national level only will not address the problem. Fixed term staff at the provincial and district level with entomological background is required.

**61. The national health authority/ministry of health has access to expertise in clinical management of arboviruses (Check all that apply)**

Within the ministry of health (eg, public health medical officers, clinicians in state hospitals)	Yes
Through other national agency with regulatory authority	Not selected
Through academic institution(s)	Yes
Private hospitals	Yes
Does not have access	Not selected

**62. The national health authority/ministry of health has access to expertise in arbovirus epidemiology (Check all that apply)**

Within the ministry of health	Not selected
Through other national agency with regulatory authority	Not selected
Through academic institution(s)	Not selected
Does not have access	Yes

**63. The national health authority/ministry of health has access to expertise in arbovirus laboratory diagnosis (Check all that apply)**

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Within the ministry of health (e.g., public health laboratory scientists)	Yes
Through other national agency with regulatory authority	Not selected
Through academic institution(s)	Not selected
Does not have access	Not selected

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**64. The national health authority/ministry of health has access to expertise in entomology (Check all that apply)**

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Within the ministry of health	Not selected
Through other national agency with regulatory authority	Yes
Through academic institution(s)	Yes
Does not have access	Not selected

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**65. Optional comments to explain responses to any of Questions 61-64**

None

## **Section XI: Survey conclusion**

**66. If you have any further comments to add regarding arbovirus surveillance and control in your country, including whether arboviruses other than *Aedes*-borne arboviruses are of higher priority, please do so in the text field below**

Arboviral disease of concern in the country currently in dengue. Since no effective dengue vaccine is available till date, the only way to prevent the disease outbreak in vector control which without having health staffs at every level with entomological background is nearly impossible. National health system should focus on strengthening health workers with these background which will ultimately help to control and eliminate many vector borne diseases including arboviral diseases.