



# Submitting bulk mosquito samples for arbovirus screening

## Introduction

This document was developed to assist local government and other relevant stakeholders undertake bulk mosquito collection, storage, transport and submission to PathWest.

Bulk mosquito sampling for arbovirus screening provides an efficient way of achieving timely results to inform public health response activities. It involves the storage and transport of mosquitoes in virus transport media (VTM), to maintain the integrity of mosquito-borne viruses at 4°C, without the need for dry ice or a -80°C freezer.

### Key points:

- Mosquito-borne viruses will degrade in dead mosquitoes, unless they have a suitable preservative added or are kept at -80°C.
- Virus transport media (VTM) is a pink liquid which can be added to mosquito samples to keep the virus stable at 4°C.
- Mosquitoes, placed in a yellow-topped specimen collection jar, should be mixed with enough VTM to cover them, as soon as possible after being killed.

## Materials

Basic equipment below will be provided by the Department of Health:

- Yellow-topped specimen collection jars
- Virus transport media (stored in fridge at 4°C)
- Plastic disposable pipettes
- Permanent marker
- Ice brick
- Absorbent pad or paper towel
- Foam esky
- Clear packing tape
- Bulk Mosquito Submission Form
- Biohazard bag
- \*Precision electronic scales  
(with a resolution of 0.01g) – \**optional*



# Using VTM to store bulk mosquitoes

Decant an appropriate volume of VTM into a 70mL yellow-topped specimen collection jar for use in the below steps. Discard any VTM remaining in the 70mL jar at the end of the process. This will help to prevent contamination of the larger VTM bottle.



## Repeat the following for each mosquito trap:

- Once mosquitoes have been killed, set aside a subset from trap to be identified (*Note: this step is only undertaken if species identification is required*).
- Remove (discard) any larger by-catch insects if you have time.
- Weigh remaining mosquitoes. If this is not possible, count or estimate number of mosquitoes. Record this information on the [Bulk Mosquito Submission Form](#).
- Place mosquitoes into a yellow-topped specimen collection jar provided. As a guide:
  - ≤ 100 -150 mosquitoes can be placed into a 5mL collection jar.
  - > 100 -150 mosquitoes must be placed in a 70 mL collection jar\*.
- Using a plastic pipette, add sufficient VTM to cover mosquitoes from the decanted volume. Take care not to touch mosquitoes or sides of container in order to prevent cross contamination. As a guide:



No Mosquitoes	Weight (g)	VTM (mL)
100	0.1	2.5
300	0.3	3
500	0.5	4
1000	1	8
2000*	2	16

\*Place a maximum of 2000 mosquitoes/70mL collection jar.

- Firmly** replace lid on specimen collection jar to prevent VTM leakage.
- Shake vigorously to ensure mosquitoes have been saturated in VTM.
- Write trap site name and date of collection on both the lid and body of the collection jar using a permanent marker, as pictured.
- Store the specimen collection jar, complete with mosquitoes, at 4°C until transport to the laboratory can be organised.
- Complete the remainder of the [Bulk Mosquito Submission Form](#), including date of collection, trap site code, trap location description, contact name and email.
- Print a hard copy of submission form, for inclusion with sample (see 'Transport of bulk mosquitoes').
- Email Bulk Mosquito Submission Form** to: [DOH.BulkMosquitoSubmission@health.wa.gov.au](mailto:DOH.BulkMosquitoSubmission@health.wa.gov.au)



# Transport of bulk mosquitoes in VTM to PathWest

- Place specimen collection jar(s) with mosquitoes into a biohazard bag with absorbent pad/paper towel inside bag, in case of VTM leakage.
- Transport via one of the following two methods. Check with your local PathWest to determine whether they have a transport preference:



## Option 1 (No esky):

- Fold printed, 2-sided copy of Bulk Mosquito Submission Form, ensuring address label (back-side) is fully visible.
- Place Bulk Mosquito Submission Form into pocket of biohazard bag with address label facing outward and visible.
- Transport samples to PathWest in foam esky with ice brick.
- Once at PathWest, remove biohazard bag of samples from esky and provide to technician, advising that transport at 4°C is required.

## Option 2 (Esky transport):

- Place printed, folded Bulk Mosquito Submission Form into front pocket of biohazard bag.
- Place biohazard bag of samples into foam esky with a **frozen ice brick** to ensure virus integrity is maintained.
- Tape esky closed with clear packing tape.
- Tape address label to both the top and side of the esky, as pictured below.
- Drop esky off at nearest PathWest collection centre.

If not already undertaken in the steps above, please ensure you have **emailed the Bulk Mosquito Submission Form** to:

[DOH.BulkMosquitoSubmission@health.wa.gov.au](mailto:DOH.BulkMosquitoSubmission@health.wa.gov.au)

### Address Label

