Sentinel Chickens
Keeping a watchful eye on disease

Mosquito Monitors
Blood samples from sentinel chickens all over Australia are being tested to monitor the spread of mosquito borne Murray Valley encephalitis virus (MVEV) and Kunjin virus (KUNV).

The Sentinel Chicken Program, which is funded by the Western Australian Department of Health (DOH) and run by the School of Pathology and Laboratory Medicine’s Arbovirus Surveillance and Research Laboratory (ASRL), was established to reduce the risk and incidence of mosquito-borne diseases in WA.

Approximately 25 flocks, each comprising twelve Hy-Line Brown chickens which act as hosts for vector mosquitoes, are kept at locations in WA as far south as York and as north as One Arm Point.

The chickens, who are unaffected by the viruses and do not spread the virus, are well cared for by volunteers who include Environmental Health Officers and members of the community.

Every two weeks blood samples are taken from beneath the wings of sentinel chickens for testing and are processed by the ASRL research team.

The results are used to notify health departments such as Communicable Diseases Network Australia which alert media outlets that keep the public informed of any virus outbreaks.

The blood-borne viruses are prevalent in the Kimberley as well as the northern parts of Queensland and the Northern Territory but in recent years have been detected regularly in the Pilbara, Gascoyne, and WA’s MidWest regions.

The chickens are used because they produce antibodies within a week of being bitten by the arthropod vectors.

Seroconversions in sentinel chicken flocks indicate that they have been infected by the virus but chickens that test positive are always retested for confirmation.

MVEV is a rare but potentially fatal virus and symptoms include muscle tremors, nausea, fever, drowsiness, and stiff necks, although only 1:1000 cases present symptoms.

The Environmental Health Directorate’s Environmental Health Hazards Unit warns that areas near swamps, floodplains, river systems, irrigation areas, and major dams, are most prone to mosquito infestation.

Mosquitos are most active at dawn, dusk, and night, as well as during wet seasons.

The sentinel chicken program is part of the national Sentinel Chicken Surveillance Program which provides Australians with early warnings about increased flavivirus activity.

Pioneered by UWA’s Foundation Professor of Microbiology, the late Professor Neville Stanley, this process has been used in Australia since 1974.

Victoria’s Veterinary Research Institute and New South Wales’ Westmead Hospital’s Virology Department are other major organisations participating in similar programs.

By Jake Dennis

For further information, visit www.pathology.uwa.edu.au