NEW ZEALAND BIOSECURE
Entomology Laboratory
A DIVISION OF SMS SOUTHERN MONITORING SERVICES LIMITED

Newsletter - January 2010

Hi everyone. How are you enjoying this summery weather?!! Hopefully this month will be better, hard to believe it's February already and the schools are going back. Come on sun! We have some interesting articles on malaria and yellow fever vaccines progress and issues, make sure you check them out. Have a good month!

Rachel

SAMPLES

During January, a total of 874 samples were collected by staff from 12 public health services, with 150 positive. Sampling numbers were up on last month which is expected at this time of year, however they were down on last year. The specimens received were as follows:

Species	Adults	Larvae
Aedes antipodeus	5	0
Ae. notoscriptus	112	752
Culex pervigilans	5	887
Cx. quinquefasciatus	144	1182
Opifex fuscus	0	8
Exotics	0	0
TOTAL	**266**	**2829**

INCURSIONS/INTERCEPTIONS

There were three interception callouts in January, 7th, 11th, 17th occurred during the same weekend at Auckland International Airport. The first two were adult *Culex quinquefasciatus* and the latter a non-mosquito. Larval surveillance was undertaken by the Auckland DHB to identify and eliminate any localised breeding populations within the airport area.

NEWBIES/SAMPLING SUPPLIES

Don't forget to contact us by phone or email (taxonomy@nzbiosecure.net.nz) if you are new to the mozzie surveillance work and need help with sourcing equipment or advice etc.

You may be aware we are able to reuse some items such as bubblewrap, padded envelopes and sampling tubes. We have a supply of all three at the moment, so let us know if you need to stock up.

MOSQUITO-BORNE DISEASES

MALARIA TRANSMISSION INCREASE ON MOUNT KENYA

Source: Visit Bulgaria [edited] 1 Jan 2010, reported on ProMED Mail 7 Jan 2010

According to a team of researchers funded by the UK Government's Department for International Development (DfID), global warming is to be blamed for the 7-fold increase in the malaria cases on Mount Kenya.

In the past 20 years, the average temperature on the mountain has risen by 2-degrees Centigrade, allowing the disease to crop up in the higher altitude areas, with the local population having no or little immunity to the disease.

According to the researchers, the average temperature in the Kenyan Central Highlands has risen from 17 deg C [62.6 deg F] in 1989 to 19 deg C [66.2 deg F] today.

Map ex
http://goafrica.about.com/library/bl.mapfacts.kenya.htm

Since the parasite matures only in temperatures above 18 deg C [64.4 deg F], it was absent from the region prior to the 1990s. However, with average temperatures now above 18 deg C [64.4 deg F], malaria epidemics have increased in the past decade, malaria-carrying *Anopheles* mosquitoes discovered in Naru Moro, which is over 6175 ft (1900 m) above sea level in 2005.

Similar outbreaks elsewhere are also attributed to multiple factors like resistance to drugs, including changes in the way land is used, such as, changes in drainage systems, population explosion etc., though the only change in Mount Kenya has been the rise in temperature.

The change in temperature is being blamed on emissions from human activity, rather than climatic changes due to natural causes. Rising temperatures on the slopes of Mount Kenya have put an extra 4 million people at risk of malaria, as the disease creeps into the higher altitude areas.

Church meetings and local health clinics are being held for educating people in high-altitude areas on how climate change could impact them by spreading malaria into their area.

Extremely worrying, developing nations like Kenya need support to help them tackle the potentially devastating impacts of climate change.

SCIENTISTS A 'STEP CLOSER' TO MALARIA VACCINE

Source: Australian Associated Press, Sydney, 19 Jan 2010

Isolated three key proteins known to play a vital role in the parasite's ability to infect red blood cells

Australian scientists are zeroing in on the proteins which could ultimately deliver the world a working malaria vaccine.

Researchers reviewed 33 studies which had investigated cases of malaria infection and the defensive antibodies it generated in a person's blood.

The process allowed the scientists to isolate three key proteins - known by the acronyms MSP3, MSP1 and AMA1 - now understood to play a vital role in the parasite's ability to infect red blood cells.

"It's a protein that the parasite makes ... that it sticks to the surface of the red blood cell, so it attaches and drills its way inside where it is protected from the body's immune response," said Dr James Beeson, from the Melbourne-based research organisation Walter and Eliza Hall Institute.

"(Malaria) is an infection of the blood stream and the parasites ... can then spread around the body where they can damage vital organs, particularly the brain but also the lung, kidneys and heart."

The research indicates that a vaccine which targeted these proteins could have the effect of blocking a run-away malaria infection, despite the parasite being inside the body.

However, Dr Beeson said, the parasite was also expected to have dozens of alternative proteins that it could also use to break into the cells.

"What we need to do in a vaccine is target several proteins so that it cripples the parasite, and it runs out of options," he said.

"We know there are over 40 of them that the parasite might be using to burrow into red cells."

Dr Beeson said the three proteins were prime candidates for inclusion in a future malaria vaccine, and work was underway to identifying others that should also be included or ruled out.

The University of Melbourne also contributed to the research, which was published on Tuesday in the international journal PLoS Medicine.

"It has been a very difficult nut to crack really, trying to identify which proteins could form the basis of a malaria vaccine," he said.

"This work takes us a step closer."

Meanwhile, researchers at Q-Pharm Ltd and the Queensland Institute of Medical Research have announced a clinical trial as part of an effort towards a malaria vaccine.

Volunteers will be injected with a very low dose of malaria, and two different types of conventional treatment, to test the growth and destruction of the parasite.

YELLOW FEVER VACCINE, TRANSFUSION TRANSMISSION - USA

Source: CDC. MMWR Morb Mortal Wkly Rep 2009; 59(2): 34-7. 22 Jan 2010 [summ., edited] reported on ProMED Mail, 22 Jan 2010

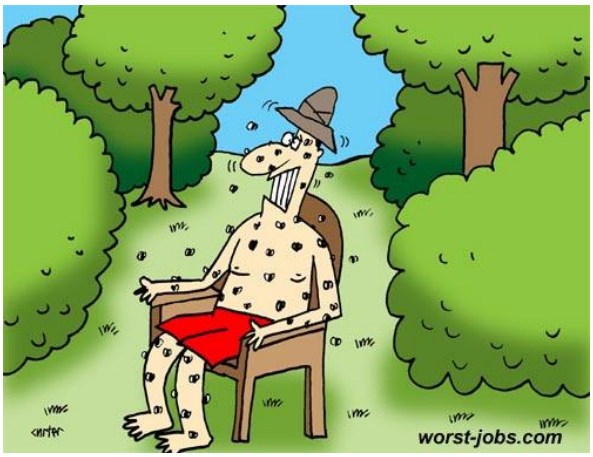
In the United States, yellow fever (YF) vaccination is recommended for travelers and active duty military members visiting endemic areas of sub-Saharan Africa and Central/South America. The American Red Cross recommends that recipients of YF vaccine defer blood product donation for 2 weeks because of the theoretical risk for transmission from a viremic donor.

On 10 Apr 2009, a hospital blood bank supervisor learned that, on 27 Mar 2009, blood products had been collected from 89 US active duty trainees who had received YF vaccine 4 days before donation.

This investigation documents, for the 1st time, serologic evidence for transmission of YF vaccine virus through infected blood products.

Before this report, the risk for transmitting YF vaccine virus through blood products was only theoretical. From this investigation, various blood products, including irradiated platelets, appear capable of transmitting the YF vaccine virus.

Mozzie Photo of the Month



I think the url says it all!

Comparison: wearing protective gear, doing some repellency testing by swampland near Brisbane. Mark still averaged 200 bites each night through his clothing.