Jeff Stivers: Mosquitoes carry many problems, but avian flu isn't one of them

By Jeff Stivers

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Mosquito season is fast approaching and Collier Mosquito Control District (CMCD) personnel are preparing for another year of battling these hungry pests. With the threat of avian flu — especially the H5N1 strain — constantly in the news, some Naples residents have expressed concern over the possibility of mosquitoes transmitting this disease to humans.

A quick visit to the Center for Disease Control's web site at www.cdc.gov/flu/avian/ should serve to reassure residents: Avian flu is not transmitted by mosquitoes. Rather, the primary mode of human infection is through contact with the virus-rich secretions or feces of infected birds.

While mosquitoes are capable of transmitting many viral diseases, such as West Nile virus, Saint Louise encephalitis and eastern equine encephalitis, they are not known to carry avian flu. For mosquitoes to transmit a disease from one infected individual (human or animal) to another requires that the mosquito and the virus interact in specific ways.

First, a mosquito must be capable of ingesting the virus when it takes a blood meal from its host. Once the virus is ingested by the mosquito, the virus must be capable of not only surviving in the mosquito's stomach, but of actively reproducing. If the virus cannot survive in the mosquito's stomach and reproduce there is no chance of the mosquito infecting its next host.

Even if a virus is capable of surviving in the mosquito's gut, it must next find some way to get from the mosquito to its next host. This involves the virus passing through the wall of the mosquito's gut and into the mosquito's body cavity — without killing the mosquito.

Then, from the body cavity the virus must migrate through the body to the salivary glands. Once in the salivary glands, the virus is ready to be injected into the next host that the mosquito bites, passing the disease along.

This process — from the ingestion of the virus to injection into a new host — may take from just several days to a couple of weeks. It depends on the disease, ambient temperature and other factors. If the mosquito dies before that time, whether from natural factors or because of the virus, there's no disease transmission.

There are many stages in the transmission of a disease by mosquitoes where complex interactions between the disease agent (virus or bacteria) and the mosquito must take

place for successful transmission. Fortunately for people, very few disease agents have the capacity to successfully develop these interactions and be transmitted by mosquitoes.

This means that diseases such as avian flu and AIDS are no greater a problem in mosquito-plagued areas, such as Naples, than in mosquito-free areas.

With mosquito season approaching it is time for a mosquito advisory for Naples residents, especially those whose first mosquito season was the season of 2005.

The 2005 mosquito season was the lightest in the memory of CMCD employees, and that goes back 35 years. Last year's unusual season means that, even if the 2006 season is light, it may seem terrible when compared with 2005. Be prepared with repellent, long sleeve shirts and long pants to survive a more normal mosquito season in 2006.

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