

MINUTES

West Nile Virus Prevention, Surveillance, and Control Workshop

December 9, 2004

9:00 – 4:00

Hilton Sacramento Arden West

Minutes prepared by Lauren Marcus and Anne Kjemtrup, Vector-Borne Disease Section, California Department of Health Services, (916) 552-9730.

Presentations are posted separately at <http://www.westnile.ca.gov> (under local agency tab). These minutes pertain primarily to the panel discussion segments of the workshop.

Workshop brought to order by Vicki Kramer.

I. Overview of workshop objectives and format

- a. If there are questions for the panel for which there is no time to answer, the questions will be stated for the record and will be responded to at a later date, in writing or informally, or if there's time at the end of the meeting.

II. Dead Bird Surveillance: Stan Husted

(Panel: Stan Husted, Ryan Carney, Barbara Cahoon-Young, Leslie Woods, Bill Reisen, Kerry Padgett)

- a. Stan recognized the absence of Dr. Bill Reeves from this meeting. His death marks the end of an era.
- b. Stan noted that there are two things that cannot be done in 2005 by DHS or the local agencies: 1. We can't work any harder in 2005, and 2. We cannot care more. Next year, we must work smarter!
- c. Panel Discussion
 - i. Minoo Madon: Greater Los Angeles VCD
 - a. Minoo wondered which agencies considered dead birds as data collection only. Minoo felt that dead birds were great indicators that virus was active in an area. He expressed that local agencies should have taken action on information they received.
 - ii. Dave Brown: Sacramento/Yolo MVCD
 - a. Going out and picking up dead birds was the most resource-limiting issue. There is no question as to the value of dead bird reports. Q: At what point do we need to stop picking up dead birds and devote resources to mosquito control?
 1. Stan Husted: There will be three key changes to the protocol for next year: 1) DHS will stress the reporting of dead birds in press releases, 2) There will be increased screening of dead birds for pick-

- up to further limit the number of birds submitted for testing and 3) The public will be offered the opportunity to drop off a dead bird for testing (pending revised MOU and permit from CDFG).
 - 2 Bill Reisen: Testing was carried out to verify that birds were dying of WNV. Once 95% of birds are positive from an area, then you know most calls are due to WNV and the dead bird calls can direct activity. But if only 2% of dead birds that are tested in an area are WNV positive, and an agency decides to direct control where calls are from, you may be controlling in areas where there is not WNV activity. This is why zip codes were closed once it was established that WNV was prevalent in an area.
 - 3 Ryan Carney: Local agencies were able to call and request the closing of zip codes for this purpose.
 - iii Tom Scott: University of California, Riverside
 - a. The signal for WNV is in the dead birds. He commends the program. Dead birds preceded mosquito pools by about 3 weeks and were good indicators of human cases. Furthermore, if nobody handles the birds, then the program loses valuable data in terms of bird species, age, etc. Additionally, the birds are a visible sign to the public of an outbreak.
 - 1 Ryan Carney: He will look into the Linkspoint® vector model to forecast human risk and identify areas where risk will be the highest, based on dead bird reports. He is doing preliminary testing of the model and if it looks like it can be used, it will be integrated into the Dead Bird Surveillance Program (DBSP).
 - iv Jerry Davis: Turlock MAD
 - a. RAMP/Vec-Test: What is the efficacy of testing scrub-jays and magpies? How do we know that the RAMP test is a good test?
 - b. Zip code notification: Smaller districts often have most of their staff out in the field and may not be able to get back into the office to respond to email in a 24 hour period. Also, they are being inundated with email and some have dial-up connections, which limits the speed at which they can read the email and reply. It would be best if they were given a 48 hour window to add or delete zip codes.
 - 1 Kerry Padgett: Both the RAMP and VecTest are very specific tests for WNV in corvids; this means that when a corvid tests positive by these tests, it

has a high likelihood of being positive for WNV. For the 550 birds tested by both VecTest and RT-PCR (with RT-PCR as gold standard), there have been only 6 false positives thus far (5 crows and 1 western scrub jay). For the 221 birds tested by both RAMP and RT-PCR, 5 false positives have been detected (3 crows, 1 great egret, and 1 pigeon). While these tests are highly specific, they are not as sensitive as RT-PCR and sensitivity varies among species tested. Both tests were most sensitive for detecting WNV in crows. For VecTest and RAMP, the sensitivity among crows, western scrub jays, and yellow-billed magpies is as follows: crows: 70% (VecTest) and 64% (RAMP); western scrub jays: 54% (VecTest) and 37% (RAMP); yellow-billed magpies: 52% (VecTest) and 69% (RAMP). These results support the recommendation that dead birds that test negative by either VecTest or RAMP should be submitted for necropsy and RT-PCR of tissues.

- 2 Barbara Cahoon: The Center for Vectorborne Diseases (CVEC) evaluates the efficacy and accuracy of new procedures. They do both VecTest and RAMP in house to compare the results from these tests with those from RT-PCR. VecTest and RAMP testing do have a role if these tests are used appropriately. CVEC's role is to make sure that tests are done properly and to catch false negatives by applying conservative guidelines.
- 3 Ryan Carney: Notifications were sent with a request to reply between 24 and 72 hours, so a 48 hour window is no problem. The zip code closures are done for the agency's needs. He encourages participation in bi-weekly teleconferences next summer to discuss issues around testing as they occur. Changes can be implemented within a day of discussing issues with Ryan, as he needs to notify hotline staff of changes and the reflection will be seen immediately.

v Wakoli Wekesa: San Bernardino VCP

- a. Comment on importance of dead birds in surveillance: The very first indicator for SB County was a dead bird. Fontana became a very well known city, as it was the first indicator of WNV in California in 2004. This occurred three weeks before the first human case. It helped both the VCP and the local health department

(LHD) to resolve where the first person was exposed. In another week, hundreds of birds were dropping out of the sky. The dead birds and human cases were apparent prior to positive mosquito pools. Dead birds were critical in determining virus activity. Once they had an idea where the virus was, they closed zip codes because there were just too many birds to collect.

1 Bill Reisen: Corvids have a huge amount of virus in them. When the birds are sick and can't move, they are no longer mosquito defensive. They can infect almost *any* mosquito that feeds on them, due to the high viral load. This may have allowed the *Culex quinquefasciatus* population, who are not naturally good vectors, to become key vectors of WNV.

vi Bill Pitcher: Alameda County Vector Control

a. Question on procedure: A resident brought in a squirrel and raptor to Contra Costa County MVCDD for testing. The results were then reported back to Contra Costa, who put out a press release. These results were not conveyed to Alameda VCD/MAD. Is it possible to expand the area of notification so that local agencies can have information on virus activity in adjacent areas?

1 Ryan Carney: DHS is currently working on password protected pages on the website so that agencies can have information immediately.

2 Kerry Padgett: This particular squirrel was difficult to trace, as it went through a number of agencies. CDHS will try to communicate to all agencies potentially involved in a situation so future confusions can be mitigated.

vii Steve Mulligan: Consolidated MAD (Fresno)

a. We had a problem with other agencies within our district collecting animals without notifying the local VCD. We needed early notification that these animals were even submitted. We worked out an agreement for notification with the SPCA. We are still having problems with other agencies sending in animals for testing, yet not providing the information to the local vector control agencies.

1 Ryan Carney: We do report the information to the county as soon as we know both the pick up location and the result of testing. We do our best to report to all agencies involved.

b. We thought that Consolidated MAD would be the only agency picking up birds in our district so it hit us by

surprise when other agencies had picked up birds and they found out it was positive

- 1 Ryan Carney: If the dead bird reporting is via the internet, entering in a login/id next year would hopefully provide real time access to data.
- 2 (Addendum from Stan Husted following the meeting): It was learned the bird was most likely brought to SPCA, and they contacted VBDS about shipping the carcass. We don't expect to be able to notify agencies of all submitted birds; but there will be weekly reports of all REPORTED birds. This will be discussed further within DHS to determine what more can be done on submitted birds.

viii Dave Brown: Sacramento-Yolo MVCD

- a. Dead bird reports are very important in terms of directing the agency control program. Is there any way to integrate dead bird data with Dr. Eldridge's mapping system?

- 1 Ryan Carney: That's exactly what DHS and collaborators are trying to do. Not only would all of the data from daily reports be integrated into the model daily, but the Linkspoint® model would use vector competence, human risk, area, and population density to identify hot spots. So they are trying to go a step beyond just mapping activity. The model needs to be evaluated first before it is implemented into the next surveillance season.

ix Mino Maddon: Greater LA VCD

- a. GRLAVCD was overwhelmed with the volume of calls. They hired three part-time secretaries whose job was solely to respond to the spill over from the state hotline, so I recognize that the State did a tremendous job.

III. Mosquito Surveillance: Bill Reisen

(Panel: Bill Reisen, Barbara Cahoon-Young, Al Hom)

- a. Individual / agency responsibilities:
 - i Bill's roles are to be involved with the oversight committee and to form the link between mosquito control agencies and CVEC as well as interface with DHS.
 - ii Barbara manages the laboratory and runs tests and diagnostics.
 - iii Barbara and Al report results.
- b. Now that CVEC has a multiplex RT-PCR, specimens can be tested simultaneously for SLE, WEE and WNV.
- c. Virus load in mosquitoes depends upon the point within the life cycle they are collected. When trapped via gravid or CO2 traps, females are coming for either their 1st or 2nd blood meal. If mosquitoes are coming in for the first feed, they probably will not be positive, and if they are coming in for

the second feed, there has been a span between infection and collection, when the level of virus decreases. So in fact, the mosquitoes at traps are not necessarily terribly sensitive when MIRs are low in mosquito populations.

d. Panel Discussion:

i James Counts: San Mateo MAD

a. Would it be possible to split the staff to work a seven day week from July – September, to get data out sooner? His agency is already working 6 days a week to keep up with mosquito problems. What is the possibility of that type of schedule?

1 Barbara Cahoon: given that the same staff members do both vertebrate and mosquito testing with only three technicians, it likely wouldn't work. They have been thinking about having a staff dedicated to data entry and quality control. The data person would interface with the technicians. This could shave off several days. She is currently trying to streamline the system.

2 Bill Reisen: They did look at overtime to keep up with the volume. It is now an ongoing discussion. The problem with this is that not one person runs a procedure from start to finish, rather they divide up the steps. Multiple people are required for the large number of tests being run and the small staff size can not be stretched to a 7 day work week.

ii Charlie Dill – Placer MAD

a. How likely is it to get local Public Health Laboratories involved in mosquito testing? The faster the agencies know what is happening, the faster the response time.

1 Bill Reisen: WNV requires a bio-safety level 3 laboratory (BSL3). Carol might be able to answer this question. We have asked local labs to do PCR testing of crows. The mosquito testing, the reagents, diagnostics (including controls), and tests protocols that are currently being used at CVEC are not yet commercially available. So then the question comes up, why not sell them? The problem would then be the same as it is now with the human data: how do you have standard testing, reporting, and data tracking? How is data maintained in a consistent and consolidated form?

b. If there are other facilities out there, with BSL-3, is there any way to work with them?

1 Barbara Cahoon: First CVEC would need to see how many labs have RT-PCR testing capabilities

with BSL-3. If they do have BSL-3, they can work with Dr. Glaser.

iii Jamie Scott: Placer MAD

- a. For those of us that do RAMP testing, is it possible to get confirmatory testing by CVEC?
 - 1 Bill Reisen: You can confirm the RNA in VecTest media for confirmation, but this will not be free. The charge is \$18.00/sample. The total becomes \$50.00/sample when you add the cost of RAMP and confirmatory testing. Also, The RAMP test will not detect WEE or SLE. So you will be only testing for 1 virus.
- b. What is the unsubsidized cost for mosquito testing?
 - 1 Bill Reisen: When you add the cost of equipment maintenance, etc. the “real” cost totals about \$85/pool. He would like to see a lot of pools tested at a lower rate than a few pools tested for a higher price. The CDC grants helped to maintain costs at the current rate; there will not be an increase in cost in 2005.
 - 2 Barbara Cahoon: People are jumping ahead with mosquito pool testing with RAMP and VecTest. Mosquitoes just don’t have nearly enough virus present to detect virus consistently with these tests. In the off season, they plan on studying the sensitivity and specificity of tests with archived pools. They want to work with local agencies to develop these tests. But if the tests aren’t very sensitive, than you are wasting your time and energy with tests that aren’t very valid. If the tests do give accurate data, we will need to have a workshop to show the best way to use the tests. Summary: They need to do their homework before relying on RAMP and VecTest results.
 - 3 Bill Reisen: If the substituting test is 2/3 the sensitivity as the gold standard (PCR), than to maintain the sensitivity of the surveillance system, you would need to increase the number of mosquitoes collected by 1/3. If you decrease the sensitivity by 50% than you need to collect twice as many mosquitoes. It is probably cheaper to send in the sample for PCR than to collect extra samples.

iv Noor Tietze: Santa Clara VCD

- a. If we have a positive mosquito pool early in the season, do we need to verify a VecTest or RAMP result before reporting it?

1. Bill: Yes, it would be a good idea. A recent paper in Emerging Infectious Diseases (EID) showed that in some instances, these tests do give out false positives. This is not usually the case with corvids, but if it happens in some species, than it might happen in another species. Why wouldn't this happen in mosquitoes? We haven't evaluated it enough.
 2. Barbara: We haven't done enough background work on mosquito pools. In addition to proficiency panels, we will also try to provide positive and negative controls. It is important to have both internal and external controls. We will provide a vial of inactivated virus to show that the test is working. That would help guard against false positives because you would be able to see where the band is. This would also help to work against false negatives.
- v Minoo Madon: Greater LA County VCD
- a. A seven day program would be ok if you worked on mosquito population density. But, how much data do you want to collect and how selective do you want to be in your surveillance system? Locals need to think about that – don't send pools from all corners. Locals need to be selective about transects and areas covered. Since we knew that *Cx. quinquefasciatus*, and not *Cx. tarsalis*, was the key WNV vector in LA, we ran traps to target *quinqs*. We want to focus on qualitative testing and not quantitative testing, because you do not want to overwhelm the lab. We had a high rate of positive mosquitoes because of the sampling techniques.

IV. Al Hom: Sentinel Chicken Surveillance

(Panel: Al Hom, Liz Baylis, Bill Reisen)

- a. Dan Strickman: Santa Clara County VCD
 - i Could sentinel chickens be used to detect new imported viruses like Rift Valley Fever or Japanese encephalitis?
 - a. Bill Reisen: Yes, we can do cross neuts for JE but we haven't been doing it because of through-put and cross battery questions. We have a proposal in place to actually use a mosquito-based approach to detect introduced viruses.
 - ii We now use 11 sites for chicken flocks. Is there any thought on having 1-2 chickens/site to get broader coverage?

- a. Bill Reisen: Before you came to CA, we used 25 chickens/flock. Now we're down to 10. Agencies are now monitoring a 10% event. If you want a litmus chicken just to see if you have virus, you will know this with 1-2 chickens, but then will have problems with replacements. This is difficult in midsummer when baby chicks are not found because you are taking egg layers out of production.
 - iii Is there any thought in developing a rapid assay to test chicken antibodies onsite?
 - a. Liz: We have been doing some development. We can not do field testing, but we are looking at developing a more rapid confirmatory assay to eliminate the seven day growth period. HIV is an example of a rapid assay for antibody detection and the cost is \$25.00/test. The reason this the test is worth the cost is because your specimen is walking out of the door after the test, so you want to provide them with results and be able to speak with them.
 - b. Barbara: The manufactures of the RAMP test are working on a RAMP version of serological testing, so there may be something coming out.
- b. Stacey Bearden- San Joaquin MVCD
 - i We were using red chickens and found virus in three of the chickens using the RAMP test and had these chickens confirmed by the state (via PCR).
 - a. Bill Reisen: Stacey is talking about detecting VIRUS in the chickens, not antibody. It's a lucky catch though because chickens have a very low viremia and what viremia they do have is very ephemeral (2 day event). The chance of picking up the virus is a lot less than looking for antibodies, which last longer.
 - c. Piper Kimball - Marin/Sonoma MVCD
 - i How much whole blood do you need?
 - a. Liz: For the test, they need at most need 50µl. Thus a microtainer will provide you with about 100 – 200 µL of sera. The microtainer holds 300µL, but you lose sera when you spin it down.
 - ii They use the jugular for bleeding and easily get a 1cc sample. Could they send in that for confirmatory testing? And how do you store it?
 - a. Liz Baylis: Yes, absolutely.
 - b. Bill Reisen: Once it is separated, you can store the sample in a freezer.
 - iii She heard that a few chickens died and were WNV positive. Was the death due to WNV?

- a. Liz Baylis: They had some chickens die that happened to have seroconverted. She was not sure if it was because of other issues (care, heat, etc.).
 - iv If they have dead chickens, is there a program to send in chickens for necropsy to determine why they died?
 - a. Bill Reisen: there are poultry diagnostic facilities where you can send carcasses. I can tell you that I put 7 logs of virus in 1 chicken (synonymous to 1,000 mosquito bites) and none of the chickens got sick. In general, most galliform or columbiform birds don't die from WNV. There were positive quails and pigeons in the dead bird program, but they likely died from other causes.
 - d. Richard Breitmeyer: State Veterinarian
 - i Send ANY unknown poultry deaths into CAHFS for testing free of charge. At CAHFS, they will also look for Exotic Newcastle Disease and Avian Influenza, among others. They will make sure you all have the right contact information.
 - e. Dave Heft : Los Angeles County West VCD
 - i They are currently working with RAMP to compare local results with those from DHS.
 - f. Jerry Davis: Turlock MAD
 - i If they have a couple of birds that seroconvert to WNV, shouldn't they still submit samples for SLE and WEE?
 - a. Liz Baylis: When 50% of a flock seroconverts to WNV, they should be replaced. After the second or third bleeding, it becomes difficult to distinguish between WNV and SLE. Cross-reaction is a common problem in serological testing. This would be a problem with JE as well. If you still have 8-9 birds that have not seroconverted, it would be cost effective to send in those.
 - b. Bill Reisen: Last year there weren't any indications that other viruses were circulating. There will always be some chickens that are more likely to be infected than others. If we leave positive birds in the flock, then they effectively act as a "sink" for mosquitoes. It may be easier to detect other diseases with a replacement chicken.

V. **Equine Surveillance – Ben Sun**

(Panel: Ben Sun, Pam Hullinger, Tim Boone, Katie Wetherall)

- a. Steve Mulligan: Consolidated MAD (Fresno County)
 - i There has been a timelag problem in reporting of testing information and getting onset dates in time do enhanced surveillance. Is there a problem in getting this information?

- a. Pam: It can be a problem based on the initial information provided by the veterinarian. They have tried to work with the veterinarians and tell them the importance of these data so they would send it in. Most equine practitioners are driving around in their trucks all day so if the info wasn't sent in originally, it is hard to get. On days when there was a high positive rate, it would take a while to call the vets and get the appropriate data. This process improved somewhat throughout season. They realize it is a problem and are trying to improve their ability to obtain this critical information.
- ii We have also run into a problem with under reporting with veterinarians. In Clovis, several vets said they had cases but *never* reported them.
- iii How many rabies cases have there been in CA?
 - a. Ben Sun: One horse in Siskiyou County in 10 years. Rabies is fairly rare in horses. They need to weigh the risk of rabies, which has a low incidence rate, with WNV.
- b. Stacey Bearden: San Joaquin MVCD
 - i We have had a real problem obtaining the complete address of where the horse was found. When trying to get information from DHS we were told to call CAHFS, and then told the horse is near a pond, which might be very large. If they are given just a highway number, it is difficult to follow up with surveillance and control. They need to have the physical address.
 - a. Pam Hullinger: That's another piece of critical info they're trying to get on the form from the vet. The location of the owner is usually different from where a horse(s) is kept. They provide the information they were given first in order to facilitate follow-up surveillance or control activities. They attempted to get more specific information in follow-up with individuals and veterinarians.
 - ii She (Stacey) thought you (Pam) contacted people.
 - a. Pam Hullinger: They have a 90% success rate in contacting people. You are referring only to the other 10% of cases.
 - iii Stacey: During the winter time, are you continuing to work with vets to continue encouraging them to send samples to CAHFS as opposed to commercial venues?
 - a. Ben Sun: Every spring they send out a letter to vets that includes information on testing (it's free!). They provide forms, etc. They've augmented the season with additional notifications as needed. They also send out yearly information on arboviruses to horse owners.

- b. Pam Hullinger: Next year they hope to provide free shipping for samples. Some practitioners use other labs because they are already on other lab route. There were only 15 -20 samples that went to other labs. Both of those labs have been very responsive to CAHFS.
 - c. Ben Sun: There are additional benefits for a vet to send the sample to CAHFS because CAHFS will do a necropsy and give a diagnosis, if it is not WNV.
 - ii Stacey: Rabies question. There is some controversy among horse owners about getting their horse's head sent in for testing. The horse owners' felt they were being harassed. Responsibility should fall in the lap of the veterinarian. If the horse owners knew they should submit the head, they would. Question: How many WNV horses have tested positive for rabies across the US?
 - a. Ben Sun: Good question. This has been brought up to the national rabies committee. Some states do follow-up testing to ensure the health of their employees. It is true that if we don't test every neurological horse, we may miss one. However, we don't test every neurological cat or dog either. If you are having a problem, you can work with an outreach vet, who could send local protocol to vets. It is an education/awareness issue with veterinarians. Data does not seem to be available. Usually there are less than 100 rabid horses and they usually do not get tested for WNV.
 - iii Stacey: Are you going to encourage LHD NOT to test horse heads?
 - a. Ben Sun: It will be a balance and is essentially up to local health departments to determine what their policies will be. The law rests with the veterinarian who must submit samples if they *suspect* rabies. It has been a problem in other states and hasn't been addressed.
- c. Jamesina Scott: Placer County MAD
 - i She appreciated getting the data back quickly from the agency. Horse owners are delighted at the control response. Is it possible to get an email rather than a FAX for results?
 - a. Ben Sun: The question is confidentiality rules for addresses. It is something they are considering.
 - b. Pam Hullinger: She wanted to comment that submitting dead chickens would follow the same protocol as dead birds; send them directly to CAHFS.

VI. Human Case Surveillance: Carol Glaser CDHS

(Panel: Carol Glaser, Rachel Civen, Eric Frykman, Anne Kjemtrup, Cynthia Jean)

- a. Mino Madden – Greater LA VCD

- i Some of the human cases were not reported on time because they were tested at commercial labs. What other labs are doing testing?
 - a. Carol: A ton of labs are testing few cases. DHS works closely with 3 large commercial labs: Quest, Focus, and Specialty.
 - b. Rachel: Mayo clinics and ARUP, etc. Most of these labs seem willing to send in the data, it just takes time.
- ii Commercial labs are not required to report the data and clinicians are notorious for not reporting clinical diseases. Greater LA has a program established where hospitals sends doctors to the VCD to learn about arboviruses and not a single doctor was aware about state/local manuals.
 - a. Eric Frykman: Medical schools have full agendas, and sometimes public health takes a backseat to learning about HMO's and malpractice insurance.
- b. UC cooperative extension:
 - i What kind of follow up is being done on paralysis? Is there a national follow up?
 - a. Cynthia Jean: It has not been done due to low incidence. There are very few cases; about 20 with acute flaccid paralysis, of those 6 are deaths.
 - b. Eric Frykman: In San Bernardino County, vector control fogged a few areas. What happens if infected mosquitoes are occurring in an area over 40 square miles and vector control can not do it? What are the media issues about spraying a large 100 x 100 square miles of land? (perhaps this issue can be discussed during the response panel discussion)

VII. Public Information and Education: Rosanna Westmoreland (DHS) / Kelly Middleton (San Gabriel Valley MVCD)

(Panel: Rosanna Westmoreland, Kelly Middleton, Lauren Marcus)

- a. Bill Reisen: CVEC
 - i There has been a lack of educating the public as to the current adulticiding products used, their safety, and the fact that if you see a spray truck go by you won't die in a minute. There were a number of larger districts that refused to adulticide because they were afraid of the public outcry. He sees this as a real problem if they do have a large epidemic situation with planes flying over larger areas. He also wishes someone would remove the pictures of people sticking their arms in mosquito cages or exposing their legs to mosquito bites. It just doesn't look good.
 - a. Kelly Middleton: Adulticiding is not common in southern California, at least in San Gabriel. However there were residents and cities that wanted the district to come in and spray. They were very open with them and said that if they needed to spray they would.

- b. Vicki Kramer: That’s certainly something we can consider this coming year in coordination with agencies.
 - c. Lauren Marcus: They can certainly put information about adulticiding on the website. They added information on mosquito repellent and DEET, so this would be a logical extension. The website currently has links to sites with information on mosquito control.
- b. Jerry Davis: Turlock MVCD
- i They had to go to the media and tell them what was going on because they were getting messages from the public that they (the public) left messages on the hotline and either did not get a response or they got a busy signal.
 - a. Vicki Kramer: As Stan mentioned, they will be changing their answering protocol so that callers get a message instructing them to call back or direct them to another number – no busy signal. Staffing will also be increased earlier in the season in 2005.

VIII. San Bernardino County VCP : Wakoli Wekesa and Joan Mulcare

- a. Wakoli: In areas where they found dead birds, they did intensive mosquito collections to determine the prevalence and coordinate control responses. Next, they would go door to door and contact people about mosquito control efforts people can use at their own homes.
- b. Joan: Flyovers of neighborhoods and taking photos of green pools were very helpful for follow-up, and to get people to take care of their green pools. Another essential tool was the media. They also had a very different program since vector control comes under the umbrella of the public health/environmental health department.

IX. San Gabriel Valley MVCD: Steve West and Ken Fujioka

- a. Steve West
 - i The number of crows was overwhelming. After they had reached the level of 500 dead birds, personnel were better used for surveillance and control. The District stopped dead bird pickup at that point, with a few exceptions.
 - ii He emphasized the use of resources for public education on the need to control backyard water sources, although the number of District technicians was doubled with summer help.
 - iii He cited that the District’s primary “clients” are its citizens, and priorities would be based on that fact.
- b. Kenn Fujioka
 - i The district switched from being an Africanized honey bee agency (in regard to service requests) to a mosquito control agency (AHB fell from public’s interest).
 - ii In the past, they relied primarily on chicken serology, with mosquito pools as a back-up tool to determine population size. They will be using more mosquito pools in the future.

- iii Positive mosquito pools are important when they are found in conjunction with elevated mosquito counts, chickens, dead birds, and human cases. In these areas, adulticiding was performed. They did not re-trap mosquitoes in areas that were sprayed.
- iv Dead bird calls preceded human cases by a couple of weeks.
 - v Mosquitoes, chickens, humans all appeared infected around the same time.
- vi They stopped picking up dead birds early on. They continued to be inundated with calls from the public about dead birds and then about picking them up. Testing is useful early in the season but once you know WNV is there, the emphasis should be placed on reporting the birds. It is valuable to know how many birds are dying. It's more difficult to reeducate the public each year when birds will be picked up and when they will not. The state's greatest gift to the districts would be the risk forecasting model.
- vii 1984 is their benchmark year for using temperature in anticipating mosquito borne virus out breaks because that is when they had a SLE outbreak. 1997 is the year that most closely resembled 1984 and resulted in SLE activity. 2004 temperatures did not necessarily look like 1984 but they don't know how temperature will play out with WNV.
- viii Human infections: HIPPA limited the use of confidential human information. They were fortunate to have good cooperation with the local health department. They made an effort to keep things confidential. For example, they did not state the city with the highest incidence.
- ix The costs this year increased dramatically. Items needed were vehicles, employees, and phone lines.
 - x They used 10.5% of their budget to augment activities for WNV.

X. Consolidated MAD: Steve Mulligan (Fresno County Group)

- a. A dead bird was missing that was collected on July 1. Human and mosquito reports were determined positive before the missing bird was found and reported.
- b. Horse owners waited to vaccinate until horses started turning up positive.
- c. There was no warning before a human case.
- d. Districts don't have public education staff so they relied on the Fresno County Dept of Community Health.

XI. Sacramento-Yolo MVCD: David Brown

- a. Dave raised several questions:
 - i What should the threshold be for response?
 - ii Will the medical community be prepared for people claiming to be sick from spraying?
 - iii Will the district managers have support?

XII. Response Panel (VIII to XI): Wakoli Wekesa, Joan Mulcare, Steve West, Kenn Fujioka, Steve Mulligan, Dave Brown, Vicki Kramer, Bill Reisen

- a. Vicki: Unfortunately, there is not enough time to discuss all of the issues that need to be discussed in detail. I will work with MVCAC IPM and VBD committee chairs in revising the response plan. I apologize that we don't have more time for this part of the workshop. Perhaps we can organize a smaller follow-up workshop to focus on response issues. I will ask permission from each speaker if DHS can convert presentations to pdfs and post them on the web site (www.westnile.ca.gov).
- b. Ryan Carney: CDHS
 - i The dead bird system is unique because it is a passive system that relies on the public to report dead birds. Question to Steve Mulligan: why was there apathy among local residents to not report dead birds?
 - a. Steve Mulligan: Perhaps because they saw the birds before the information really got out there.
 - ii Ryan: Were there certain public education efforts that increased reporting and preventative efforts?
 - a. Kenn Fujioka: Once the announcement went out that the state was no longer testing birds, the number of reports went down as well. The public equates testing to reporting. He was not sure how to address this. Clearly reporting helps.
 - b. Wakoli Wakesa: With their first positive bird and positive case, they sent out fliers to school districts, which were distributed to every kid. Then they passed out fliers one week later to community centers. The response was tremendous. It was so overwhelming in fact they had to pull back from public education to pick up birds.
 - c. Joan Mulcare: Once human cases started, they laid off picking up dead birds and focused on prevention messages and mosquito control. They put their efforts where human cases were occurring. They put out press releases that actually said they were not picking up dead birds but to call the state.
- c. Will Hamersky: Alameda County MAD:
 - i They had 25 dead birds and a bunch of dead squirrels. They have picked up about ten different species of birds. Their district is large and the dead birds are distributed evenly throughout their coverage area, would you recommend larviciding rather than dead bird pick up?
 - a. Steve Mulligan: Focus on control efforts. They tried to get the message out to the media: WNV is in Fresno County, it could be anywhere, you need to take these precautions. Focus on public education. Let the dead bird pick up take a back seat.
 - b. Vicki: The DBSP appears to be extremely important particularly early in the season. DHS would encourage participation early in the season, until it is clearly

- indicated that WNV is present. Once it has been established, you can close down hot zip codes. Working with DHS on the zip code system would make this system work more efficiently. We can work with agencies on that.
- c. Dave Brown: Sac/Yolo: Over the past few years, Sac-Yolo was aggressively promoting the hotline. They aggressively and actively went after promoting it. The public seems to react when a message is presented aggressively and continually. They need to alter the message for next year because saying they will pick-up dead birds and then stopping in the middle of the season...that message doesn't go over very well. Question to southern agencies: would your technicians in their regular duties of larval surveillance have detected enough dead birds to indicate WNV activity? He does not want to take away from the control program and also balance resources to meet the expectations of public. Should they promote the message "Report dead birds, here is how you dispose of them"?
 - d. Vicki: One important change for 2005 potentially will be working with DFG to change the MOU/permit to allow the public to pick up and deliver dead birds to agencies. This may help.
 - e. Bill Reisen: Birds die everyday, before and after WNV. Everyone needs to ensure that they are dying of WNV. Picking up dead birds and then testing gives information about how the virus is transmitting in time and space. WNV comes in gently, blows up, and then subsides. This depends on a number of factors including bird die-offs and bird immune systems. Once there are positives in every zip code and you know WNV is everywhere, then fine, there is no need to continue to collect and test dead birds. How this disease will look in subsequent years, they are not sure. When Sac/Yolo did advertisement, there was a spike in calls from L.A. of dead birds. These birds had to be picked and tested and most were negative.
 - f. Wakoli Wekesa: All technicians carried coolers with them to collect any dead birds that they saw. By mid to late May this year, there wasn't enough room for one cooler, technicians needed at least 2-3 coolers to bring in dead birds they found during the day! At that point they made the decision to cut off dead bird collection. The message to the public was: reporting is important,

call the hotline, they will tell you what to do. They didn't say anything about testing. They had more than 10,000 birds. At that point they stuck to collecting birds in areas that hadn't had positives. Recognize that they focused the dead bird program on corvids, most of which die from a high viral load of WNV. They worked with county animal control agencies and city animal control folks who continued to pick up dead birds.

- g. Joan Mulcare: The key is to plan ahead: putting the brakes on collecting dead birds resulted in a lot of irate callers. There was too much pressure put on collecting dead birds and then they let the public down too fast. It would be better to prepare that in advance.

James Counts: San Mateo MAD:

- ii Now that you've had two years of WNV, will you ratchet up the control program by beginning control measures earlier in the season particularly in urban areas? Normally their area starts around March.
 - a. Joan: They haven't stopped treating. They ratcheted up 2 years ago during the winter months with larviciding.
 - b. Kenn Fujioka: They just received a report that a bird died on Dec 2 from WNV. So the virus continues to be transmitted and they will continue to larvicide.

XIII. Closing Words: Vicki Kramer

- a. Thank you for coming. It is clear that all areas of public health have worked very hard to protect the public from WNV. Thanks again to all of the speakers. The presentations will be posted soon.