**Conclusion:** These results show increasing number of CDI in our hospital and emphasizing the importance of implementing better surveillance programs and improving infection control practice in order to prevent further spread CDI.

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Type: Poster Presentation

Final Abstract Number: 43.011
Session: Infectious Disease Surveillance I
Date: Thursday, April 3, 2014
Time: 12:45-14:15
Room: Ballroom


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3 Centers for Disease Control and Prevention, Fort Collins, USA

**Background:** Bacterial plague, caused by *Yersinia pestis*, is a zoonotic disease predominantly rodent flea-borne. Approximately 2000 suspected cases of plague were reported from the plague endemic West Nile region of Uganda through the past decade. Case mortality rates were high due to delays in seeking appropriate medical treatment. Community health workers (CHWs), private for profit (PFP) clinics and drug-shops provide immediate appropriate medical treatment. Community health workers (CHWs), private for profit (PFP) clinics and drug-shops provide immediate alternative source of health care to those suffering from illness. Besides, an estimated 40-60% of the study population seeks the service of traditional healers (THs). This study piloted an innovative one health tailored community-based surveillance aimed at integration of CHWs, clinics and drug-shops increased sensitivity of surveillance system. Such community-based surveillance one health models that innovatively integrate indigenous health systems and scientific research are likely to have significant impact on mitigating public health crises in report settings.

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Date: Thursday, April 3, 2014
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Room: Ballroom

**Sero-prevalence of dengue amongst inhabitants of the semi-forested and forest fringe areas of peninsular Malaysia**

J. Abd-Jamil 1, *, R. Ngui 1, S. Nellis 1, H.A. Mohd Zan 1, R. Fauzi 1, L.Y. Chang 1, Y.A.L. Lim 1, S. Abubakar 2

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2 University of Malaya, Kuala Lumpur, Malaysia

**Background:** Dengue is an endemic disease in the urban areas of the tropics and subtropics regions of the world. Its significance in the semi-forested and forest fringe areas, however, has not been well described. The present study investigated the seroprevalence of dengue amongst the indigenous or Orang Asli communities of peninsular Malaysia and correlated it with the population, socio-economic and geographical attributes of the communities’ surroundings.

**Methods & Materials:** Eight different Orang Asli communities consisting of 491 individuals were recruited. Their dengue antibody status was determined using the Dengue IgG capture ELISA. Land cover features surrounding these Orang Asli communities were visually measured using Google earth 5.2.1 and GE-Path 1.4.4. Remote sensing data were obtained from WorldClim, Moderate Resolution Imaging Spectroradiometer software and the Department of Survey and Mapping, Malaysian, respectively.

**Results:** Among the 491 volunteers, 17% were positive for the presence of dengue IgG indicating previous exposure to dengue virus (DENV) infection. Semai Perak community showed the highest prevalence of dengue (>50%) whilst the Orang Kuala community showed the lowest prevalence (<2%). From univariate analysis, high prevalence of dengue was significantly associated with females, those aged ≥13 years, lower education level, working individuals, and those earning less than RM500 (USD155) monthly. Multivariate analysis, however, showed that only those from low monthly household income of less than RM500 were significantly associated with high dengue seroprevalence. Dengue seroprevalence was also associated with the presence of industrial area (r=0.807; p=0.015) and the number of multilane roads nearby the community. Higher land surface temperature and lower land elevation were also significantly associated with dengue seroprevalence in the studied communities.

**Conclusion:** The present study suggests that prevalence of dengue amongst the Orang Asli in peninsular Malaysia is significantly associated with various socio-economic factors, the number

<table>
<thead>
<tr>
<th>Year</th>
<th>Confirmed</th>
<th>No. of deaths due to Y. pestis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>58</td>
<td>25</td>
</tr>
<tr>
<td>2009</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2010</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2011</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2012</td>
<td>9</td>
<td>6</td>
</tr>
</tbody>
</table>

**Conclusion:** Although the proportion of referred patients confirmed with *Y. pestis* is minimal, it’s clearly evident that involving THs has saved many lives from several illnesses. The integration of CHWs, clinics and drug-shops increased sensitivity of the surveillance system. Such community-based surveillance one health models that innovatively integrate indigenous health systems and scientific research are likely to have significant impact on mitigating public health crises in report settings.

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J. Abd-Jamil 1, *, R. Ngui 1, S. Nellis 1, H.A. Mohd Zan 1, R. Fauzi 1, L.Y. Chang 1, Y.A.L. Lim 1, S. Abubakar 2

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**Conclusion:** The present study suggests that prevalence of dengue amongst the Orang Asli in peninsular Malaysia is significantly associated with various socio-economic factors, the number
of multiline roads near the villages, industrial activities, and land surface temperature and altitude.

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Malaria vector control
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Background: Since 2011, the NMCP of Benin has implemented a large IRS campaign using bendiocarb in the department of Atacora in Bénin. The aim of this study was to evaluate the susceptibility of *An. gambiae* mosquitoes to bendiocarb, before (2010) and after (2012) the implementation of IRS interventions and to report the evolution of *Ace-1R* mutation frequency in this region.

Methods & Materials: Mosquitoes resting in the house (indoor collection) were collected through Morning Spray Catch (MSC) from 7 a.m. to 9 a.m in five treated districts (Kouandé, Natitingou, Matéri, Pêhunco, Tanguêta) and in the Control (Copargo, an untreated district) before and after IRS. Anopheles larvae were also reared in each district before and after IRS and emerging adults were exposed to WHO impregnated papers discriminating dosages with bendiocarb, 0.1%. PCR assays were run to determine the members of the *An. gambiae* complex, as well as phenotypes for insensitive acetylcholinesterase (*AChE1*) due to *Ace-1R* mutation.

Results: This study showed that the mean *Ace-1* mutation frequency have significantly increased from 2010 to 2012 after two years of IRS campaign. Mortality data indicated that mosquitoes were susceptible in 2010 to bendiocarb 0.1%. From 2010 to 2012, after two years of IRS campaign, there is a drastic decline in the *An. gambiae* susceptibility to bendiocarb in treated districts. The *Ace-1*R mutation was found in *An. gambiae* s.s. and *An. coluzzi* with frequency of 7.33% and 7.35%. The high proportion of homozygous susceptible specimens survived from the WHO bioassays may suggest the implication of the other mechanisms of resistance such as biochemical resistance mechanisms.

Conclusion: These results are of prime importance in the effort to document multiple impacts of operational control program on mosquito vectors. It showed a significant increase of *Ace-1* allele frequency and resistance to bendiocarb in *Anopheles gambiae* population after IRS implementation that can be a threat for malaria vector control based on the IRS which is in progress in Benin.

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