Top 5 Glamorous Mosquito Borne Illnesses
Doc’s Trip Advisor
Top 5 Glamorous Mosquito Borne Illnesses

Gregory J Moore, MD FACEP FAWM
Number 5
West Nile Virus

- Most common mosquito virus in the US
- Only 20% will have symptoms
- Sx - Fever, Chills, Body aches, Vomiting, HA, Diarrhea, Rash
- Severe Sx in about 1% including neurologic Sx
- Of these, 10% can die
West Nile Treatment

- No vaccine or specific antiviral treatments for West Nile virus infection are available.
- Over-the-counter pain relievers can be used to reduce fever and relieve some symptoms.
- In severe cases, patients often need to be hospitalized to receive supportive treatment, such as intravenous fluids, pain medication, and nursing care.

Prevention
Malaria

- The most frequently diagnosed disease among travelers
- 250 million cases a year
- Accounts for 600,000 deaths
- *Plasmodium falciparum*, *P. ovale*, *P. vivax*, *P. malariae*
- Costa Rica- *Vivax*
- *Anopheles* mosquito
Malaria symptoms

- Incubation 8-14 days for all but P malariae which is 18 days.
- Relapsing fever every 48 hours except malariae which is every 72
- Chills, rigors, nausea, vomiting, headache, backache, sweats
- Diagnosis by sequential blood samples with fever
Complicated Malaria

- >5%-10% parasites in the blood
- Encephalopathy - delirium and seizures (if untreated almost 100% fatal)
- Hypoglycemina from glucagon depletion
- Renal failure-falciparum
- Pulmonary edema
- Anemia
- Liver dysfunction
Malaria Treatment

- Based on region and resistance
- Chloroquine and mefloquine- chloriquine 2500 gm over 3 days (1 gm followed by 500 mg in 6h followed by 500 mg qd x 2 days) plus Primaquine 30 mg PO qd x 14 days
- For complicated infections combination therapy seems best; atovaquone-proguanil 4 adult tabs PO daily for 4 days or Artemether-Lumefantrine 4 tabs PO q8 hrs x 2 then BID x 2 days plus Primaquine 60 mg/d x 14 days
- Quinine can be used but high side effects
Malaria Prevention

- Chemoprophylaxis- Chloroquine, mefloquine, atovaquone-proguanil, doxycycline
- Repellant
Number 3
Dengue

- Arboviral infection
- Now the most prevalent mosquito borne disease worldwide
- Presents in a wide variety of symptoms
- There are 4 identified Dengue viruses of the Flavivirus genus
Classic Dengue

- Incubates 4-7 days
- Fever lasts 1-7 days
- Headache and retro-orbital pain
- Muscle aches and pains "break-bone fever"
- Extreme fatigue
- Mild maculopapular rash
- Nausea and slight cough
Lab findings

- Leukopenia
- Thrombocytopenia
- Elevated liver enzymes
- Diagnosis is mostly clinical
- Confirmed with serology ELISA IgG, IgM
Dengue Complications

- Hemorrhagic fever (DHF) capillary leaks, severe thrombocytopenia
- Dengue Shock Syndrome
- Encephalopathy, and seizures
- Liver failure
- Has been associated with Guillain Barre
Dengue Treatment

- The mainstay of treatment is PREVENTION!
- DEET when in the endemic areas
- Treatment is supportive
- Acetaminophen is recommended
- Stay well hydrated
- Aggressive fluid therapy for complications with isotonic crystalloids
- Hemorrhage may need transfusion
- No commercial vaccine is available yet in US
Number 2
Chikungunya
Chikungunya

- Alphavirus
- Transmitted by A. aegypti
- Incubates 2-12 days
- Fever up to 104
- Maculopapular rash
- Myalgias, HA, fatigue
- Joint pain may last several months-years
- Rx-Symptomatic, NSAIDS
- Prevention!!
And The Current Number 1 Is?
Blame Zika mosquitoes on DDT ban

Emotion transcends evidence; fears transcend facts; anti-science is on the rise.

In 1962 Rachel Carson’s book Silent Spring hit the shelves. The American Council on Science and Health describes the book as “lyrical but scientifically flawed – arguing eloquently but erroneously that pesticides, and especially DDT, were poisoning the environment and also endangering human health.”

Ospreys, bald eagles and peregrine falcons were identified as suffering from thinning of eggshells, ultimately leading to the potential demise of the species.

Research in captive birds “proving” the link was later found to have involved low calcium diets and no evidence of DDT in the eggs.

Research on bird numbers in the wild reported an increase in bird counts after the DDT years in America in comparison with before, thereby disproving the link between DDT and bird populations.

Yet the mythology continues. DDT was banned in the US in 1972

ZIKA VIRUS

IS IT A MAN MADE VIRUS
Are These Super Viruses?

Scientists discover a new superbug.
Zika Virus

- Flaviviridae virus
- Transmitted by bite of Aedes mosquito
- Causes mild disease in humans
- Significant disease in pregnancy
Zika Virus

Transmitted by mosquito bite

About 1 in 5 people infected will become ill

Symptoms normally last 2–7 days

Mosquitoes known to transmit the virus are not present in Canada

No treatment or vaccine is available

Symptoms: fever, rash, joint pain, conjunctivitis (red eyes)

Illness is usually mild and death is rare

Health Canada / Centers for Disease Control and Prevention
Zika Virus in Pregnancy

- Transmitted maternally
- Can be transmitted sexually
- Can be transmitted by transfusion
- Not transmitted in breast milk
- Also has been associated with Guillain-Barre
Zika Virus Treatment

- Symptomatic
- Key is prevention
- Repellant
- Avoid travel to endemic areas during pregnancy
- Sexual precautions
Current Endemic Areas

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Current Advice to Travelers

- Pregnant women should not travel to areas with Zika.
- If Pregnant, use condoms correctly, every time you have vaginal, anal, or oral sex or do not have sex for the entire pregnancy.
- Men w Sx - consider using condoms or not having sex for at least 6 months after symptoms begin.
- Women w Sx- consider using condoms or not having sex for at least 8 weeks after symptoms begin.
- Men and Women No Sx - consider using condoms or not having sex for at least 8 weeks after returning from travel.
Prevention Advice
Latest in Travel Fashion
So Who Do You Believe?
Do Not Rely On

- Internet
- News Media
- Tabloids
- Anecdotal word of mouth
- Non medical journals

Rely on

- Understanding the virus/bacteria
- Understanding possible vectors
- Understanding disease transmission
- CDC is an excellent source over time
Repellant Advice from our Research Scientists
## Current Studied Repellants

<table>
<thead>
<tr>
<th>Active ingredient</th>
<th>Some brand name examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher percentages of active ingredient provide longer protection</td>
<td></td>
</tr>
<tr>
<td>DEET</td>
<td>Off!, Cutter, Sawyer, Ultrathon</td>
</tr>
<tr>
<td>Picaridin, also known as KBR 3023, Bayrepel, and icaridin</td>
<td>Cutter Advanced, Skin So Soft Bug Guard Plus, Autan (outside the United States)</td>
</tr>
<tr>
<td>Oil of lemon eucalyptus (OLE) or para-menthane-diol (PMD)</td>
<td>Repel</td>
</tr>
<tr>
<td>IR3535</td>
<td>Skin So Soft Bug Guard Plus Expedition, SkinSmart</td>
</tr>
</tbody>
</table>
Risk Management Summary

- Where are you going and what is endemic- CDC
- Understand the disease and vectors
- Who is travelling with you
- What risks are there for your particular group
- Is there preventative vaccines, medications, precautions
- Do the benefits of travel outweigh the risks
Questions?

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