DISEASE SPREAD IN PERU

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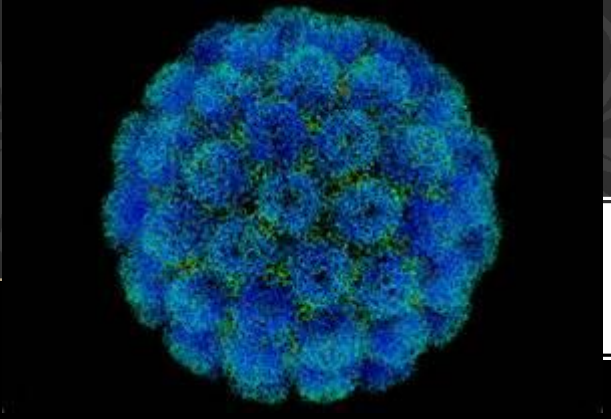
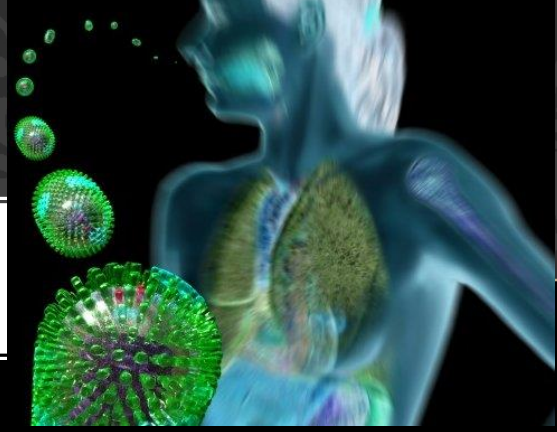


WHAT IS A VIRUS



A Virus is an infective agent that typically consists of a nuclei acid molecule in a protein coat. Viruses are tiny organisms that may lead to mild to severe illnesses in humans, animals and plants. This may include flu or a cold to something more life threatening like HIV/AIDS.

The virus particles are 100 times smaller than a single bacteria cell. The bacterial cell alone is more than 10 times smaller than a human cell and a human cell is 10 times smaller than the diameter of a single human hair.

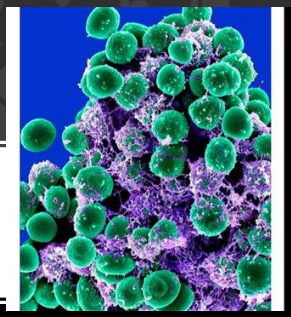
A virion (virus particle) has three main parts:

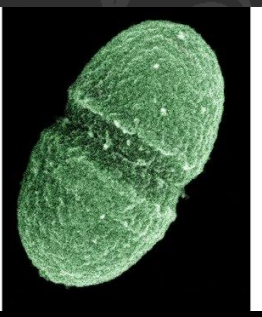
Nucleic acid – this is the core of the virus with the DNA or RNA (deoxyribonucleic acid and ribonucleic acid respectively). The DNA or RNA holds all of the information for the virus and that makes it unique and helps it multiply.

Protein Coat (capsid) – This is covering over the nucleic acid that protects it.

Lipid membrane (envelope) – this covers the capsid. Many viruses do not have this envelope and are called naked viruses.

ZIKA VIRUS





Zika: is a member of the virus family Flaviviridae and the genus Flavivirus, transmitted by daytime-active Aedes mosquitoes, such as A. aegypti and A. albopictus. Its name comes from the **Zika** Forest of Uganda, where the virus was first isolated in 1947 in rhesus monkeys, through a monitoring network of sylvatic yellow fever. It was subsequently identified in humans in 1952 in Uganda and the United Republic of Tanzania.

Diagnosis:Based on detection of viral RNA from clinical specimens in acutely ill patients. The viraemic period appears to be short, allowing for direct virus detection during the first 3–5 days after the onset of symptoms. Zika virus RNA has been detected in urine up to 10 days after onset of the disease. From day five post onset of disease, serological investigations can be conducted by detection of Zika-specific IgM antibodies and confirmation by neutralization, seroconversion or four-fold antibody titer increase of Zika specific antibodies in paired serum samples. Serological results should be interpreted according to the vaccination status and previous exposure to other flaviviral infections.

ZIKA VIRUS

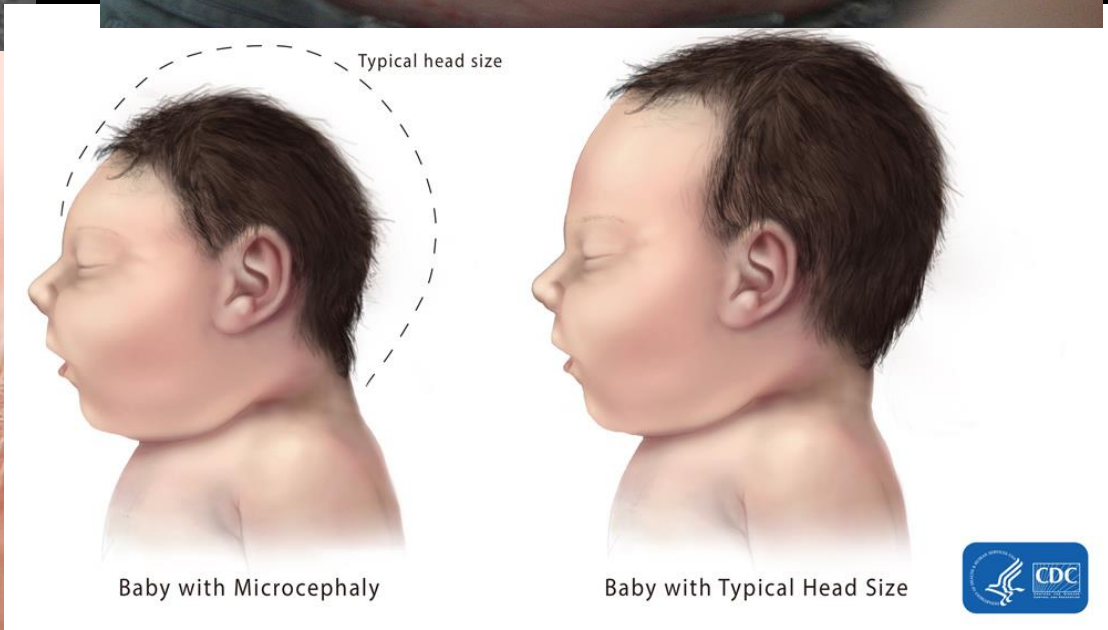
Signs and Symptoms: fever, rash, joint pain, or conjunctivitis (red eyes). Other common symptoms include muscle pain and headache

Treatments: There's no vaccine or specific treatment. Symptoms relief includes rest, rehydration, and acetaminophen for fever and pain. Aspirin and non-steroidal anti-inflammatory drugs (NSAIDs) like ibuprofen should be avoided

Affects in Pregnant woman: Pregnant women with Zika can transmit the virus to their unborn babies. Men with Zika can transmit it to their sexual partners. Zika can cause microcephaly; in which the brain does not develop properly, sometimes leading to problems such as seizures and delayed development. And some babies infected with Zika before birth have also been found to have missing brain structures, vision and hearing defects, or poor growth.

Significance in Peru: The risk of a global spread of Zika virus to areas where the competent vectors, the Aedes mosquitoes, are present is significant, given the wide geographical distribution of these mosquitoes in various regions of the world.

ZIKA VIRUS


Typical head size
Baby with Microcephaly
Baby with Typical Head Size
CDC

REFERENCES

_tempo.com.ph

www.cdc.gov/**zika**

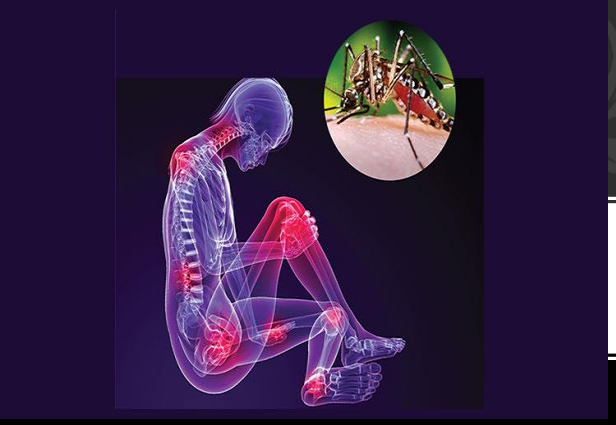
www.who.int

http://ecdc.europa.eu/en/healthtopics/zika_virus_infection/factsheet-health-professionals/Pages/factsheet_health_professionals.aspx#sthash.qYP3Ik2o.dpuf

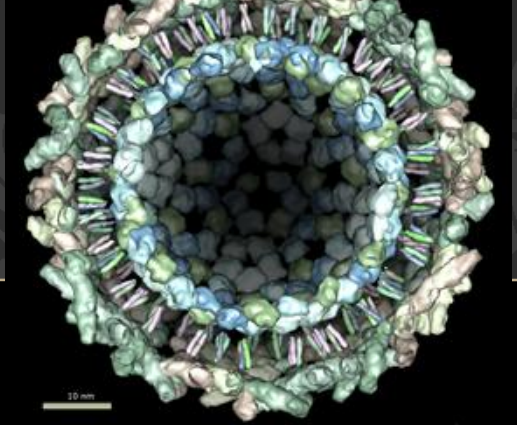
http://www.babycenter.com/0_zika-in-pregnancy_10412622.bc

http://who.int/csr/don/21-april-2016-zika-peru/en/

http://www.news-medical.net/health/What-is-a-Virus.aspx



CHIKUNGUYNA



Chikungunya is a mosquito-borne viral disease first described during an outbreak in southern Tanzania in 1952. It is an RNA virus that belongs to the alphavirus genus of the family Togaviridae. The name "chikungunya" derives from a word in the Kimakonde language, meaning "to become contorted", and describes the stooped appearance of sufferers with joint pain (arthralgia). Chikungunya has been identified in over 60 countries in Asia, Africa, Europe and the Americas

Transmission: The virus is transmitted from human to human by the bites of infected female mosquitoes. Most commonly, the mosquitoes involved are *Aedes aegypti* and *Aedes albopictus*, two species which can also transmit other mosquito-borne viruses, including dengue. These mosquitoes can be found biting throughout daylight hours, though there may be peaks of activity in the early morning and late afternoon. Both species are found biting outdoors, but *Ae. aegypti* will also readily feed indoors.

After being bitten onset illness occurs usually between 4 and 8 days but can range from 2 to 12 days

CHIKUNGUYNA

Signs and Symptoms: fever, muscle pain, headache, nausea, fatigue and rash. The joint pain is often very debilitating, but usually lasts for a few days or may be prolonged to weeks. The virus can cause acute, subacute or chronic disease.

In some cases joint pain may persist for several months, or even years.

Occasional cases of eye, neurological and heart complications have been reported, as well as gastrointestinal complaints.

Triggered by Zika virus.

In older people, the disease can contribute to the cause of death.

Diagnosis: Serological tests, such as enzyme-linked immunosorbent assays (ELISA), may confirm the presence of IgM and IgG anti-chikungunya antibodies. IgM antibody levels are highest 3 to 5 weeks after the onset of illness and persist for about 2 months.

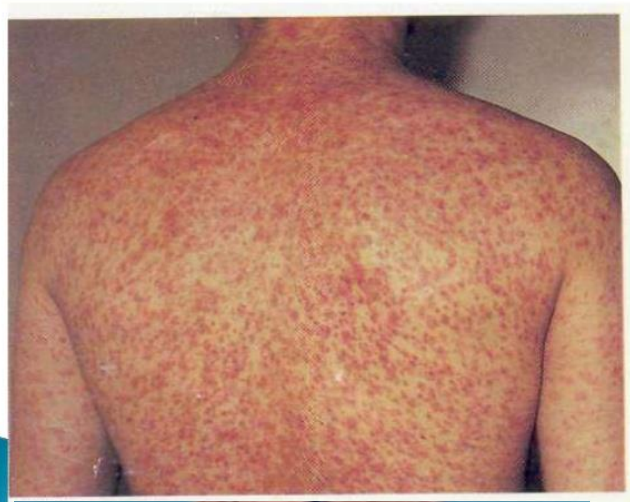
The virus may be isolated from the blood during the first few days of infection; by using Various reverse transcriptase–polymerase chain reaction (RT–PCR)

CHIKUNGUYNA

Treatments: There is no specific antiviral drug treatment for chikungunya. Treatment is directed primarily at relieving the symptoms, including the joint pain using anti-pyretics, optimal analgesics and fluids. There is no commercial chikungunya vaccine.

Significance in Peru: Peruvian authorities have been stepping up measures to educate the public about the disease. Peru itself is particularly susceptible to the spread of chikungunya, which spreads in the same way as dengue fever common in various parts of the country, particularly jungle regions and along the country's northern extremes. For now, the risk posed by chikungunya in Peru is very low.

CHIKUNGUYNA



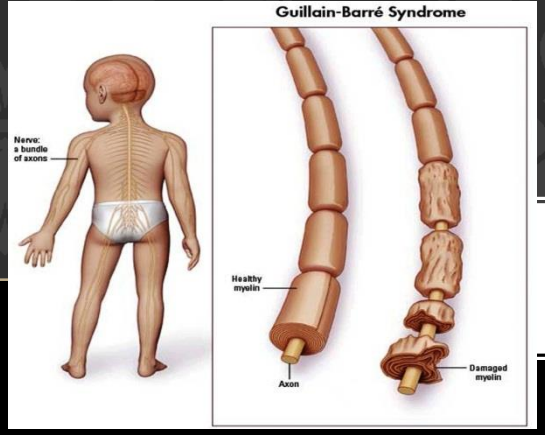
REFERENCES

www.rationalmedicine .com

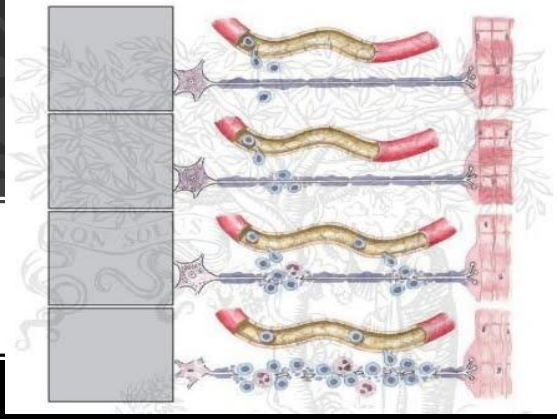
www.abc.net.au

www.savingadvice.com

http://goperu.about.com/od/mosquitoesperu/fl/The-Chikungunya-Virus-in-Peru.htm



GUILLIAN BARRE SYNDROME



GBS is a disorder in which the body's immune system attacks part of the peripheral nervous system. The first symptoms of this disorder include varying degrees of weakness or tingling sensations in the legs. In many instances the symmetrical weakness and abnormal sensations spread to the arms and upper body. These symptoms can increase in intensity until certain muscles cannot be used at all and, when severe, the person is almost totally paralyzed. In these cases the disorder is life threatening - potentially interfering with breathing and, at times, with blood pressure or heart rate - and is considered a medical emergency

Causes: About two-thirds of people who develop GBS symptoms do so several days or weeks after they have been sick with diarrhea or a respiratory illness. Infection with the bacterium campylobacter jejuni is one of the most common risk factors for GBS. People also can develop GBS after having the flu or other infections such as cytomegalovirus and Epstein Barr virus. On very rare occasions, a person may develop GBS in the days or weeks after getting a vaccination.

GUILLIAN BARRE SYNDROME

Diagnostics: GBS may be difficult to diagnose in its earliest stage. Doctors begin with your medical history. Physicians then proceed to performing several test such as spinal tap (lumbar puncture) which test the fluid to determine if there is a certain type of change. Electromyography which measure the nerve activity in the muscles. Nerve conduction studies; which is the most common; a small shock is passed through the nerve to measure the speed of nerve signals.

Symptoms: Prickling, "pins and needles" sensation in your fingers, toes, ankles, wrist, weakness in your legs that spread to your upper body, Unsteady walking or inability to walk or climb stairs, Difficulty with eye or facial movements; which includes speaking, chewing or swallowing, Severe pain that may feel achy or cramp-like and may be worse at night, Difficulty with bladder control or bowel function, Rapid heart rate, Low or high blood pressure, and Difficulty breathing.

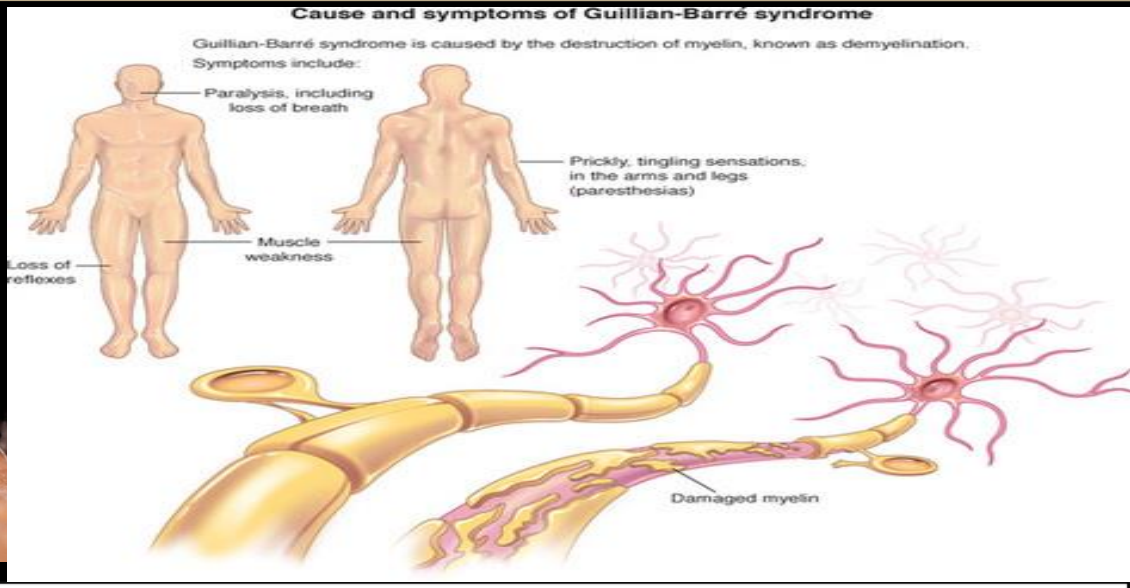
Treatments: Special blood treatments, blood transfusion (plasma exchange and immunoglobulin therapy) can relieve symptoms. Physical therapy is needed. Mechanical ventilation and intubation is needed to protect or open airways.

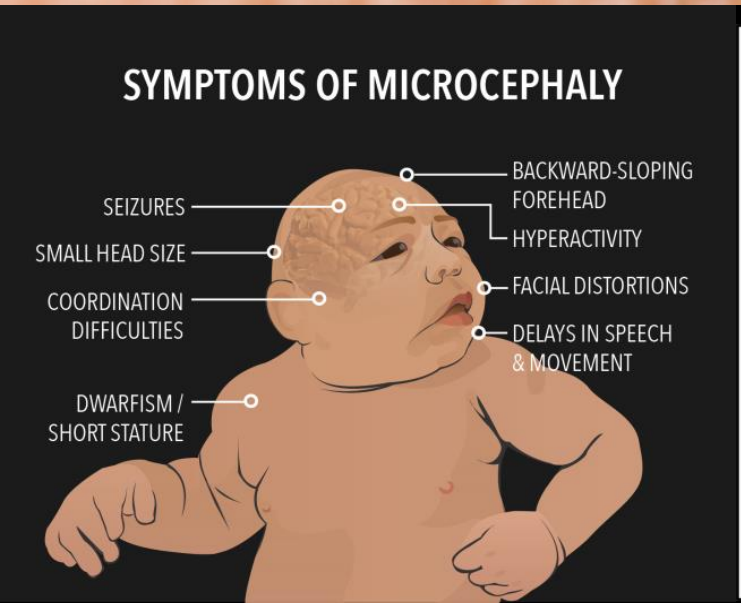
GUILLIAN BARRE SYNDROME

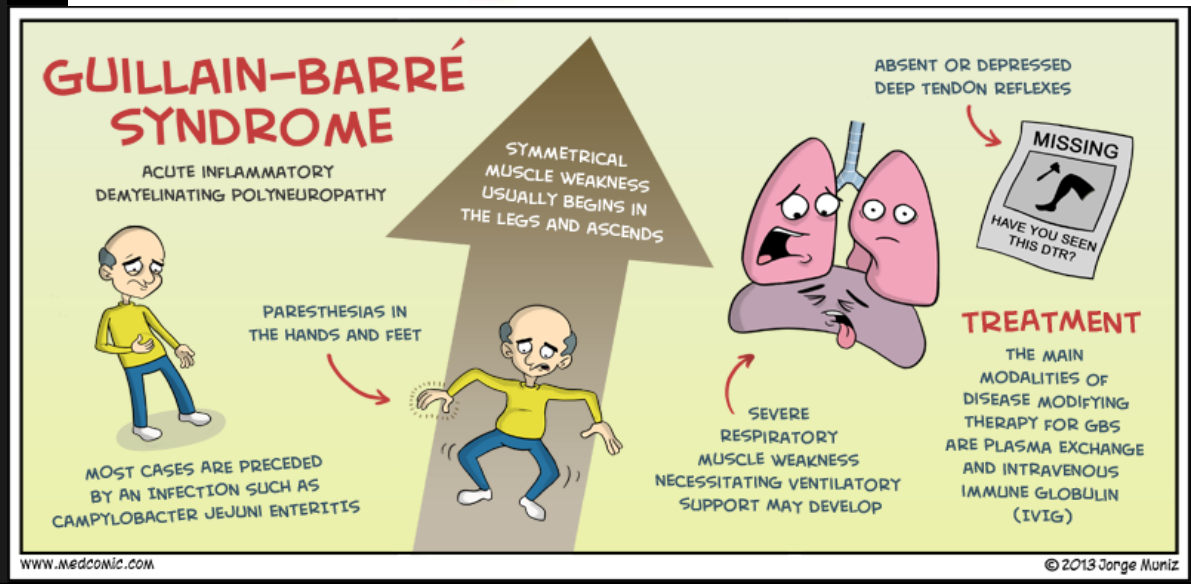
Treatments (cont.): Intravenous Immunoglobin Therapy, prevents immune system from further attaching the Schwann cells and myelin by blocking the response on microphages. Plasmapheresis, filters the blood plasma to remove antibodies and helps replace lost fluids. Corticosteroids, inhibit inflammation associated with symptoms.

Significance in Peru: The increase of the Zika virus circulation, 13 countries and territories worldwide have reported an increased incidence of Guillain-Barré syndrome (GBS) and/or laboratory confirmation of a Zika virus infection among GBS case. Because the Zika virus can also be transmitted sexually, the number of people infected with the virus has tripled which causes an infected person to be at greater risk of GBS.

GUILLIAN BARRE SYNDROME







REFERENCES

http://www.ninds.nih.gov/disorders/gbs/detail_gbs.htm

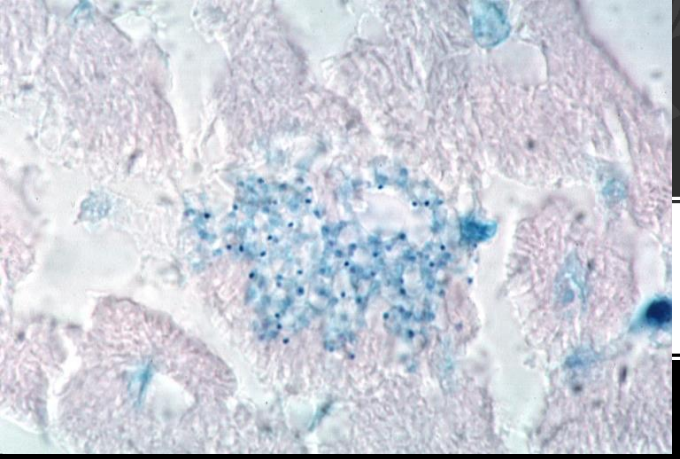
http://www.mayoclinic.org/diseases-conditions/guillain-barre-syndrome/basics/symptoms/CON-20025832

http://afludiary.blogspot.com/2016/05/who-zika-sitrep-may-5th.html

www.seiu888.org

cpreplab.weebly.com

http://morningreporttgh.blogspot.com/2010/09/guillain-barre-syndrome.html



CHAGAS

Chagas disease is caused by the parasite *Trypanosoma cruzi*, which is transmitted to animals and people by insect vectors that are found only in the Americas (mainly, in rural areas of Latin America where poverty is widespread). Chagas disease,*T. cruzi*infection is also referred to as American trypanosomiasis

Causes: the main way is through vector borne transmission. The insect vectors are called triatomine bugs. These blood-sucking bugs get infected by biting an infected animal or person. During the day, the bugs hide in crevices in the walls and roofs. During the night, when the inhabitants are sleeping, the bugs emerge. Because they tend to feed on people's faces, triatomine bugs are also known as "kissing bugs. " After they bite and ingest blood, they defecate on the person. The person can become infected if *T. cruzi* parasites in the bug feces enter the body through mucous membranes or breaks in the skin. The unsuspecting, sleeping person may accidentally scratch or rub the feces into the bite wound, eyes, or mouth.

CHAGAS

Causes (cont.): congenital transmission (from a pregnant woman to her baby); blood transfusion; organ transplantation; consumption of uncooked food contaminated with feces from infected bugs; and accidental laboratory exposure.

Diagnosis: Chagas disease is diagnosed by blood tests. If you are found to have Chagas disease, you should have a heart tracing test (electrocardiogram).

Signs and Symptoms: (Commonly symptom free) fever, fatigue, body aches, headache, rash, loss of appetite, diarrhea, and vomiting. Physical signs: mild enlargement of the liver or spleen, swollen glands, and local swelling (a chagoma) where the parasite entered the body. The most recognized marker of acute Chagas disease is called Romaña's sign, which includes swelling of the eyelids on the side of the face near the bite wound or where the bug feces were deposited or accidentally rubbed into the eye.

CHAGAS

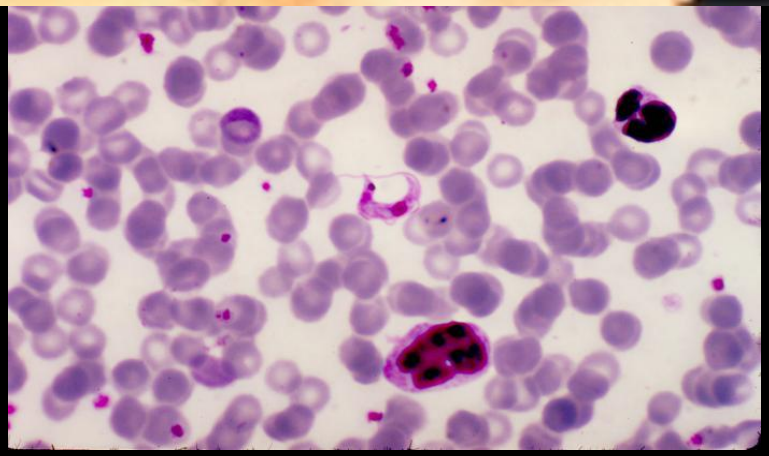
Signs and Symptoms (cont.): Less than 5% of young children die from severe inflammation/infection of the heart muscle (myocarditis) or brain (meningoencephalitis). During the **chronic phase (30%) some experience cardiac complications**, which can include an enlarged heart, heart failure, altered heart rate or rhythm, and cardiac arrest (sudden death); and/or

intestinal complications, which can include an enlarged esophagus (megaesophagus) or colon (megacolon) and can lead to difficulties with eating or with passing stool.

Treatments: antiparasitic treatment-to kill the parasite; **symptomatic** treatment- to manage the symptoms and signs of infection

Significance in Peru: Chagas bugs are found in houses made from materials such as mud, adobe, straw, and palm thatch which can be found in developing countries in South America.

CHAGAS



REFERENCES

http://www.cdc.gov/parasites/chagas/gen_info/detailed.html

www.wikidoc.org

http://www.missopen.com/random/chagas-disease-concern-after-kissing-bugs-infect-at-least-12-in-texas/