

THE ATTERBURY ATTITUDE



BOEING CH-47F CHINOOK HELICOPTERS

VOLUME 1

JULY 20, 2014

EDITED BY ONE CRAZY GHOST



THE GHOST IS BACK!



The cover photo, as well as that pictured to your left, were taken by U.S. Army PFC Nicholas Swenson at Kandahar Air Field, Afghanistan. PFC Swenson is a member of Company 2-1, General Aviation Support Battalion (GASB) based out of Fort Riley, Kansas.

His training at NESAs has served him well.



WELCOME TO INDIANA THE HOOSIER STATE



WELCOME TO CAMP ATTERBURY'S JOINT MANUEVER TRAINING CENTER



Camp Atterbury Joint Manuever Training Center is the "home away from home" for many NESAs staffmembers. Comprised of approximately 34,500 acres, it is a training center of excellence for U.S. Army, Marine, Navy, and Air Force personnel. This base has a proud history, which I will summarize below.

In January 1942, weeks after the Japanese aerial attack on Pearl Harbor, Oahu, plans were underway for building a training center for 30,000 troops in South Central Indiana. Forty thousand acres of land were purchased from farmers in Bartholomew, Brown, and Johnson counties and construction began in April 1942. The base was named in honor of Hoosier native Brigadier General William Wallace Atterbury, a military transportation expert during World War I.

"Welcome to Mud-Berry" was a commonly heard phrase, as the grounds were muddy due to heavy rains during the spring of 1942. Nevertheless, civilian workers built barracks, movie theaters, libraries, gymnasiums, places of worship, barber shops, laundromats, bakeries and restaurants on base. Wakeman General Hospital, with 9,000 beds, would treat over 85,000 patients during World War II. It was a center for plastic surgery excellence.

The 83rd "Thunderbolt" Infantry Division was the first to train at Camp Atterbury beginning in the summer of 1942. In April 1944, the division shipped out to the European Theater, fighting in France, Luxembourg, and Germany. The 92d "Buffalo" Division, comprised of African Americans, arrived at Camp Atterbury in October 1942 and months later was deployed to the Mediterranean Theater, participating in the Italian Campaign. The 30th 1 "Old Hickory" Division arrived on base in November 1943, shipping out to England in October 1944. "The 106th "Golden Lion" Division was the last big unit to receive its training at Camp Atterbury during World War II. They spent nearly eight months training and left for England in October 1944, for another brief training of training. The 106th took a position on a "quiet" sector in France on 11 December 1944. A few days later the Germans, led by General Von Rundstedt, made their final desperate bid for victory. The "Golden Lions" took the brunt of the attack, in the Battle of the Bulge, and suffered 8,663 casualties in a period of less than one month."¹

Camp Atterbury was closed late in 1948, only to be reactivated for the Korean Conflict, Vietnam Conflict, and most recently the wars in Iraq and Afghanistan.

The source of much of this information, including the direct quotation, was from: Brown, Colonel Clifford M. The History of Camp Atterbury.

www.indianamilitary.org/camp%20Atterbury/History/history_of_camp_atterbury



Lt Col "Bob" Taylor is our primary Mission Safety Officer. It is his thirtieth year in CAP and his fifteenth year on staff at NESAs. After serving on Ground Search and Rescue (GSAR) staff for seven years, he transitioned to primary Mission Safety Officer.

At the Illinois Wing level, Lt Col Taylor serves as the Ground Operations Training Officer. His primary emergency services qualifications include Incident Commander, Ground Branch Director, Ground Team Leader, and Mission Safety Officer.

On a more personal note, Lt Col Taylor has been married to Sue for 29 years. Sue retired in 2013 after teaching elementary school students for 36 years. Lt Col Taylor retired in 2012 after 42 years as an employee at AT & T. They visited NESAs's PAO in Boston in October 2013 and will be venturing to Italy for a well-deserved vacation this autumn.

Lt Col Taylor has four children, Jim (39), Bill (36), Sarah (29), and Megan (25). He has four lovely grandchildren!



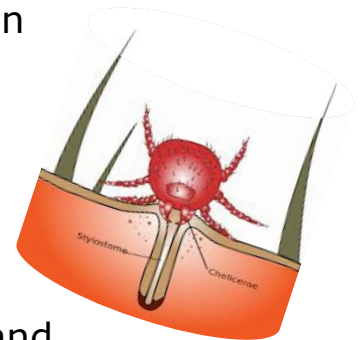
PRIMARY SAFETY RULES

- ❖ **Reflective belts are to be worn from 1800 to 0600 whenever outside of the cantonment areas.**
- ❖ **Headlights are to be on from dusk to dawn on base and during inclement weather.**
- ❖ **No use of cell phones while driving on base. No texting and driving EVER!**
- ❖ **Follow posted speed limits. On paved main roads, it is 25 mph. It varies on side roads, so be cautious.**
- ❖ **The speed limit is 10 mph when passing pedestrians or troops in formation.**
- ❖ **All NESAs drivers are required to back their vehicles into parking spaces. This includes privately-owned, rental, and corporate vehicles. Use a spotter if one is available.**
- ❖ **No smoking in any vehicle or building. No smoking near cadets.**
- ❖ **Cadets cannot leave the cantonment area without senior member supervision.**
- ❖ **Within the barracks and classrooms, keep aisles and exits clear.**
- ❖ **Within the barracks, keep your gear stowed.**
- ❖ **Keep latrines clean. In the event of a tornado warning, they may be your shelter.**



BEWARE OF THIS LITTLE CUTIE ... THE CHIGGER ... THE JIGGER ... THE RED BUG!

This tiny six-legged critter can move fast ...to places you'd rather not share with anyone else. Let me tell you about *Trombicula alfreddugesi*. These "no-see-ums" don't burrow under the skin, contrary to popular belief. You might say that they like frappes, not strawberry or chocolate, mind you, but rather liquified skin cells. Yummy! They even use a special straw! Look at the illustration to your right. This little bugger attaches its mouth-parts onto a skin pore or hair follicle. It then secretes a digestive enzyme to disintegrate skin cells. After sucking up the tasty brew, the chubby cutie drops off to lay in the soil until autumn.



Chiggers like snakes, toads, rodents, birds, livestock, and, yes, us humanoids. Let's just say that they are a non-discriminatory parasite. On humans, they enjoy going under socks, around ankles, behind knees, under arms, beneath elastic underwear bands, and **literally below the belt!** The result is a red welt that itches **ferociously!** The problem is that once you itch, it is too late. The chigger has already fallen off, remember?

So, how can you avoid an attack by this *mitey* pesky pest? First off, steer clear of weeds and thick vegetation and avoid sitting on the grass. This might be an issue for all of you ground-pounders. Apply DEET to socks, pant cuffs, ankles, legs, around your waist, and to your lower sleeves and wrists. It takes several hours for the critter to latch on and start frappifying your skin cells, so taking a hot shower or bath might help wash the cuties away.

As for the itch, nail polish won't help. The chigger has already fallen off. You can apply Afterbite™ or any over-the-counter anti-itch ointment. Application of an antibiotic cream may help to prevent secondary infection.

DRINK-UP: The dangers of dehydration

by Andrew S. Warner, M.D.
Medical Officer, NER-MA-043

Case Study

Cadet Captain Jones arrived at the SAREX ready to go. A little tired from dancing late into the night the prior evening, to help wake herself up Jones started the day with a 5 K run and then downed a couple of Red Bull™ energy drinks. After getting the mission briefing she had a cup of coffee and was ready for a day in the field. A good athlete used to distance running, Jones was confident she could not only keep up with the ground team, but be in the lead. After all, she was in great shape and this would just be a walk in the woods.

It looked like it was going to be a hot August day. C/Captain Jones was wearing her BDUs, undershirt, and cap, and carrying a full pack for a possible overnight stay in the field. Jones believed in leadership by example. So, in addition to her own equipment, she decided to carry the extra equipment rather than assign the heavy lifting to someone else.

After about an hour in the field Jones started to sweat, more than she usually did when on a run. Three hours later Jones noticed that her mouth was dry and admitted to herself that she was a bit thirsty. She decided to take a few small gulps of water. After another hour, Jones started to feel dizzy and developed a headache. She drank some more water and took a couple of Tylenol.

By now the temperature had climbed to 88° F. Jones was surprised that she had stopped sweating since she felt increasingly warm. She was breathing rapidly, becoming tired and to others seemed confused. Realizing what was happening, her fellow team members stopped the mission and had Jones drink more water, but by then it was too late. Jones had become severely dehydrated. By not staying adequately hydrated, Jones had harmed herself, her team, and the mission.

What is dehydration?

Dehydration comes from Greek and means without (de) water (hydra). Dehydration occurs when your body loses more fluid than you take in.

We normally lose water every day in the form of water vapor in the breath we exhale, and as water in sweat, urine, and stool. When we engage in vigorous activities we lose even more water. Water can also be lost if you have a fever, develop vomiting and diarrhea from an intestinal illness, or even from an increase in urination from caffeine and alcohol. If you do not replenish the fluid your body has lost your body will literally dry out; you will have become dehydrated.

How do I know if I am dehydrated?

There are numerous symptoms of dehydration ranging from mild to severe. While thirst is the most obvious symptom of dehydration, it is actually only one of many. Thirst is also not considered to be a reliable gauge of how much water the body needs.

As CAP members we need to not only be able to recognize when we ourselves are getting dehydrated, but we also need to be able to recognize dehydration in each other.

Symptoms of mild to moderate dehydration

- Thirst
- Dry, sticky mouth
- Dark urine and decreased urination
- Dizziness or lightheadedness
- Tiredness or sleepiness
- Dry skin
- Headache
- Few or no tears when crying
- Constipation
- Children less active than usual

Symptoms of severe dehydration

- Extreme thirst
- Very dry mouth, skin, and eyes
- Lack of sweating
- Little or no urination
- No tears
- Sunken eyes
- Rapid heartbeat
- Rapid breathing
- Low blood pressure
- Fever
- Abdominal cramps
- In children—extreme fussiness or sleepiness
- In adults—irritability and/or confusion
- In extreme cases—delirium or unconsciousness

Mild and moderate dehydration is usually treated with drinking more fluid. Severe dehydration, on the other hand, is an emergency, can be life-threatening, and needs immediate medical attention.

What are the common causes of fluid loss leading to dehydration?

- **Increased activity** - Vigorous activity promotes water loss from sweating, which, in turn, can lead to dehydration. Why do we sweat? Sweating is the mechanism our body uses to cool ourselves. When we perspire sweat glands on the skin release water that layers on top of the skin. When the sweat evaporates it makes us feel cool. This is why we feel hotter on a humid day. When the air is dry it is easy for the water on our skin to evaporate since the water is going from an area of high saturation (our skin coated with water) to an area of low saturation (dry air). On the other hand, humid air is already filled with water so on a humid day the water on our skin has no place to go. Athletes are at risk for dehydration since they engage in intense physical activity often on hot and humid days and may not take the time to properly hydrate. A good coach knows this and rotates players off the field so they can cool-off and take-in some fluid. CAP members, especially ground teams, are also at risk for dehydration from increased activity, carrying heavy packs, and not taking the time to hydrate. A good team leader knows the importance of resting her people and making sure they are well hydrated.
- **Gastroenteritis** - Vomiting and diarrhea can occur abruptly in someone who has picked-up an intestinal bug. The vomiting and diarrhea can be voluminous and can rapidly cause severe dehydration. Infants, young children, and the elderly are especially at risk.
- **Fever** - A fever from any cause can lead to dehydration both from evaporation and from our body working to fight off an illness.
- **Increased urination** - Increased urination is commonly caused by medications. Antihistamines, which are drugs often taken when we have a cold to "dry up" watery eyes and a runny nose, can lead to dehydration. Diuretics, which are used by doctors to get rid of excess fluid in patients who are fluid overloaded, can easily cause dehydration if the patient is given too much. Increased urination can also be seen in poorly controlled diabetes. In fact, increased thirst and having to urinate frequently are the two most common symptoms diabetics experience when their diabetes is not under optimal control.
- **Caffeine and alcohol** - Caffeine and alcohol have a diuretic effect and can lead to dehydration from increased urination.

Are there any serious complications from dehydration?

If left untreated, dehydration can lead to a number of serious complications.

- **Heat injury** Heat exhaustion and heat stroke can result from dehydration.
- **Heat exhaustion** can occur when a person is performing strenuous physical activity on a hot day. The body gets dehydrated and overheats. As a result, the person develops a fever, although usually not higher than 104° F.
- **Heat stroke** is a life-threatening medical condition. The body's cooling system shuts down and the core temperature can rise to 105° F or greater. Such a high temperature can cause damage to internal organs.

- **Seizures** can occur due to an electrolyte imbalance. Electrolytes, such as sodium and potassium, help carry electronic signals between cells and throughout the body. When there is an electrolyte imbalance, which can occur both as a result of dehydration as well as re-hydration, the normal electrical signals can become disordered and lead to seizures.
- **Shock**, which is when a person's blood pressure becomes dangerously low, can occur as a result of dehydration. The main purpose of blood is to deliver oxygen throughout our body. When a person is in shock the blood pressure is not high enough to pump enough oxygen-rich blood for the body to properly function. As a result, our body is then deprived of oxygen, which can lead to organ damage.
- **Kidney failure** can occur due to severe dehydration. The kidneys function to remove excess water and waste from our bodies. Therefore, when the kidneys fail, both fluid and waste can build up and damage our internal organs.
- **Coma and death** can occur if severe dehydration is left untreated.

What can you do to prevent dehydration?

There are a number of common sense things you can do to prevent dehydration.

- Avoid excess exercise in hot and humid weather.
- Avoid excess exercise in any weather if you are planning to shortly thereafter engage in any type of strenuous activity, such as participating in a SAREX.
- Avoid or at least minimize caffeine and alcohol before and immediately after any vigorous activity.
- Stay hydrated—drink plenty of fluids before, during, and after strenuous activity. Ideally you should start increasing your fluid intake the day before and continue until the day after. Especially in hot and humid weather, most people underestimate their fluid requirements and have to play catch-up when they should be staying ahead.
- If possible stay in an air-conditioned setting. Even if only for short breaks, cooling-off with an air-conditioner will help prevent dehydration.
- DO NOT ENGAGE IN STRENOUS ACTIVITY IF YOU ARE ILL. In addition to placing yourself at risk of dehydration you will expose and potentially infect your entire team. Stay home and get well.

Is it possible to drink too much water and become "overhydrated"?

Water intoxication can occur from drinking too much water. This is a rare condition and does not usually occur in healthy individuals. It is mostly seen in water drinking contests in which individuals force themselves to drink huge quantities of water well beyond what is necessary for adequate hydration. It can also be seen after a long bout of intensive and vigorous exercise during which a large quantity of water is consumed without replenishing the electrolytes (mostly salt) lost in sweat. Physiologically, water intoxication causes a rapid drop in the body's sodium level, which is known as hyponatremia. Sudden and prolonged hyponatremia can cause

cells to swell, especially brain cells (called neurons). Swelling of brain cells (called cerebral edema) can cause a multitude of symptoms including headache, confusion, and irritability. Left untreated swelling of the brain can lead to seizures, brain damage, coma, and death. Again, this is a rare condition.

How do you know if you are drinking too much water? If you are drinking so much water that you start to get bloated and feel uncomfortable, it is probably time to slow down so as not to overhydrate.

Are there any particular medical conditions in which drinking too much fluid can be harmful?

There are three medical conditions in which drinking too much fluid can cause an individual to become overhydrated.

- **Congestive heart failure (CHF)** - In congestive heart failure the heart has become weak and is not able to pump blood with the same vigor as with a normal heart. If an individual with CHF takes in more fluid than the heart can handle, the fluid can back up into the lungs, which is called pulmonary edema, or into the legs, which is called peripheral edema.
- **Cirrhosis of the liver** - Cirrhosis is when the liver has become fibrotic and scarred. Cirrhosis can cause fluid to back-up into the abdominal cavity, which is called ascites.
- **Kidney disease** - Certain types of kidney disease, particularly nephrotic syndrome, can cause the entire body to become swollen from retained fluid. This condition is called anasarca.

Individuals with any of these conditions must maintain a delicate fluid balance and should avoid hot and humid weather, overexertion, excess salt, and drinking too much fluid.

How do you treat dehydration?

Most cases of mild to moderate dehydration can be treated with oral fluids alone and without the need for intravenous (IV) hydration. When we sweat we lose both water and electrolytes (mostly salt). **Oral rehydration therapy** replaces both, and the best oral rehydration therapy uses a combination of water, salt, and sugar. Why sugar? Sugar aids in the absorption of salt and water in the intestine. Pedialyte™ and Gatorade™ are two commercially available forms of oral rehydration therapy and are very effective. There are many others as well. You can also make your own oral rehydration solution—take 1 liter of water and add 3 grams (one teaspoon) of table salt and 18 grams (3 tablespoons) of sugar.

Oral hydration therapy has proven so effective that worldwide it saves the lives of millions of children a year from death due to infectious diarrhea. The World Health

Organization (WHO) developed a solution, called the WHO Solution, to treat the most severe form of infectious diarrhea seen in developing countries—cholera.

Cholera is a severe type of infectious diarrhea caused by the bacterium *Vibrio cholera*. It affects 3-5 million people worldwide and causes >100,000 deaths each year. A person infected with cholera can produce 3-5 gallons of diarrhea per day. If untreated cholera has a mortality (death rate) of 50-60%. But when quickly treated with oral rehydration therapy, along with antibiotics, the mortality from cholera drops to < 1%.

Even though oral rehydration therapy is extremely effective, in the developed world severe dehydration is usually treated with intravenous fluids.

When should you seek medical attention?

If you have symptoms of mild to moderate dehydration and respond quickly to oral rehydration therapy you probably do not need to seek medical attention. However, if you do not respond quickly to oral fluids, or if you have symptoms of severe dehydration you should immediately seek medical attention.

Do aircrews have to worry about dehydration?

Adequate hydration is important for aircrews to stay sharp and focused. But since CAP aircraft have neither beverage carts nor bathrooms, aircrews should be hydrated but not too hydrated. So, drink-up and empty-out prior to the flight, abstain from alcohol, minimize caffeine consumption, bring along a bottle or two of water, and hope that nature is on your side.

The Medal of Honor

Written by C/ Col Kenny H. Le, NER-MA-007

The United States' military's highest award, known as the Medal of Honor, is awarded for personal valor above and beyond the call of duty. It is personally given by the President of the United States for "conspicuous gallantry and intrepidity at the risk of life above and beyond the call of duty". The Medal of Honor has become the symbol of ultimate bravery in the face of danger. It is often awarded "posthumously", as many recipients were killed in action due to their noble acts. In fact, since 1941, over half of all Medals of Honor have been awarded posthumously. Those that receive it are known as "recipients", as none will ever claim to have "earned" or "won" the medal. And finally, as a recognition of their courage, all military members will initiate the salute to Medal of Honor recipients, no matter who outranks the other. The Medal of Honor has been a coveted symbol for the bravest warriors who have impacted our nation's forces.

On December 9, 1861, Iowa Senator James Grimes proposed a medal to commemorate Navy sailors for outstanding actions, particularly those exhibited during the ongoing Civil War. President Abraham Lincoln signed the bill into law in December 1862, and the U.S. Navy Medal of Valor was created. Two months later, Massachusetts Senator Henry Wilson authored a similar proposal for the Army. On July 12, 1862, President Lincoln sanctioned the Army Medal of Honor.

President William McKinley, a veteran of the Civil War, came into office in 1897. He created the precedent for awarding Medals of Honor to those in the military who demonstrated "gallantry and intrepidity" above and beyond. The Medal of Honor could not be self-nominated. Furthermore, there had to be eyewitness accounts of the heroic action. Congress would go on to specify that such actions must be against an opposing force. The Medal of Honor would undergo changes in design over the years, but its revered status would remain untarnished,

As would be expected, individuals who have received the Medal of Honor performed extraordinary actions during combat. Almost half of all Medal of Honor citations have been awarded to those that altruistically sacrificed themselves to save the lives of their fellow comrades. One common example

would be using one's body to shield others from an explosive device such as a grenade. Taking a look at recent history, one can see tales of heroic feats.

In Somalia, during the Battle of Mogadishu, two U.S. Army Blackhawk helicopters were shot down and being swarmed by enemy ground forces. One contained live crew members. Recognizing the imminent threat to the aircrew, a Delta Force sniper team (consisting of MSG Gary Gordon and SFC Randall Shughart) willingly requested insertion to provide security. After finally being granted permission, this team was able to defend the downed helicopter despite being severely outnumbered. MSG Gary Gordon and SFC Randall Shughart were both killed in action when they ran out of all ammunition. Their sacrifice was not in vain, as their actions allowed the pilot of the crew to survive. Their story is featured in the film *Black Hawk Down*.

Another iconic story stems from the ongoing War on Terror. Stationed in Afghanistan, Navy SEAL team leader LT Michael Murphy and his team were on a mission to assassinate or capture a high value target. The mission was compromised; the team was heavily outnumbered and were unable to communicate for help. Despite severe wounds, LT Murphy willingly moved into open terrain to call for support. He eventually succeeded in communication, fighting until his death. LT Murphy sacrificed his life in order for his teammates to have the chance to escape; one of the SEALs on his team would eventually escape from the battle and be rescued by a combination of Afghan locals and the American military. This story is featured in retired-Navy SEAL Marcus Luttrell's novel, *Lone Survivor*, which has also just recently become a film.

There are thousands of other citations for Medal of Honor recipients, each detailing a brave warrior. While every service member holds the honor of serving, these select few have truly distinguished themselves as true warriors. Medal of Honor recipients are those that have risked extreme danger, displayed true "gallantry and intrepidity" beyond the call of duty, and many do make the ultimate sacrifice. Recipients of the Medal of Honor have demonstrated the true meaning of service to country.



MISCELLANEOUS FACTS ABOUT THE MEDAL OF HONOR:

- There have been 3,463 Medals of Honor awarded to date.
- Seventy-five recipients are still living today.
- The Medal of Honor was originally only given to enlisted members.
- Nineteen recipients have been awarded two separate Medals of Honor.
- Only one woman has ever received the Medal of Honor: Mary Walker, at the Battle of Bull Run, Civil War.
- Only one Coast Guardsman has received the Medal of Honor: Douglas Munro at Guadalcanal, World War II.
- There are five pairs of brothers who have been awarded the Medal of Honor
- There are two father and son pairs who have been awarded the Medal of Honor: (Lt General Arthur MacArthur and his son, General Douglas MacArthur; President Teddy Roosevelt and son, Brigadier General Teddy Roosevelt Jr).
- There is one uncle and nephew pair.

Works Cited:

The Navy's Medal of Honor. www.history.navy.mil/faqs/faq38-1.htm

Medal of Honor Recipients. www.history.army.mil/moh/

The United States Army: Medal of Honor.
www.army.mil/medalofhonor/history.html

Congressional Medal of Honor Society: The Medal of Honor.
www.cmohs.org

LYME DISEASE FROM A PEDIATRICIAN'S PERSPECTIVE

By LouAnn Maffei-Iwuc, Lt Col, CAP
Medical Officer
Massachusetts Wing, Civil Air Patrol

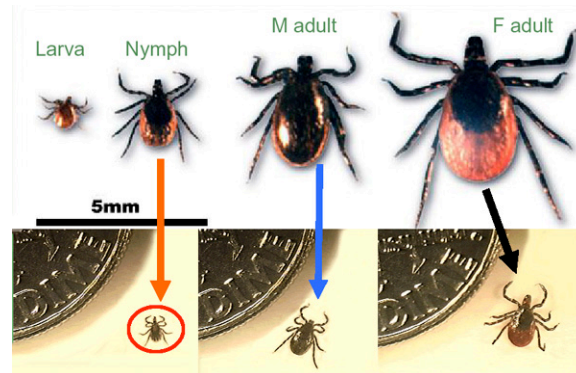
A fourteen year old female was seen in a Cape Cod hospital emergency room in August 2010 with a rash on her abdomen. The parents thought she had Lyme disease, but the attending physician disagreed. She was treated with a ten day course of cephalexin (versus what would have been a 21 day course of another antibiotic). This same adolescent was seen in February 2011 at our urgent care site with left elbow swelling. There was no history of injury, no history of fever, and no redness or increased warmth of the joint. X rays were normal. She wore a sling for several days and the swelling went away. One month later, she arrived at my office. Her left knee was markedly swollen. There was no known injury, no fever, no redness or increased warmth. Labs were drawn, her joint was tapped by an orthopedic associate, and, as suspected, she had Lyme arthritis. She was placed on a four week course of oral antibiotics.

A four year old male came into the office during the summer of 2009 with a four day history of high fever, headache, and lethargy. On exam, he did not have an ear or throat infection, nor did he have nasal congestion or stiff neck. There was no history of rash or known tick bite. He appeared ill. Labs are drawn, and he was referred to the emergency room for a spinal tap. He was admitted to the hospital, subsequently diagnosed with Lyme meningitis and was discharged home several days later with a PIC (percutaneous intravenous catheter) line, allowing a visiting nurse to administer daily antibiotics to complete a six week course.

A seventeen year old female left her home in St. John, U.S. Virgin Islands to visit friends in Rhode Island for one week in June. She returned home and one month later developed migraine headaches and a sore neck. There was no known history of tick bite or rash. Pain medication was prescribed by a local island clinic. Still not feeling well one week later, she returned to the clinic and a blood count was drawn. It was abnormal. Upon her request, I called the clinic and asked them to run a series of tests, including Lyme. The clinic did not have the capability to run Lyme titers. The headaches subsided, but she developed intermittent eye inflammation. Several weeks later, she flew to Boston accompanied by her mother and grandmother. While driving to UMass Medical Center in Worcester, it was evident that her eyes were notably inflamed. After obtaining a thorough history and exam, the pediatric infectious disease specialist ordered laboratory studies and immediately referred her to a corneal specialist. "If she had come one week later, I don't know if we could have saved

her vision,” was the ophthalmologist’s quote. She was diagnosed with Lyme meningitis and Lyme infection of her corneae. The Student Health Center at her chosen university needed to learn new skills in order to provide care for this newly matriculated student, as she required a six week course of daily intravenous antibiotics via a PIC line.

Borrelia burgodoferi, a corkscrew-shaped (spirocete) bacterium, is the culprit, folks! It is the causative agent for Lyme disease. The principle reservoir of infection is *Peromyscus leucopus*, commonly known as the white-footed mouse. The primary vector, or carrier, in New England is a nasty little tick called *Ixodes dammini*, the deer tick.

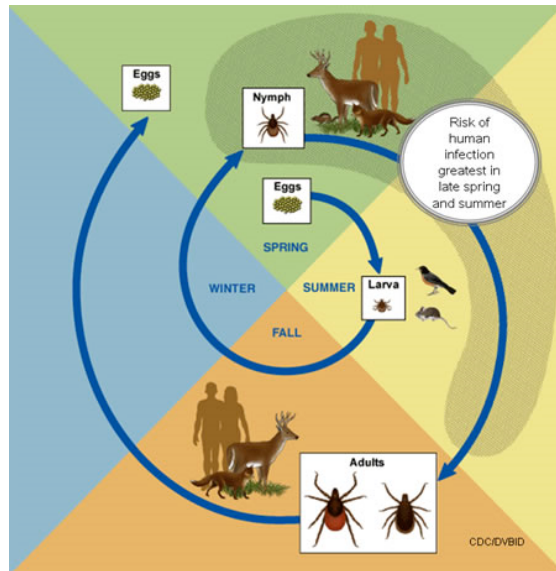


Representation of the deer tick at various stages of growth by CapeK9Cardio™¹

The lifespan of a deer tick averages two years. Adult ticks lay eggs on the ground in the spring. The eggs hatch as larvae during the summer, and the larvae feed on mice, other small mammals, and birds from summer until early autumn. If the ingested blood meal is infected with *Borrelia burgodoferi*, the tiny tick is infected for life. There is a period of dormancy when the larvae grow into nymphs. Searching for blood meals in order to grow into adults, the still tiny nymphs feast primarily on rodents. Yet nymphs are the most common stage of tick to bite dogs, cats, and humans as well. The peak season for humans and their pets to get infected with Lyme disease is May, June, and July, when the nymphs are most active.

So, where does “deer” come into the picture? The adult ticks have not vanished, folks! They feed on large mammals such as deer (and, sigh, us as well!) and are most prevalent in the spring and autumn. The deer do not become infected by *Borrelia burgodoferi*. They just serve up yummy blood for the deer tick, sustaining the tick population and transporting these lovely critters throughout the woods and fields. It is possible to get infected with Lyme disease during the winter, as adult deer ticks will emerge in search of blood meals if the temperature rises above freezing. Below is a drawing of the life cycle

of the deer tick, courtesy of the United States Centers for Disease Control (CDC):



Life Cycle of Blacklegged Ticks²

Lyme disease is the number one arthropod-borne illness in the United States.³ The majority of cases in the United States occur in New York, Massachusetts, Connecticut, Rhode Island, and New Jersey.⁴ There are cases of Lyme disease in other parts of the nation, transmitted by *Ixodes scapularis* in the South and *Ixodes pacificus* along the Pacific coast. The actual percentage of deer ticks infected by *Borrelia burgdorferi* ranges from 2 to 90% and varies from species to species, from state to state and even from county to county.⁵



"Studies have shown that an infected tick normally cannot begin transmitting the spirochete [*Borrelia burgdorferi*] until it has been attached to its host about 36-48 hours..."⁶ Seventy to eighty percent of infected humans will develop a circular rash at the site of the bite within three to thirty days of being bitten. The erythema migrans rash can be a solid area of redness (erythema), can have a bull's eye appearance, or can look like a bruise in darker-skinned individuals. If untreated, over the next several days to weeks the area of rash will expand, reaching a diameter of up to twelve inches in some cases.⁷ In this early localized stage, the individual may also have achy joints, chills, fever, and/or fatigue. The photo to the left is courtesy of the U.S. CDC.⁸

In early disseminated Lyme disease, other areas of rash may develop away from the initial tick bite site. The individual may have one or several of a constellation of symptoms: fever, fatigue, swollen

glands, headaches, migrating large joint aches, neck pain or stiffness, swollen glands, visual changes, tingling or numbness of extremities, or a form of facial paralysis termed Bell's Palsy. "In up to 8% of patients, ... Cardiac complications of Lyme disease generally occur in this early phase and include conduction system disturbances, myopericarditis and congestive heart failure."⁹ Those with cardiac involvement can present with shortness of breath, irregular heart rate, chest pain, light-headedness and/ or fainting episodes.

If left untreated, late stage Lyme disease sets in from weeks to months, and in some cases even over a year, after the initial tick bite. The most common presentation is swelling of one or more large joints (arthritis), with the knee being the most commonly affected joint. The patient can present with symptoms of severe headache and sore or stiff neck if they have developed meningitis. Neurologic involvement can also be signaled by confusion, decreased concentration, disorientation, poor short term memory or mental fog.¹⁰

So, given the pervasiveness of deer ticks, what can we do to protect ourselves from getting Lyme disease? We can attempt to avoid areas of woods, shrubs, leaf debris, and tall grasses but that is not easy in New England. If we do go into these areas, particularly in the months of May, June, and July, it is wise to wear light clothing complete with hat, long sleeved shirt tucked into long pants, pant legs tucked into socks, and preferably boots instead of sneakers or sandals. Stay on the trails to minimize contact with shrubs and grasses. Wear insecticide. You can apply 20-50% N-N-diethyl-meta-toluamide (DEET) to clothing and exposed skin. Permethrin, a chemical which kills ticks on contact, can be applied to shoes, clothing, tent surfaces, mosquito netting, and gear. It cannot be applied to skin. Treat your pets with veterinary-approved products such as Front Line™ or Advantage™, to minimize their exposure to ticks. Check them and yourselves before entering the home, to avoid transport into the home. DAILY tick checks are essential, as ticks need to be attached to the host for a minimum of twenty-four hours in order to transmit infection.¹¹ These tiny critters attach to unusual places such as armpits, belly buttons, buttocks, and groin. A trusted friend needs to literally "CHECK YOUR BACK."

There are specific recommendations for children in regards to insect repellents. Never apply insecticides on infants under the age of two months. "Oil of lemon eucalyptus products are not approved for children under three years of age... When using repellent on a child, apply it to your own hands and then rub them on your child. Avoid children's eyes and mouth and use it sparingly around their ears. Do not apply repellent to children's hands. (Children tend to put their hands in their mouths.) Do not allow young children to apply insect

repellent to themselves; have an adult do it for them. Keep repellents out of reach of children. Do not apply repellent under clothing. If repellent is applied to clothing, wash treated clothing before wearing again. (May vary by product, check label for specific instructions.)¹²

Okay, you've done the tick check and have found an embedded tick. EGAD! Panicked parents call our office in a panic. Fathers yank off the ticks with aplomb, only to find residual mouth parts. YIKES! They dig and dig, and then the child comes in with a skin infection from the vigorous attempts at removing every last vestige of *Ixodes dammini*. I think that the Center for Disease Control's recommendations for tick removal are clear and concise:

"There are several tick removal devices on the market, but a plain set of fine-tipped tweezers will remove a tick quite effectively. Prompt and proper tick removal is very important for preventing possible disease transmission.

How to remove a tick:

1. Use fine-tipped tweezers and protect your fingers with a tissue, paper towel, or [preferably non-] latex gloves. Avoid removing ticks with your bare hands.
2. Grasp the tick as close to the skin surface as possible and pull upward with steady, even pressure. Don't twist or jerk the tick; this can cause the mouth-parts to break off and remain in the skin. If this happens, remove the mouth-parts with tweezers. If you are unable to remove the mouth easily with clean tweezers, leave it alone and let the skin heal.
3. After removing the tick, thoroughly disinfect the bite and your hands with rubbing alcohol, an iodine scrub, or soap and water.



Avoid folklore remedies such as "painting" the tick with nail polish or petroleum jelly, or using heat to make the tick detach from the skin. Your goal is to remove the tick as quickly as possible—not waiting for it to detach."¹³

Bibliography

- ¹ Ticks on Cape Cod: Preventative Measures. Illustration, CapeK9Cardio™, July 2009.
<http://www.capek9cardio.com/ticks-on-cape-cod>
- ² Life Cycle of Hard Ticks That Spread Disease. Illustration, Centers for Disease Control and Prevention, Division of Vector-Borne Infectious Diseases: Lyme Disease.
http://www.cdc.gov/ncidod/dvbid/lyme/images/TickLifeCycle_707jpg
- ³ What is Lyme Disease? American Lyme Disease Foundation, 2006.
<http://www.aldf.com/lyme.shtml>
- ⁴ Miller, Lloyd E. Lyme Disease-General Information and FAQ.
<http://www.cs.cmu.edu/afs/cs.cmu.edu/usr/jake/mosaic/lyme.html>
- ⁵ What is Lyme Disease? American Lyme Disease Foundation, 2006.
- ⁶ *Ibid.*
- ⁷ Lyme Disease. Centers for Disease Control and Prevention, Division of Vector-Borne Infectious Diseases: Lyme Disease.
<http://www.cdc.gov/ncidod/dvbid/lyme/>
- ⁸ Erythema Migrans Lesions of Lyme Disease. Illustration, Centers for Disease Control and Prevention, Division of Vector-Borne Infectious Diseases: Lyme Disease.
http://www.cdc.gov/ncidod/dvbid/lyme/ld_LymeDiseaseRashPhotos.htm
- ⁹ Nagi, K.S., Joshi, R., and Thakur, R.K. *Cardiac manifestations of Lyme disease: a Review*, Canadian Journal of Cardiology, 12(5): 503-506, May 1996.
<http://www.ncbi.nlm.nih.gov/pubmed/8640597>
- ¹⁰ What is Lyme Disease? American Lyme Disease Foundation, 2006.
- ¹¹ Public Health Fact Sheet-Lyme Disease. Massachusetts Department of Public Health, Updated March 2011.
www.mass.gov/Eeohhs2/docs/dph/cdc/factsheets/lyme.pdf
- ¹² Insect Repellent Use and Safety. Centers for Disease Control and Prevention, Division of Vector-Borne Diseases: West Nile Virus.
http://www.cdc.gov/ncidod/dvbid/westnile/qa/insect_repellent.htm
- ¹³ Tick Removal. Centers for Disease Control and Prevention, Division of Vector-Borne Infectious Diseases: Lyme Disease.
http://www.cdc.gov/ticks/removing_a_tick.html

CHINOOKS AT CAMP ATTERBURY

