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Vol. 2, No. 4, October, 1997 **NEPMU-6 Pearl Harbor, HI Edition**

Route to:

Navy Forward Laboratory Deployed to Saudi Arabia

The broad spectrum of Forward Deployable Laboratory (FDL) capabilities is being put to the test during Operation Southern Watch. The FDL is currently attached to the US Central Command's Theater Medical Surveillance Team (TMST) located at Prince Sultan Air Base (PSAB) in the Arabian Gulf region. The Navy FDL staff, consisting of two microbiologists and two advanced laboratory technicians, provides disease diagnosis, outbreak investigation, and rapid detection of biological agents for joint coalition forces throughout the area of responsibility (AOR). The FDL is also assisting the Air Force portion of the

TMST with theater disease non-battle injury (DNBI) surveillance.

Since September 1996 the FDL has been co-located with the 4404th Air Transportable Hospital (ATH) at PSAB. The ATH is responsible for over 4,000 military personnel from the US Army, Navy and Air Force. Members of the British Royal Air Force and French Air Force are also stationed at PSAB. Colonel Joan Griffith, the 4404th Group Commander, was very impressed with the Navy's capability to provide extensive microbiology support for coalition forces under deployed conditions. For this reason, she requested that the current team configure the Air Force laboratory to include clinical microbiology: the 4404th ATH is now capable of doing all of their own testing.

The 4404th Medical Group Public Heath and the FDL also do disease

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Inside this issue …

How To Work Up An Epidemic!

It's Monday morning. You have just checked aboard your new shore duty station and you answer your very first phone call of the day. It's an anxious doctor informing you that two middle-aged men died of severe pneumonia over the weekend. He is concerned that it may be contagious since the two men were friends. Over the ensuing hours your phone is clogged with callers reporting cases of pneumonia from all over the state. By 1200 Monday you know of 22 deaths due to pneumonia. You then realize the worst—you have an epidemic!

The above is not fiction—it happened to me my very first day on the job in 1976. As a young Lieutenant in the U.S. Public Health Service, Centers for Disease Control, I was assigned to the Pennsylvania Department of Health in Harrisburg, Pennsylvania. The outbreak was the first Legionnaires' Disease epidemic. This previously unknown bacterium, hidden in a water cooling tower atop a posh Philadelphia hotel, was being distributed by aerosol primarily to middle-aged American Legion conventioneers below. Twenty-nine of 182 cases were fatal. (The full report was published in ***The New England Journal of Medicine*** in December 1977.)

The beauty of epidemiology is that the same basic principles used in this large, novel outbreak can also be used to workup common occurrences such as

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From the OIC of NEPMU 6…

The approach of the influenza season is a good time to note that Congress declared October 12-18 as "National Adult Immunization Week." The declaration focuses public attention on the strategy of increasing adult immunization levels to avoid needless suffering and costs.

Immunizations are one of the few medical interventions which can lead to cost savings. That proven benefit is why calculating the percentage of individuals with up-to-date immunizations is a commonly used performance indicator for healthcare organizations. In the military healthcare system, adherence to immunization standards is one measure used to assess military treatment facility quality. Immunization coverage also serves as a valuable operational readiness metric. For example, the recently released DODI 6490.3 "Implementation and Application of Joint Medical Surveillance for Deployments," tasks the military services to record individual vaccination status prior to major deployments.

Where should the busy provider look to find current vaccination standards? BUMEDINST 6230.15 and BUMEDNOTE 6230 are the primary sources of immunization guidance for Navy and Marine Corps personnel. NEPMUs can assist medical department representatives to implement this guidance by: identifying whom to vaccinate; sharing techniques to overcome common barriers to immunization (e.g., misperceptions like flu shots give you the flu); determining vaccine resource requirements; and sharing ways to measure results. Several vaccine preventable illnesses—hepatitis A, hepatitis B and influenza—are discussed in this FPH issue. Let's work together to communicate the message that the benefits of immunization are "worth a shot."

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From the S.E.L.

LET'S BRING BACK THE BALANCE

We have lost the balance between in-rate training and outside education. Too many of our young Sailors (and some of our old ones) are abandoning advancement exam study...for college courses. This is not so dreadful, until you consider that an equal amount of time and energy focused on professional in-rate study could add 15 points to the average final multiple. These points are particularly important when we consider the average individual is scoring in the mid-50s to low-60s. That's the middle of the pack and the middle of the pack will not be advanced in this highly competitive system.

Let's look at the possible point value: two additional points for a college degree—and a possible 10 to 20, or even 30 additional points for the concentrated advancement study. Do you see what I mean? It just doesn't balance out.

Now, before you all "have my head on a platter"—I know that the "system" looks for continuing education, correspondence and college courses when available. But all too often the scales have tipped to part time Sailor and full time student. It may be the very near future when "degrees earned" will no longer count for advancement purposes for E-6 and below. When that finally happens—what answers will we have for our 2nd Class Petty Officer who has 12 years invested in the Navy and a Bachelors degree...the same person who has taken the First Class exam five or six times and averaged a score of 55?

We, as leaders, could better serve our Sailors by encouraging a healthy balance between college and advancement study. We can provide solid training programs for advancement and professional development. And, we can set a good example by buffing up on our own military knowledge—including history and Navy Programs and Policies. We must spend the time with our Sailors to discuss their career intentions and provide them with sound advice for TODAY's Navy.

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FDL Deployed to Saudi Arabia
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outbreak investigations throughout the AOR. Geographically Separated Units (GSUs), which are smaller detachments of the main military sites, contact the two groups immediately when there is a significant increase in reported diseases. To this point the majority of the investigations have been food related. Furthermore, Public Health utilizes the FDL to identify organisms found in various water sources at PSAB.

The FDL is also providing the AOR with the capability for rapid detection of biological threat agents. Naval Medical Research Institute is supplying the FDL with the equipment and manning to make this possible. To this point it has only been necessary to streamline logistics and train with the new technology to minimize the response time. In the meantime, FDL personnel travel to each of the twelve GSUs in five countries to educate Force Protection and medical staff on steps to take in the event of a suspected biological attack.

DNBI surveillance is another critical element of any deployment. The FDL assists the Air Force portion of the TMST in monitoring disease throughout the AOR. This surveillance is in turn used to brief the Joint Staff on the status of the overall health of deployed troops. GSUs report disease data to the team weekly. This data is graphed and analyzed to determine there is an increase in specific medical complaints in certain areas within the AOR. If the TMST finds any unusual disease rates, compared to that of Operation Desert Storm/Desert Shield, it investigates to determine the cause of the increase.

Being deployed with joint US and coalition forces was a learning experience for all of those who served with the FDL during Operation Southern Watch. In addition, the integration of NEPMU and NMRI staff allowed the FDL to enhance its capabilities and make it a critical operational asset. Since the Navy is planning to put two additional FDLs into action over the next year, you can expect that Navy Medicine will continue to be on the front lines providing health care to deployed forces worldwide.

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... Work up an Epidemic
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a shipboard outbreak of diarrhea. Another advantage is that you don't have to be an epidemiologist to benefit from using the common tools of epidemiology. The "epidemiologic method" is a way to approach problems and create order out of disorder. It's a method of handling information and data to arrive at logical conclusions. In many ways it's just common "horse-sense."

So, how do you work-up an epidemic? Discussed below are 10 steps for working-up an unexpected outbreak of disease for the generalist. These steps are not necessarily in order and some steps can be completed simultaneously. At the most they can provide the generalist with a "go-by." At the least they can get you started until the "experts" arrive on the scene—which could be a long time if you're deployed or at sea.

1. Establish that there is an epidemic.

For ease of communicating the problem, it may also be called an "outbreak" or a "cluster" of cases. The word "epidemic" may carry with it more emotional weight than you want to use. In the example of cases of diarrheal disease on a ship, you would examine the sick-call logs, count the number of cases that presented to sick-call in the days before you saw the increase, and document that graphically. Part of the definition of "epidemic" implies an occurrence of a disease in numbers above what is usually seen or expected. You must first establish the presence of an increased number of cases**.**

2. Get a rough case count and create a case definition.

Early on you want to get, either by phone or in person, an order of magnitude of numbers of cases. This may drive how much help you will need to call-in, and will help you brief the CO early on. Decide what you are going to call a "case." This too may change as you get more information. For example a "case" of diarrhea may

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be "anyone who has experienced 3-loose stools in a 24-hour period." Later as you discover that the outbreak was due to *Salmonella*, a case may be defined by a positive *Salmonella* stool culture. For example, the original case definition used in the Legionnaires' Disease epidemic was "anyone with a cough and fever over 38.9 C or any fever and chest x-ray evidence of pneumonia." Additionally, there was a geographic criteria that the patient had to have attended the American Legion Convention or entered the outbreak hotel between specific dates.

3. Verify the Diagnosis.

Make sure that the basics are covered: that is, patients are seen, charts and laboratory data are reviewed, and the data and clinical picture actually "fit" the diagnosis. This is more important perhaps when you are not "organic" to the unit, but are called in to assist or receive the information second-hand by phone or message.

4. Orient your data to time, place and person.

By determining how many cases you have and the dates of onset of illness, you can draw an "epidemic curve." This is a simple graph with the number of cases plotted along the vertical Y axis and the dates of onset of illness plotted along the horizontal X axis. If geography is a factor then you can show this with a "spot" map. This is a simple diagram of spaces, billeting, or some other geographic marker with the number of cases located at each site depicted by a series of dots. Therefore, you can see at a glance a visual association of numbers of cases with workspace, billeting, unit, buildings, and etc. To orient your data by person means to group your cases by characteristics such as age, sex, race, occupation, rank, rate, and etc., and look for associations and clusters.

5. Determine "attack rates" for specific groups.

An attack rate is the number of cases of disease divided by the number of persons in a related group. For example, if 10 of 30 persons who worked in an electronics shop space become ill, the

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attack rate for the shop group would be 33%. If the attack rate for those eating supper in the officers' mess was 25% and for those who ate supper ashore was only 5%, then that higher attack rate might help you determine the source of the exposure to the cause of the outbreak.

6. Develop a hypothesis for the source of the outbreak, the mode of transmission and the duration of the epidemic.

Like Sherlock Holmes told Dr. Watson, you begin eliminating what does not fit the facts. By looking at your epidemic curve, you can tell if the outbreak has peaked or is ongoing.

7. Test your hypothesis by creating a written survey or questionnaire that is administered to both cases and controls.

By asking specific questions on the survey, you can detect differences in those who got infected and those who did not, that is between those ill and those not ill, thereby confirming or denying your hypothesis. This is the time—like in the game of Clue—where you say, "it was Colonel Mustard, in the Ballroom, with the candlestick."

8. Refine and "clean up" your data and sharpen your case count.

Further surveys or laboratory tests can help. For example, after an outbreak of diarrhea subsides, you might survey the entire crew or a sample of the crew to estimate the overall attack rate of disease, even if you don't have stool cultures on everyone .

9. Execute outbreak control measures as soon as your hypothesis is confirmed by your data or even earlier if indicated.

If your data suggests that contaminated water is coming from "pump A," then remove the pump handle. This is exactly what Dr. John Snow did during a

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...Work up an Epidemic

London cholera epidemic in 1853.

10. Write a formal report of the outbreak.

No matter how small in numbers or insignificant the outbreak seems to you, there is no better way to organize and clarify your thinking than to write and pass on your experience as "lessons learned."

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Marine Sanitation Devices (MSD) Certification

While conducting an Environmental Health Survey aboard a ship, have you ever asked the Hull Technician (HT) about the MSD certification and got a blank stare in reply? For some strange reason the certification process for Single Level Certification (SLC) of an MSD gets lost in the shuffle. The MSD certification is a required inspection that sometimes gets lost in that unforgiving "in-box."

As MSD Sewage, Collection, Holding, and Transfer (CHT) SLC is required every three years at the discretion of the TYCOM or after a major shipalt as per NAVSEAINST 9593.1B. Every ship in the fleet that has a CHT system or similar sewage system is required to have a SLC done. A copy of the certification should be in the custody of the Chief Engineer or in the Engineering Department. The checklists for the certification inspection can be found in the above mentioned instruction.

For more information, contact the Pacific Region Fleet Technical Support Center Pacific, San Diego at DSN 526-2600.

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Hepatitis A Vaccine Interchangeability

Two hepatitis A vaccines have been approved by the FDA. HAVRIX is made by SmithKline Beecham, and VAQTA is made by Merck. There are many similarities between them[1]. Both are very effective and very safe. Both are for use in adults and children over 2 years of age. Both have different formulations for childhood and adult immunization. Both give good protection by about 4 weeks after the initial dose, and both require two doses 6 months or more apart for long lasting protection. HAVRIX also has a 3-dose schedule for 2 to 18 year olds. Both are inactivated vaccines and should be **stored at 2 to 8°C: they should not be frozen.**

Now to the main point of this brief article. What do you do if a patient had the first dose of vaccine with HAVRIX, and only VAQTA is available in stock when the person comes back for the second dose? The answer is simple: you can substitute the VAQTA. In fact, either hepatitis vaccine can be used to complete a series which was started with the other vaccine. This information is not found in the manufacturers' package inserts, but comes from the Armed Forces Epidemiology Board as referenced in BUMED messages 031502Z JUL 97 and 031500Z OCT 97. For more information, contact your closest NEPMU's Epidemiology Department.

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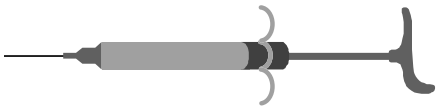
REFERENCES:

1. CDC. Prevention of hepatitis A through active or passive immunization: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 1996;45(No. RR-15):1-30.



Just Another Flu Story

Well, it's that time of the year again... All military personnel are required to get the flu shot every year. Some commands start receiving their vaccine orders in September or October and schedule the immunization soon afterwards.

If you've been ill, deployed, or otherwise left uninformed, here's the information for this year's immunization program:

- NAVMEDLOGCOM FT DIETRICH MD//61//, (R 251200Z APR 97 PSN 496092130) outlined ordering information. This message gives the NSNs, doses per vial, prices, etc.. Flu vaccine orders should have been requested prior to 31 JUL 97.
- More recently, BUMED P 051501Z AUG 97 ZYB emphasized compliance with the program: ALL commands and medical facilities should do everything possible to ensure 100% compliance.

Unfortunately, non-compliance with influenza vaccine is one of the more common discrepancies noted during shipboard Environmental Health Surveys. The flu immunization should be a priority for all Senior Medical Department Representatives and personnel responsible for immunization programs. The messages can be referenced to gain command support and let them know the risks they run if non-compliance is high. The inability of a command to properly function because of missed immunizations could be a serious error.

Traditionally the flu shot is not the most popular vaccine given; in fact, it's probably one of the more often missed or avoided. It is still required for all military personnel (except for those waived by a medical officer)—and here's why. The flu can spread and infect a large portion—or even the majority-of any group of people at a given time. A virulent strain can spread quickly through even the largest commands. Once symptoms begin to appear a unit can be rendered unable to function effectively.

Early in this century the worst pandemic afflicted mankind since the Plague of the 1400's. The "culprit" was none other than the "Spanish flu." This flu began in China, but got its name by infecting about 80% of the population of Spain. In America some of the first cases showed up in Boston when sailors reported to sick call on August 27, 1918. By Aug 31, Navy medical reported over 100 cases in the Boston area. By mid-September the flu had spread throughout the entire East Coast infecting about 25% of the population. One doctor said the patients' lungs were essentially filled with phlegm-like substance. About 500,000 Americans died from this flu pandemic. On a worldwide scale it claimed the lives of over 20 million throughout Europe, America and the Orient.

Today's medical technology is better, however, a virulent strain of influenza can still cause large numbers of illness in a very short time. The flu immunization will not guarantee that you won't get the flu. It may prevent or reduce the severity of any flu you do get. Either way, it's better than nothing.

In the future an oral influenza vaccine may be available which may help in getting a larger number of people to comply with the requirement. It's still up to us to try to get 100% in immunizing our people. Deployable unit personnel and frequent travelers are at a higher risk. Therefore, they should be especially interested in getting immunized.

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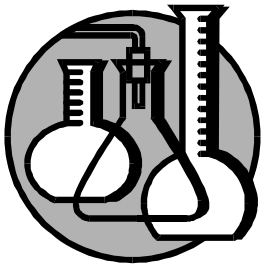

Hepatitis Foundation Releases New Educational Brochure

The Hepatitis Foundation International (HFI) released a new brochure called, "Is Your Liver Giving You the Silent Treatment?" The brochure contains straightforward information on high-risk activities and other educational information about hepatitis. Whereas hepatitis A is associated with a recovery rate of 99 percent, hepatitis B and C, which are spread through infected blood and bodily fluids, may attack the liver silently causing inflammation that may lead to scar tissue or cirrhosis.

Identified only nine years ago, hepatitis C is the nation's leading cause of liver transplants. For more information on obtaining the brochures call the HFI at (800) 891-0707 or write to the Hepatitis Foundation International at 30 Sunrise Terrace, Cedar Grove, NJ 07009.

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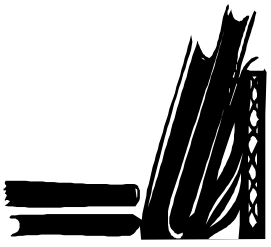

Viral Hepatitis: A Brief Review

Hepatitis is defined as inflammation of the liver, and can be caused by drugs such as Tylenol, alcohol, toxins such as carbon tetrachloride, congenital illnesses, gallstones, or viruses. Some types of viral hepatitis are readily transmissible and are endemic in certain areas of the world, thus posing a significant health risk and readiness issue for the fleet. This article will review the types of viral hepatitis, their transmission, treatment and prevention.

The liver is the body's second largest organ, next to the skin, and is responsible for a variety of different functions. These include metabolism of carbohydrates, fats, proteins, drugs, and toxins, excretion of bile, which assists in fat absorption from the gut, excretion of bilirubin, a breakdown product of red blood cells, storage of glycogen, the body's carbohydrate reserve, synthesis of cholesterol and certain hormones, vitamins, and enzymes, and the proteins necessary for blood clotting. The liver holds about 10% of the body's blood volume, and is important for maintaining blood pressure during acute hemorrhage. The liver also plays an important role in removing bacteria, debris and particulate matter from the blood. Thus the liver has multiple significant functions in maintaining homeostasis.

The common feature of hepatitis is inflammation of the liver and death of liver cells, the extent of which can be estimated by laboratory analysis of various liver function blood tests. Elevation of liver function tests is a hallmark of hepatitis. The increase in aspartate aminotransferase (AST or SGOT) and alanine aminotransferase (ALT or SGPT) parallel the extent of liver damage. The liver's synthetic functions can be evaluated by following the prothrombin and partial thromboplastin times, the excretory functions by bilirubin levels, and the metabolic functions by blood sugar and blood ammonia levels.

Viral hepatitis can be classified as acute, lasting less than six months and culminating in either complete resolution of symptoms or rapidly progressing to a fatal outcome, or chronic, defined as liver inflammation lasting longer than six months. These two types of hepatitis are not caused by different agents, but are rather the individual body's response to the causative agent.

The clinical signs and symptoms of acute hepatitis typically begin with a prodromal phase lasting several days and characterized by generalized malaise, fatigue, nausea, vomiting, myalgia, arthralgia, headache, and anorexia out of proportion to the illness. Smokers often report a distaste for cigarettes, A mild fever may also be present. The next feature to appear is jaundice, a yellow coloration of the skin mucous membranes and sclera of the eyes, caused by deposition of bilirubin which the liver cannot excrete. Jaundice may often be absent and is called anicteric hepatitis. The liver is usually tender and enlarged. Occasionally the spleen is also enlarged. Liver function tests will be abnormal at this time. These signs and symptoms will gradually resolve over days to weeks.

About 1% of the time acute hepatitis will progress to fulminant hepatitis which results in massive hepatic necrosis, coma, bleeding problems and often death. A carrier state, defined as normal liver enzyme tests, no liver inflammation, but viruses circulating in the blood may result from acute hepatitis. These persons present a potential risk to personnel by being asymptomatic yet potentially infectious.

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Chronic hepatitis is defined as elevation of liver function tests beyond six months and may range from asymptomatic to severe illness and may be of several types. Chronic persistent hepatitis is the most common and is defined as inflammation restricted to the portal areas of the liver which surround the collection system of the liver for excretion of bile. Usually these patients have an excellent prognosis with mild symptoms of fatigue or right upper quadrant pain due to liver tenderness and only mildly elevated liver enzymes. Chronic active hepatitis is characterized by portal and periportal inflammation and may progress to cirrhosis and liver failure.

Six different viruses have been shown to be able to cause hepatitis They are named Hepatitis Viruses A,B,C,D,E and G. Hepatitis A virus (HAV), once called infectious hepatitis, is transmitted by the fecal-oral route and can be contracted from contaminated food or water. It is endemic in the third world where public health and hygiene are inadequate, and is nearly universal in third-world children where it is rarely more than a mild illness. The incubation period is 2-6 weeks and the period of greatest infectivity is usually about two weeks before clinical signs and symptoms appear. At risk groups include children in day care and military personnel. The illness is usually mild, rarely progresses to fulminant liver failure and does not lead to chronic hepatitis or the carrier state, Diagnosis of HAV is by specific antibodies to the virus. Prophylaxis includes HAV vaccine, immune serum globulin, and proper hygiene and public health measures.

Hepatitis B virus (HBV), previously known as serum hepatitis, is transmitted parenterally, meaning not through the intestinal tract. HBV can be transmitted by sexual contact, by exposure to blood or bodily fluids or from receiving blood transfusion products or using unclean needles for drug use, tattooing, ear piercing or accupuncture. Incubation is 4 weeks to 6 months and infectivity is highest at about 6 to 20 weeks, At risk groups include health care workers and persons with lifestyle habits that lead to parenteral exposure to blood or bodily fluids. HBV leads to fulminant liver failure in about 5% of patients, though it usually produces a mild to moderately severe disease. The carrier state and chronic hepatitis are sequelae. Diagnosis is by antibodies in the blood, Prophylaxis is by HBV vaccine, hepatitis B immune globulin (HBIG), and avoidance of intimate contact during the infective phase.

Hepatitis C virus (HCV), previously called non-A, non-B hepatitis is transmitted parenterally like HBV, has an incubation period of two weeks to 6 months, results in disease of mild to moderate severity. At-risk populations include health care workers, recipients of multiple transfusions and persons with high risk behaviors. Diagnosis is clinical as antibodies to HCV are often absent. When they are present they suggest prior exposure and do not confer immunity. About five percent of patients develop fulminant liver failure, and chronic and carrier states can result. A vaccination is

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Identification of Acute Hepatitis vs. Chronic Carrier Status

Acute hepatitis can significantly impact health. Disease can range from severe illness that resolves on its own, up to and including liver failure resulting in death. There are currently six known and recognized types of hepatitis (Hepatitis A,B,C,D,E and G). Imagine yourself in this young woman's shoes, knowing she has had only one sexual partner:

A 25 year-old Southeast Asian female comes to the OB clinic for a routine work-up after a home pregnancy test which returned positive. The prospect of her life long dream to raise a child now has come true, and she glows with excitement. A few days later she is called by the clinic, requesting that she come in to discuss her laboratory results. Anxiously she comes in, and is approached by her practitioner. They move off into an exam room in which the practitioner relays the results "you have been identified as having Hepatitis B." Not understanding how she could have contracted this disease, she is told of the disease transmission risks up to and including sexual transmission. Distraught, she leaves the clinic knowing there was no other way she could have been exposed other than sexually. Sadly she drives home, to explain to her husband she has contracted a sexually transmitted disease, "Hepatitis B." Infection control was notified and a report was generated to the State and cognizant NEPMU (ICD-9-CM 070.3).

Without digression into identifying each recognized type of hepatitis, emphasis will be placed on discussion of the significant markers for Hepatitis B.

There are distinct markers called antigens and antibodies, having core, surface and "excessive" properties. Antigens are substances which induce the formulation of antibodies. Antibodies are proteins that are produced by the body, usually in response to the introduction of an antigen which has gained access to the body. Antibodies can range from short duration to a positive marker for life. They can be transmitted in saliva, tears, breast milk and through the placenta. After the introduction of an antigen, the body has a natural response to make antibodies in order to ward off future infections.

There are different phases of antibody levels. Serum immunoglobulin M (IgM) and immunoglobulin G (IgG) are significant markers in distinguishing acute vs chronic hepatitis antibodies. IgM usually comes on abruptly and tapers off after the acute (symptomatic) stage. IgG usually comes in association with IgM but instead, is a marker of the convalescing (asymptomatic) stage. These two markers can make the difference in identifying an acute vs. convalesced hepatitis infection.

As seen in Table 1, if the patient is positive for the antigen, IgM and IgG, the patient is positive for acute hepatitis. If the patient is positive for the antigen and IgG, but negative for IgM, the patient is in the convalesced stage, but should be considered a chronic carrier. If the patient is positive for IgG ONLY, then they have fully convalesced from the infection.

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Table 1.

Stages of Hepatitis	Surface Antigen	Anti Core IgM	Anti Core IgG	Surface Antibody
Acute	+	+	+	-
Active Carrier	+	-	+	+ or -
Convalesced	-	-	+	+
Immunized	-	-	-	+

Legend:
H_sAg = Hepatitis (_) surface antigen
H_eAg = Hepatitis (_) excessive antigen
H_sAb = Hepatitis (_) surface antibody
H_eAb = Hepatitis (_) excessive antibody
IgG = Anti-H (_) Total (Core)
IgM = Anti-H (_) IgM (Core)

The ICD-9-CM code for an acute hepatitis infection is 070. The type and stage of the infection determines the terminal digit (i.e.: ICD-9-CM 070.3 represents acute Hepatitis B, without mention of hepatic coma). Determination of whether the infection is acute or chronic is by the anti-core IgM levels, levels of the liver function tests (LFT) and by the patient's symptoms. If the anti-core IgM levels are negative, the LFT's are within normal limits and the patient is asymptomatic, the ICD-9-CM code changes to V02.6 (serum hepatitis carrier state).

Returning to the case of the 25 year old female who was diagnosed as having Hepatitis B, her lab results were: HBsAg positive, HBeAg positive, Anti-HB Total (IgG) positive and Anti-HB IgM negative. She was inaccurately diagnosed for having acute Hepatitis B (ICD-9-CM 070.3), while her proper diagnosis should have been, chronic Hepatitis B carrier status (ICD-9-CM V02.6). Her exposure to hepatitis was through the placenta when she was a fetus, not sexually transmitted as she assumed.

Lessons learned here are to ensure all pertinent lab tests are performed before coming to a final diagnosis and initializing the report. Counseling the patient in disease transmission and risks is appropriate, but do not leave out vital information. An understanding of the endemic geographical areas and indigenous population prevalence rates makes the correct diagnosis of hepatitis a lot easier.

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Download *Fleet Public Health*

Fleet Public Health is available from the NEHC homepage. For information on downloading an electronic version, check the NEHC site at:

http://ehc.med.navy.mil

The NEHC Homepage has recently added some important new products and services.
We encourage you to take a look.

Viral Hepatitis... Continued from p.6

currently unavailable. Prophylaxis includes use of universal precautions for health care workers and avoidance of risky behaviors.

Hepatitis D virus (HDV), also known as Delta Agent, is an incomplete virus that can only cause infection in persons previously or concurrently infected with HBV. Its mode of transmission is similar to HBV, it has a 3 week to 3 month incubation period, can be detected by antibodies to HDV, and produces a moderate to severe form of hepatitis. Five to twenty percent of persons infected with HDV progress to fulminant liver failure, while most patients progress to a form of chronic hepatitis. It is endemic in the Mediterranean basin, the Middle East and parts of South America. There is no vaccine or immune serum available for HDV. Prevention is only possible through prevention of HBV with vaccination.

Hepatitis E virus,(HEV) is transmitted like HAV through contaminated food and water, produces a mild to moderately severe hepatitis, and is diagnosed on clinical grounds. It does not produce a carrier state or chronic hepatitis. It has a 1-2% chance of progression to fulminant liver failure in most adults but in pregnant women it progresses to fulminant liver failure in 10-30% of patients and carries a high rate of fatality in this population. There is no prophylaxis other than proper hygiene and public health measures.

Hepatitis G virus, the most recently identified virus is parenterally transmitted, has risk groups similar to HBV and HCV, produces a mild form of acute hepatitis, can progress to a chronic state and rarely has been associated with fulminant liver failure. Immune serum globulin may be an effective prophylaxis. HGV infection is a diagnosis of exclusion.

This article has reviewed basic liver physiology, the clinical and biochemical features of viral hepatitis, the causative agents involved, and prophylactic methods available to prevent transmission in order to illustrate the importance of public health activities in maintaining personnel health and fleet readiness.

Edward W. Leone, MD, Medical Officer, Tripler Army Medical Center

Tiny Game Hunting - Part III:

Environmentally Safe & Sound ways to Control Insect pests

FLEAS- They are among the most persistent and most annoying of insect pests. They have a mouth like a set of scalpels, and an appetite for fresh blood. Fleas thrive in warm, humid weather. Excessive cold, dryness, and heat are fatal to them. Adults feed several times a day on their host with females depositing eggs on the ground after a blood meal from the host. Fleas are of medical importance because of the diseases they transmit which include plague, rickettsial, and helminth infections. Flea pupae can remain dormant for long periods of time until stimulated by vibration and CO2. Flea control is a full time job which means not only eradicating them from your pets, but your house and yard as well or the cycle won't be broken. You also have to destroy not only the adults, but the larvae as well or you'll always have a flea problem.

CONTROL Some Florida pest control operators are now successfully and regularly treating outdoor areas with millions of microscopic *Steinernema carpocapsae* nematodes encapsulated in water-dispersible granules. These tiny worms seek out and attack flea larvae and pupae, which they enter and kill within 24 hours. The nematodes then die when the flea carcass deteriorates. If the nematoes don't encounter flea larvae or pupae they can survive up to six weeks waiting for more eggs to hatch. After that they die and vanish from the environment. To control fleas on your pets, insect growth regulators are available from veterinarians. These growth regulators affect the hormones of specifically targeted insects with no harmful effects to either humans nor non-targeted animal species. One such growth regulator employs the use of Lufenerol which prevents the formation of chitin, consequently the larvae do not hatch. This method of control is available for dogs and cats in a pre-measured dose

Continued next column

that is mixed into their food and given to the animal once a month for a period of six months to a year. Another growth regulating hormone for fleas is called methroprene. It prevents juvenile fleas from maturing and can be applied to your carpet. If possible keep your pets indoors as this cuts down on outside exposure to fleas as well as ticks. Frequent baths with a mild dish detergent and D-limonene (a by-product of citrus), which disrupts the moisture balance of insects) can also rid your pet of adult fleas. Diatomaceous earth can be spread around your yard and especially in the areas your pet likes to frequent. Herbal extracts can be very useful as repellants especially eucalyptus, citronella, cedarwood, and pennyroyal. You can find these extracts in powders, sprays, collars, and shampoos. Improve the health and condition of your pet's skin with proper diet and exercise. Dry, flaky, raw skin on your pet is a smorgasbord for fleas since they hardly have to bite to get at the blood. Liberally vacuum your carpet and occasionally have it steam cleaned to destroy fleas. Be sure to put salt or pyrethrum in the vacuum bag or seal it in plastic and throw it out when finished. Brewers yeast, and kelp added to your pet's diet will also repel fleas.

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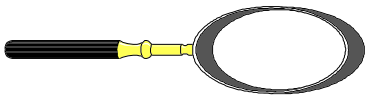

Next issue—Part IV:: the conclusion to Tiny Game Hunting

Use It If You Got It: Information Technology and Public Health

The times are changing...so are the means by which information is distributed to our customers. Time was, when the only way to put the word out was during a brief or distribute a publication. In today's electronic information age, there are a variety of ways to provide this information and make it come "to life ." The public health professional's ability to provide relevant, up to date information seems only limited by that person's imagination (and maybe your OPTAR, or lack thereof). Video teleconferencing, web pages, FTP sites, e-mail addresses, etc., are commonplace. Even for those of you who have little more than an old computer, there are other creative methods of providing information. It is very easy to produce a newsletter, create a professional, graphics-enhanced presentation, or create your own dazzling, customized handouts.

Exercise Tandem Thrust '97 in Queensland, Australia, provided the Deployed Public Health Laboratory (DPHL) the opportunity to utilize many different formats to disseminate public health information in an operational environment. Prior to the exercise, a graphics-filled predeployment presentation using Microsoft Powerpoint was created and was posted for download on the Naval Health Research Center website. During the exercise, the team produced a newsletter, the ***Tandem Thrust '97 Public Health Bulletin***, which was distributed to Medical Department Representatives operating in the exercise area. Editing and publishing the newsletter took place in a GP medium tent that had a tendency to leak, particularly when Cyclone Justin brought heavy rainstorms and high winds to Shoalwater Bay Training Area. A 486 DX2/66 laptop, portable bubble jet printer (both are virtually "Jurassic" when compared with the current technology), and Microsoft Word 6.0 were used to create, edit and print the newsletter. Digital photos taken during the exercise were placed in the newsletter and posted on the Tandem Thrust web page, and weekly SITREPS were distributed using e-mail.

Again, you may not have access some of the high tech equipment mentioned, but at most commands you should have access to at least a computer and printer. Those of you assigned to the Marines use Lotus Smartsuite, which contains the software necessary to enhance any training presentation or produce a newsletter. Using information systems technology does not replace the need for experienced, knowledgeable public health professionals, but it significantly enhances one's ability to effectively use and distribute that experience and knowledge.

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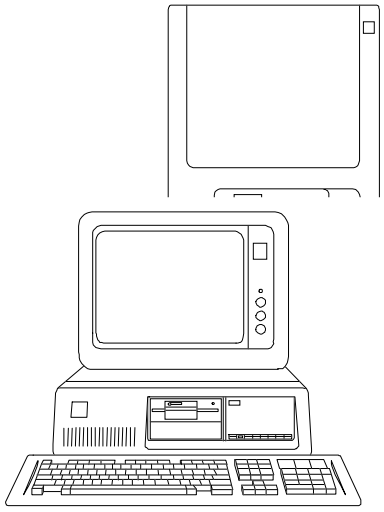

Heat Stress: Physical Fitness

Most people are familiar with heat stress in engine rooms, aboard ships, and in desert or tropical conditions with the Fleet Marine Force. Yet, very few people think of heat stress in relation to physical fitness events. By following a few simple rules, heat stress can be avoided during physical fitness activities.

1. Acclimatization: When arriving at a new duty station remember that the climate may be different. If it is, you may not be able to do your "old workout." A month may be needed to become acclimatized to your new surroundings. Just remember not to over do it during this time period.

2. Drink Plenty of Fluids: When physical fitness training is conducted the body sweats to cool itself: this causes fluid loss. Fluids must be replaced to prevent dehydration and heat stress. A "rule of thumb" is to drink 16 ounces of water for every 500 calories burned daily. If you live in a hot climate, you may have to increase the amount of fluids. When properly hydrated, you should have to urinate several times a day and your urine color should be a pale yellow.

3. Exercising Regularly: Naval personnel should not have a problem with this since CNO message 251927Z Aug 94 requires everybody to participate in physical fitness training 3 times a week. If you don't participate in a physical fitness program, don't attempt to run a marathon or a sub-10 minute 1.5 mile run during a Physical Readiness Test, because this will put you at high-risk for heat stress and personal injury.

4. Common Sense: Think before you attempt to exercise. If you follow the above rules, you will lower your risk for heat stress and other personal injuries. Good luck with your physical fitness goals.

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EH Consultations @ NEPMU-6.eh.con.????

One look at the title and you might think this is another "cyberspace techi" article. Not so, but one thing that the Internet and the NEPMU have in common is information exchange. Providing environmental health and preventive medicine information is one of our primary missions at NEPMU-6. Now that I have been aboard for about a year, I thought it would be interesting to look back and review some of the consultations we, in the Environmental Health Department, have provided in the past year. Perhaps the information that we passed to our customers will be useful to you, or maybe you have a recommendation for us.

One caller, a US Army soldier involved with the maintenance of a field-latrine septic tank and drainage field system in Laos, wanted to know if adding a chlorine solution to the collection tank would speed up the drainage process because the drainage system was backing up. Although we could not visually inspect the system, we recommended that he try to relocate the drainage field because it's unlikely that adding a chlorine solution to the system would unclog it. Furthermore, if biological decomposition is part of the process it would be ruined.

Another caller, this time an HM submariner, disinfected a 25,000 gallon potable water tank aboard his submarine. He wanted to know if the ship could dump the superchlorinated water (50 - 100 ppm concentration) into the harbor while the ship was tied to the pier, and if not what should the ship do with it. We told him not to dump it.

Because of its concentration, this chlorine solution is a hazardous material. Navy discharge restrictions, contained in OPNAVINST 5090.1B, the Department of the Navy "Environmental and Natural Resources Program Manual," prohibit the discharge of hazardous materials into the sea within 200 nm of the coast. Furthermore, the Clean Water Act prohibits the discharge of any pollutant by any person into navigable waters of the US except as in compliance with the Act's permit requirements, effluent limitations and other provisions. Federal regulations allow USN ships to discharge those pollutants that are "incidental to the normal operation of a vessel." For example, a permit is not required to discharge sewage, gray water or cooling water. However, with the exception of an emergency, superchlorinated water must not be discharged into the sea.

In this situation, one has a number of options. You can call Public Works and seek permission to discharge the water into the municipal sewer system, you can arrange for a tanker truck to haul it away for proper disposal, or you can neutralize the water. It might be best to disinfect other parts of the potable water system first; you may avoid the disposal issue altogether. The correct action depends on the amount of water to be disposed, the ship's geographic location and the local laws. Contact your activity's environmental representative, Public Works representative, or nearest NEPMU for guidance.

We received another call from a USNS ship headed to the shipyard at Ulsan South Korea. The caller wanted to know if the municipal water supply at the shipyard is considered safe for consumption. The Armed Forces Medical Intelligence Center reported that all municipal water supplies in South Korea are of doubtful quality. Therefore, we told him that any water taken aboard should be chlorinated to 2.0 ppm and held at or above that level in the tanks for 30 minutes.

The next question came from a young PMT. She asked, "How long are you required to keep food service inspection (FSI) records"? There is no general, directive-driven, retention requirement. However, any FSI records relating to an outstanding claim, incomplete litigation, or incomplete investigation (i.e. disease outbreak investigation) may not be destroyed until the investigation or litigation is complete. Moreover, FSI records that are part of a shipboard environmental health survey must be retained for 5 years. See SECNAVINST 5212.5C for more information. Beyond that there is no requirement. However, we suggested that she hold onto her inspections for at least two years. The historical information will be useful when she PCSs and a new PMT takes over.

Finally, one military planner from the Army wanted to know where to find "approved" sources of bottled water for the Pacific Rim. This one was easy. The US Army Veterinary Service is the DOD Executive Agent when it comes to identifying acceptable sources of food, including bottled water, for military procurement. As such, they publish the "VETCOM Circular 40-1 Directory of Sanitarily Approved Food Establishments for Armed Forces Procurement (Hawaii and Pacific)".

This document effectively integrates information from the USDA, USDC, and the FDA to provide one comprehensive list for DOD procurement agencies. Annex A of the Circular lists establishments within American Samoa, Australia, Guam, Hong Kong, Indonesia, Japan, Malaysia, New Zealand, the Northern Mariana Islands, Okinawa, the Republic of the Philippines, Singapore, the State of Hawaii, Thailand and Wake Island. You can obtain a copy from the source by writing to Headquarters, US Army Veterinary Command, Pacific Veterinary Service Support Area, ATTN: MCVS-PA, Tripler Army Medical Center, HI 96859-5000. We also have extra copies if you would like one.

We have received countless other requests for information over the past year, and some are more interesting than other calls. Most are requests for references, but some are entertaining. One caller wanted to know how to disinfect thousands of golf balls after last year's floods.

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What makes an Eyewash Station Good?

During last year's NAVOSH Program Reviews, Sight Conservation Program requirements seemed to get quite a bit of attention during routine Industrial Hygiene Surveys. An example of a common deficiency was preventive maintenance checks for eyewash stations. It was discovered that a member performing the PMS check for an eyewash station did not have the correct MRC card. Is this possible? It may be because an eyewash station maintenance checklist in a hazmat locker may be different from an eyewash station located at sickbay. So what is the big deal? Well, it does make a lot of difference to consider the type of eyewash station that is present.

What are some of the factors that make a good eyewash station? First, workers get the best service from eye wash stations when the total number of correct eyewash stations are in place around the ship, and the eye wash stations are adequate. It does not seem to matter what type or brand of eyewash stations are used on board ships; the bottom line is that each eyewash station must have at least 15 minutes running time. This means that the total capacity of the eyewash station must be at least 16 gallons of sterile water. Second, eyewash stations must be located no more than 100 feet, nor more than ten seconds away from areas where there is an eye hazard.

Taking these precautions will help you to have a better Sight Conservation Program. Now is a good time to check whether you have good eyewash stations.

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Reference:

OPNAVINST 5100.19C, Chapter B5, paragraph B0508.

From the Senior Enlisted Leader, NEPMU-2

The month of September is a very special month in the Navy. It is the time of the year when we add a few more Chiefs to the ranks. For the past couple months, selectees have been tasked and pressured to "go above and beyond" what anyone could expect them to accomplish. This special tradition of initiation is meant to prepare us for the bumpy road ahead.

Looking back on my own initiation, one of the lessons I learned was perseverance. I probably learned the concept well before that point, but it was cemented into my character after that special day. As a matter of fact, I feel it is a trait that is crucial to the success in achieving anything in life.

Perseverance is a will, deep inside each of us, that is disciplined through trial and adversity. It is a dogged determination, continuing on, in spite of it all. If nothing else, with time you'll surpass everyone and everything else. This determines who we are or what we will be. God blessed us with a mind to think, freedom to make choices and desire to survive. It is what we choose to do, with what we have, that makes the difference.

Congratulations to those who will be initiated. If you didn't advance this time, hang in there. Remember it is sustained superior performance, over a period of time, that results in your selection to Chief. It is what you do over the long haul, not your "last ditch effort" that helps you to advance: it is the one or two college or correspondence courses you consistently completed, the couple of hours you dedicated to help the community or someone in need. The extra time and effort you put in at the office to help your co-workers. What you're supposed to do is expected and appreciated, but what you do in addition is what you'll be remembered for.

The enlisted staff at NEPMU-2 have a bulletin board. At the bottom of the board I have a sign posted: "Trying times are no time to quit trying." This is a reminder to my staff and myself that it is not always going to be fun or easy, but if we hang in there, things will work out. Below is a poem about not quitting.

HMCS Melanie L. Lugo
SEL, NEPMU-2

You Mustn't Quit

"When things go wrong, as they sometimes will,
When the road you're trudging seems all uphill,
When the funds are low and the debts are high
And you want to smile, but you have to sigh
When care is pressing you down a bit,
Rest if you must-but never quit.

Life is strange, with its twists and turns,
As everyone of us sometimes learns
And many a failure turns about
When you'd might have won if you'd stuck it out;
Stick to your task, though the pace seems slow
You may succeed with one more blow.

Success is a failure turned inside out,
The silver tint of the cloud of doubt-
And you never can tell, how close you are,
It may be near when it seems afar;
So stick to the fight when you're hardest hit-
It's when things seem worst that you mustn't quit."

"Bennet Book of Virtues"

5 A DAY THE NAVY WAY/ SEMPER FIVE A DAY

New Health Program: No Doctors, No Drugs, No Deprivation

What if somebody invented a health program that would cut your cancer risk, help you control blood cholesterol, blood pressure, diabetes and control your weight without doctors, drugs, or deprivation? Well, somebody did and it is called the 5 A Day for Better Health Program. It is a collaborative effort between the National Cancer Institute (NCI) and the Produce for Better Health Foundation (BPH). Navy Health Promotion has joined this national effort by establishing an ongoing nutrition campaign with this simple positive message to eat at least 5 or more fruits and vegetables daily for better health.

Navy objectives for the program are to increase awareness of the importance of eating at least 5 servings of fruits and vegetables daily, and to provide our personnel and their families with specific information on how to incorporate 5 a day into their daily eating patterns. A survey done last year on active duty personnel indicated that 81% had not heard of 5 A DAY and 67% believed they needed to eat less than 5 servings of fruits and vegetables a day for better health.

The possibilities of adding more fruits and vegetables to your day are endless. It is as easy as adding a glass of 100% fruit or vegetable juice to breakfast, having a side salad for lunch, a vegetable or fruit as a snack during the day and having two vegetables at dinner instead of just one, and you have 5 A Day.

Contrary to some misconceptions, serving sizes are smaller than you think. One serving size is defined as:

1 medium fruit or 1/2 cup of small or cut up fruit
3/4 cup (6 oz) 100% fruit or vegetable juice)
3/4 cup dried fruit (raisins, apricots, dates)
1/2 cup raw or cooked vegetables
1 cup raw leafy vegetables (spinach, lettuce)
1/2 cup cooked beans or peas (lentils, pinto beans, chick peas, kidney beans)

Fruits and vegetables have other added benefits to keep you healthy.

- They are loaded with necessary vitamins and minerals for body functions.
- They fill you up but not out, great when you're trying to lose weight and want to feel full (low in calories).
- Help keep you current (controls diarrhea and constipation).
- Have soluble fiber that evens out your glucose level (great for diabetics) as well as lowering cholesterol.

Navy Health Promotion Coordinators picked up this program, because it has a simple, positive health message with the potential of having a major impact on keeping our people healthy and mission ready. Awareness messages have gone out to bases both CONUS and OCONUS on local closed circuit TVas public service announcements (PSAs), and as articles written for base papers. Nutrition educational programs have taken place in daycare centers, schools (grades kindergarten through high school), cholesterol screenings, booths in commissaries and exchanges, and behavioral change programs like weight loss and tobacco cessation. To make systemic changes, Navy Environmental Health Center has partnered with NAVSUP and Food Management Teams to make this program available to the fleet and messes. In addition, 5 A DAY is now part of the IG inspection list for commissaries.

According to the U.S. Surgeon General, the three most important personal habits that influence health are smoking, alcohol consumption and diet. For the two out of three adults who do not drink excessively or smoke, the single most important personal choice influencing one's long term health is what one eats. The "Surgeon General's Report on Nutrition and Health" (1988) clearly establishes the fact that two-thirds of all deaths involving coronary heart disease, stroke, atherosclerosis, diabetes and some types of cancer are related to what we eat. In fact, approximately 35 percent of all cancer deaths in America may be related to diet.

The link between diet and the leading causes of death in America is alarming, but also promising. Of all the dietary factors thought to be related to cancer, the research evidence

Continued on p. 13

Occupational and Preventive Medicine Workshop

"Knowledge - the Most Powerful Form of Prevention" is the theme of the 39th Navy Occupational and Preventive Medicine Workshop scheduled for San Diego, California from March 26 to April 3, l998. The workshop, along with the Seventh Annual Health Promotion Conference and the Fifth Annual Independent Duty Hospital Corpsman Conference, will be presented at the Town and Country Resort and Convention Center in San Diego. This is the first West Coast location for the event in fifteen years. The advance program, registration and hotel reservation information will be available electronically on NAVENVIRHLTHCEN'S homepage at www-nehc.med.navy.mil in November 1997. To obtain a copy of the program on disc, call the NEHC workshop team at (757) 363-5508/5512 or DSN 864-5508/5512. The email address is workshop@nehc.med.navy.mil.

A workshop information line is available at (757)363-5423. There are no registration fees for the workshop or conferences.

Karen Murphy, Public Affairs Officer
NEHC

5 A Day ... Continued from p. 12

in over 200 human epidemiological studies shows a consistent association between high intakes of fruits and vegetables and a decreased risk for a variety of cancers. Fruits and vegetables are associated, for example, with lower risk of 13 different types of cancer, including lung and digestive track cancers. A number of studies have shown that those who usually eat five or more servings of fruits and vegetables a day have approximately one-half the risk of getting cancer compared to those who eat one or fewer servings of fruits and vegetables a day.

Biochemically, scientists are understanding more about how these chemicals fight cancer and other diseases. Produce is a rich source of antioxidants, substances that block cellular damage by free radicals. Citrus fruits contain vitamin C and other compounds believed to be protective against cancer, such as folic acid, coumarin and D-limonene. Green leafy vegetables contain lutein and folic acid, which guard against chromosome damage. Orange fruits and vegetables like carrots, pumpkin, sweet potato, and cantaloupe contain beta carotene, which promotes normal cell differentiation—a process that goes awry in cancer. Cruciferous vegetables such as the cabbage family, broccoli, cauliflower, and brussels sprouts contain organosulfur compounds that have been shown to increase the activity of enzymes involved in the detoxification of carcinogens. Savory allium-based vegetables including onions and garlic inhibit bacteria in the stomach and reduce formation of cancer causing nitrosamines. Soy beans contain isoflavones a cancer fighter. Finally, vitamin E found in many fruits and vegetables and selenium have a talent for pumping carcinogens out of the cells and calming cell proliferation, a process that runs amok in cancer.

Remember that amid all the persuasive and astonishing research on the benefits of fruits and vegetables and the interest in their medicinal use they are not only drug free delivery devices for vitamins and minerals, but also taste great, come in a variety of colors, flavors, and textures, and are nature's original fast food. They are perfect for

Continued next column

5 A Day... Continued

our busy lifestyle.

Mary Kay Solera M.S. C.H.E.S.
Program Manager, Health Promotion
NE HC

Airbags-Do they *Really* Work?

Airbags: killer or savior? The answer depends on whom you talk to, and/or who you believe. Statistics lean towards savior, but the purpose of this article is not to argue nor support statistics. What needs to be discussed are the facts based on what we know. Fact—Adults and children have been killed even when airbags successfully deploy. Fact—But what isn't truly reflected in the statistics is that many of the children being killed by front seat passenger airbags generally range from infants to under 12 years old. Some have been found to not have seat belts fastened, whereas others have been in infant seats facing backwards. Fact—Many adults killed have also been found to not have their seat belts fastened.

What you need to know is that airbag installation and deployment are not the same in every vehicle. Some cars have the seat belts installed to "supplement" the airbags. Basically, what that means is that the seat belt alone will not provide the protection afforded by the seat belt and airbag combination.

Currently, legislation that allows vehicle owners to disconnect their airbags, so that small children (infant - 12 years old) will not suffocate from airbag deployment, is being considered. Vehicle owners should use extreme caution when making a decision to disconnect air bags. Will the seat belt protect to its full extent? Will the seat belt save a life? Is my vehicle one that has co-dependent or independent restraints? Unless you truly know the answer (which should greatly increase your earning power), use the seat belt and airbag combination. It has proven to increase your odds of living and/or greatly reduce the severity and extent of injuries. Know your vehicle, respect the odds…Buckle up, and let your airbag earn its cost.

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NAVOSH Department,
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A New Ship with Heat Stress in the Main Spaces

This past June we received a message from a newly commissioned, WHIDBEY ISLAND CLASS LSD, requesting an evaluation of heat stress in the main spaces. The ship's heat stress logs consistently showed a difference, greater than 10 degrees, between the outside and the main space temperatures. Such temperature differences, at first thought, are normally attributed to inadequate ventilation. However, there are other conditions, which may cause the inside temperatures to rise, regardless of adequate ventilation: water and steam leaks, inadequate insulation of hot surfaces or a combination of these conditions.

Initially, a walkthrough of the main machinery room revealed water leaks and deteriorated insulation in the evaporation unit's boot and overhead steam relief valve. Surprisingly, even in brand new ships, we find leaks that need to be repaired and insulation that needs to be replaced (to alleviate high heat and humidity conditions).

Next, ventilation measurements were conducted in the main spaces and proved to be within design specifications. Surface temperatures of equipment were measured. These were compared to the 125ºF limit, established in the OPNAVINST 5100.19C. In many cases the limit was exceeded. This was surprising to us, considering this ship had only been commissioned for less than one year.

Recommendations were offered to repair the existing leaks and replace the damaged insulation. We also recommended the insulation of additional equipment with the caveat to consult manufacturers prior to insulation of equipment which may overheat from such an application.

Although in this case the ten degrees difference between outside and main space temperatures did not pose a significant heat stress problem and worker shifts were not effected, in hotter more humid climates, heat stress

Continued on p. 14

Welcome Aboard!

NEPMU-2
CDR D. Bailey, USS GEORGE WASHINGTON
CDR Bellenkes, DUINS Univ. of Illinois.
LCDR S. Rankin, NEPMU-7, Sigonella, IT
LT Erickson, NMC Portsmouth, VA

NEPMU-5
CDR A. Bob Wood, NAVHOSP, Camp Lejeune, NC
Mr. Stephen Yuhas

NEPMU-6
LCDR Jean M. Williams, BRMEDCLINIC, Iwakuni, JA
LT Brian Prendergast, NDVECC,Bangor, WA

NEPMU-7
CDR Harvey Adkins, NMC, Portsmith VA
HMC Philip St. Onge, BRMEDCLINIC, Treasure Island
HM2 Raymond Delgado, NAVHOSP, Millington TN

Fair Winds and Following Seas!

NEPMU-2
CDR W. McBride, MED 24
CDR Shiveley, Fighter Wing, NASO
CDR Conlon, NDVECC JAX
HM2 Skala, NMC Portsmouth, VA
LT Adkins, Separated
HM1 Brown, Retired

NEPMU-5
HMC T. D. Hartsog, Navy Food Management Team, San Diego

NEPMU-6
NONE

NEPMU-7
LT John Buffington, NMC, Portsmouth, VA
HM2 Tracy Thompson, BRMEDCLN, Kings Bay, GA

A New Ship with Heat Stress... Continued

conditions can be anticipated.

Heat stress is still with us, although not to the degree that effected our older ships, because of greatly improved ventilation systems. Yet, with the great diversity involved in ship design, main machine space equipment can become hotter than it should, and personnel must continue to remain vigilant to the hazards involved with working in hot environments.

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