Fleet Public Health

Navy Environmental Health Center, Norfolk, VA

Navy Environmental and Preventive Medicine
Unit No. 2, Norfolk, VA - Unit No. 5, San Diego, CA - Unit No. 6, Pearl Harbor, HI - Unit No. 7, Sigonella, IT

Vol. 1, No. 3, July 1996 **NEPMU-5 San Diego Edition**

Route To:								

Effects of alcohol on military operations

Injuries with motor vehicles are the most common cause of serious non-battle morbidity and mortality. Most serious car accidents involve the use of alcohol. About one-half of all fatally injured drivers and one-third of all fatally injured adult pedestrians have alcohol in their blood, the vast majority having a blood alcohol concentration of 0.10 percent by weight or greater.

Abstinence is the only way to ensure prevention from sexually transmitted diseases. It is easier to be abstinent when you limit your intake of alcohol.

Three environmentally-induced conditions made worse by alcohol use are heat injuries, cold injuries, and high altitude injuries.

Heat can be one of the **greatest overall threats** to military personnel deployed to warm climates. Adequate hydration is an important part of a heat injury prevention program. Drinking alcohol will increase one's vulnerability to heat injuries. It does this by causing an increase in urinary output (it inhibits ADH secretion). Therefore, instead of providing hydration, alcoholic beverages can actually contribute to dehydration.

Cold injuries can occur in many different types of environments. The risk of hypothermia and other cold injuries is increased for people who are dehydrated. In order to avoid dehydration in cold environments, water intake should be increased to 3-6 quarts per day and alcohol avoided.

Acute mountain sickness, high altitude pulmonary edema, and high altitude cerebral edema are serious types of altitude illness. Adverse health effects from elevation can occur at elevations of about 2,500 meters and

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New OIC at NEPMU-5

Navy Environmental and Preventive Medicine Unit No. 5 has a new Officer in Charge. On May 31, 1996, CAPT(Sel) James R. Beddard, Jr., MSC, USN relieved the retiring CAPT Lee Smith, MSC, USN as Officer in Charge, NEPMU-5 San Diego, CA.

CAPT(Sel) Beddard came to EPMU-5 from the Bureau of Medicine and Surgery were he served as Assistant for Medical Chemical, Biological, Radiologic Warfare Defense. During his BUMED assignment, he was also appointed as Specialty Leader for the Environmental Health Officer subspecialty within the Medical Service Corps.

HM1(SW) J. P. McShea, Jr, Industrial Hygiene Department, NEPMU-5

Captain's Corner

On 10 May1996 we hosted a PMT workshop for the Southern California technicians. It was extremely successful, fun and drew over 38 PMTs and IDCs from area Fleet and FMF commands including China Lake, Barstow, Port Hueneme and Pendleton. We served-up a free continental breakfast and some hot topics including a career development roundtable. Critiques from the event were outstanding and we will continue with these workshops every 5-6 months. The PMTs are the backbone of Navy preventive medicine and we want you to continue to come through the front door at NEPMU5. We work for you. Any topics or issues you want for the planned October 96 meeting, just contact HMC Grassi.

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higher. Risk of cold injury, heat injury, and solar UV radiation are all increased at high elevations. Countermeasures include: Avoiding alcohol and remaining well hydrated.

Being mentally and emotionally prepared to perform well on the job is impaired by the use of alcohol in various ways.

- The confusion, uncertainty, and anxiety that naturally occur during deployment (otherwise known as stress) affect peoples' ability to sleep and perform their mission. Alcohol use will worsen the effects of stress including preventing adequate rest.

- Personnel having serious problems adjusting to deployment may be at risk for suicide. Alcohol use lessens one's ability to adjust to deployment and increases one's risk for suicide.

- Alcohol accentuates preexisting mood disturbances and affects one's judgment.

- Rapidly crossing several time zones may result in fatigue, irritability, reduced efficiency, and early morning wakefulness within the first 24 hours, lasting up to five days after landing. Prevention of jet lag includes scheduling sleep before deployment to coincide with the destination time zone, avoiding alcohol and caffeinated beverages, maintaining adequate hydration, and refraining from overeating.

C. Beadle, LCDR, MC, USN, Epidemiology Department, NEPMU-5

Murine Typhus

Murine typhus is a relatively mild, self-limiting disease with symptoms resembling flu (i.e. fever, chills, myalgia, weakness and headache). It is found throughout the world on every continent except Antarctica. The United States reports an average of 80 cases per year, mainly from California, Texas and Hawaii but in recent years the number of reported cases is increasing. Although 80 cases nation wide each year does not make it a serious health problem, it has the potential to become one. In fact, during the 1930's and up until 1945 murine typhus was a serious health problem in the United States with over 5,000 cases reported in 1944 alone. This article is intended to provide some background information regarding the life cycle of murine typhus and how this disease could potentially become a more serious problem. Included is a brief description of a study in progress investigating murine typhus in Hawaii and some of the results to date.

Murine typhus is caused by the rickettsial organism *Rickettsia typhi* which is a small, gram negative, obligate intracellular bacteria of the family *Rickettsiaceae*. *R. typhi* is an arthropod-borne disease, transmitted by a flea. The life cycle of the organism primarily involves the transmission of

Continued on page 9

Captain's Corner, Continued from page 1

As I close on my retirement date of 31 May 1996, I want to thank my incredible crew here at NEPMU5 as well as all the Fleet Prevention Professionals serving with the operational forces and our sister units around the world. You folks make an incredible impact on the health and readiness of our sailors and marines keeping them fit to fight. Over the past 23 years I have seen our PMTs, PMOs, EHOs, IHOs, and Entomologists deploy under every conceivable condition, in peace and in war.

There is a lot of talk lately concerning medical readiness at the deckplate. The Preventive Medicine community has been at the deckplate for years doing what they do best without a lot of recognition. While we are extremely small compared to the curative side of the house, we are without doubt the best buy in Navy Medicine. Our command logo says it all: "Fleet First." It has been a privilege and an honor to serve with so many fine professionals. A special thanks to my fellow OICs at the other outstanding NEPMUs and DVECCS.

I would also like to extend a hearty welcome aboard to my relief, CAPT(Sel) Jim Beddard, MSC, USN. I know he will do a great job here and will continue with our operational orientation and focus. Shipmates, I bid you farewell and good luck. Press On.

E. L. Smith, CAPT, MSC, USN (Ret)

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The changing Navy Preventive Medicine Information System (NAPMIS)

In the April 1996 edition of *Fleet Public Health,* HM1 Shores described the two components of the Disease Environmental Alert Report (DEAR). If you noticed from the description of the DEAR system, the two components together closely resemble the Navy's Disease Risk Assessment Profile (DISRAP) minus the recommendations. In the future, the DISRAPs and Vector Risk Assessment Profiles (VECTRAPs) may not exist. Instead, all of the services may be using the comprehensive resource entitled the Medical Environmental Disease Intelligence and Countermeasures (MEDIC) system produced and distributed by the Armed Forces Medical Intelligence Center (AFMIC).

Army, Navy, and Air Force Preventive Medicine Physicians have been working on joint preventive medicine recommendations to complement the DEARs. These Armed Forces Preventive Medicine Recommendations (AFPMRs) come in two parts: the country specific recommendations which are only a few pages in length and a 14 page reference section that gives practical information on immunizations, chemoprophylaxis, food and water precautions, etc. that are useful for most of the countries we will deploy to. The country specific recommendations include the following types of information:

*Major Threats
*Countermeasures Before Deployment
*Immunizations for All Personnel
*Immunizations for Selected Personnel
*Malaria Chemoprophylaxis
*Risk Period/Distribution
*Recommended Regimen
*Supplies
*Countermeasures During Deployment
*Countermeasures After Deployment

Current plans are to update the AFPMRs with any additional Navy specific recommendations not already found on these documents and to supply the AFPMRs and the DEARs and other vector related documents in the MEDIC system. When this occurs, it will still be important to call the medical consultants at the NEPMUs prior to deployment to clarify the recommendations and to receive any additional information about the specific deployment.

C. Beadle, LCDR, MC, USN, Epidemiology Department, NEPMU-5

BUMED and NEPMU-5 on the Internet

First OSHA and now BUMED and NEPMU5! BUMED (NAVOSH) will link you to a number of other safety related areas that can be of assistance to you to include OSHA and the Federal Register. Here are the Internet addresses:

BUMED
http://support1.med.navy.mil/

BUMED (MED 2422)
http://support1.med.navy.mil/med-02/med-24/med-2422/main1.htm

NEPMU-5
http://trout.nosc.mil/~nepmu5

Occupational latex allergy: A growing hazard

Latex allergy has been targeted by OSHA for action plan development. Latex allergy is targeted as a potential exposure for 1.4 million health care workers. Per OPNAVINST 5100.23D occupational health professionals are to ". . . diagnose and treat acute and chronic injuries/illnesses, detect early indicators of excessive exposures caused by the work environment. . . ." "Latex Allergy and Anaphylaxis-What To Do" published in the Journal of Intravenous Nursing Vol. 18, No.1, Jan/Feb 1995 is one of numerous publications addressing latex allergies.

Latex allergy develops most commonly in people who have a history of frequent exposure to natural rubber latex. Latex is currently present in more than 40,000 medical and consumer products. At risk include people with:

- Numerous surgical procedures, particularly in infancy.

- Medical and dental professionals.

- History of: allergies, atopy, eczema, contact dermatitis, asthma and/or restrictive airway disease.

- Latex allergic reactions i.e., balloons, condoms, gloves.

- Food allergies: bananas, avocados, tropical fruit, kiwi,chestnuts, melons, tomatoes, potatoes.

- Plant allergies i.e, poinsettia.

Latex reactions range from: skin allergies, asthma, hives, sneezing, food allergies to severe life-threatening anaphylaxis.

Commands should ensure a multidisciplinary approach to detect early indicators of latex sensitivities. Industrial hygiene sampling, occupational histories, assessment and treatment, reporting and substitution of latex products should be considered to ensure a safe and healthy work environment for all employees.

L. Moody, Occupational Health Nurse Consultant, NEPMU-5

FDA food code

The FDA Food Code is a publication that guides food service establishments on how to prepare food to prevent food-borne illness. It is used extensively by the civilian food service community as a model to help develop or update their own food safety rules. It can also be used in conjunction with the P-5010, Chapter 1 by U.S. Navy preventive medicine personnel for guidance when conducting food service sanitation operations. It is a valuable informational resource that covers such areas as, but not limited to:

- Time, temperature, and humidity charts for cooking meat and other raw foods derived from animals.

- Food service workers' health and hygiene practices.

- Cleaning and sanitizing food service utensils, equipment and facilities.

- Time limits for holding cooked foods safely outside of controlled temperatures.

- Using food additives safely.

- HACCP - explains in detail the principles, terminology, and applications of the concept.

This is a valuable resource that would make a good addition to a professional library. The ordering information for the FDA Food Code is:

- Spiral bound (PB 95-265492), $25.00

- WordPerfect 6.1 computer disk (PB 96-500129), $25.00

- Set - spiral bound and computer disk (PB 96-500491), $40.00

To order any of these materials, write:

National Technical Information Service
Springfield, VA 22161

Or call:
1-800-553-NTIS or (703) 487-4650

H. E. Burke, II, LT, MSC, USN, Environmental Health Department, NEPMU-5

Emergency eyewash/showers: Back to basics

Basic (?) I don't think so. Important? You bet! Frequently overlooked? Yes! Confusing? Somewhat. Where do we even have to have them? We see this a great deal on our visits to activities as I'm sure most of you do. The preventive maintenance and flushing wasn't done. There is no training or an SOP for the users. The old portable self-contained units are still around. Some places use a "quick-drench" as a stand-alone eyewash and/or shower unit. These "support" shower and eyewash units but do not replace them - according to ANSI.

More confused? Well here are some "tips." First, you'll need to determine if you need an emergency eyewash or shower or combination unit. OSHA (29CFR1910.151(c)) states: "Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use." OSHA also references ANSI Standard Z358.1 in many of their "Letters of Interpretation" regarding eyewash/showers. They leave the determination to each company / activity/facility if one is necessary or not. One of their Letters (19760816) does state "strong corrosives" but doesn't define "strong". More on OSHA follows.

OPNAVINST 5100.23D, para 1902.c. contains some guidance and references the ANSI Standard. It does require a written, dated, and signed record of any maintenance. So, now what? Well, take a look at the process. What chemicals are being used? What does the MSDS say for corrosivity for the chemical? Is it a "strong" corrosive? Sorry, I'm not a chemistry professor (or an attorney). While for afloat, OPNAVINST 5100.19C, para B0508.b., is much more specific in naming processes and areas where eyewashes and/or showers "shall be available." This can give you a good idea as to where you might want to have them ashore.

In some cases the decision may already have been made for you. OSHA may have a particular standard requiring an eyewash or shower. Example: Formaldehyde, 29CFR 1910.1048(i)(2) and (3), requires eyewash/shower based on percentage of the solution the employee may be exposed to. So, look for the specific chemical(s) in the OSHA standards also. Sometimes this will be on the MSDS.

The bottom line is that a lot of the time the final decision is going to rest with you. Get together with the workplace supervisor and your Industrial Hygienist. Use any references for the workplace, the MSDS, any literature for the process and decide. If you (or a rule) determine(s) one is necessary, your next steps will be ensuring the right unit, proper installation, testing, training, ensuring an SOP is written, and periodic checks.

In the past, I have done all the preceding to include consideration of the location. Example: I have seen a quick-drench hose at a small material storage area located not more than 50 feet from a medical clinic acute care area. They weren't handling massive quantities of corrosive chemicals, strong or otherwise. The Safety Manager felt this was adequate. Flushing and maintenance was documented, access was clear and there was no history of incidents at the location. Right or wrong? Not according to the ANSI Standard. You be the judge (I sided with the Safety Manager).

I hope this article helps. As you all know this is not just a "Black and White" decision. Lots of "Gray". If you have any input or wisdom to add please call. We'll consider your input for a future follow-up article. As always, call if you need help.

E. Adams, CSP, Regional Safety Manager, NEPMU-5

Prospective Authors:

Have any suggestions? Interested in contributing?
Send your articles/comments in now! See page 2 for more information.

Avoid the P-5010 creep

This is a short and simple article on one of the most common, yet most important areas of food service - THE FOOD SERVICE SANITATION INSPECTION (FSSI). Anyone who has been involved in a foodborne illness (FBI) outbreak on board a ship or in the field can attest to the importance of the FSSI in preventing FBI. However, it is easy to get into a rut and focus on less critical items such as mislabeled leftovers, the excess frost in freezers, outdated storeroom items, and greasy sheet pans. Take a close look at the inspections you or your inspectors are doing for evidence of P-5010 creep. The P-5010 creep is when you see the findings always limited to that little space at the end of NAVMED 6240/1 and those findings are usually minor in terms of possible connections to FBIs. Excessive repetition is also a clue to P-5010 creep. If you find these things, you may have the creep and it is time to revitalize your FSSI program and eliminate the creep.

The focus of the FSSI should be on the application of food sanitation principles during food preparation and serving. This means taking the time to watch an entire meal period and observing what the foodservice workers are doing. How are they preparing the food, how are they serving it, and how is it being stored? These should all be tied into time and temperature constraints and possible sources of food contamination that could lead to an FBI. This means: 1) using your thermometer to check temperatures of food on the line or the food that is in the warmer for replenishment of the line. 2) checking the level and temperature of the water in a steam line to ensure it is adequate. 3) determining the water temperatures in the reservoirs and final rinse of the dishwasher to ensure that the temperature gauge is accurate. 4) observing if salads such as potato or tuna are prepared early enough so that they can be cooled to below 40^0 F before being placed on the serving line where they usually do not stray out of the danger zone. 5) are potentially hazardous frozen foods that are thawed at room temperature thawed properly with regards to time and temperature? When you ask questions of food service personnel regarding food sanitation practices do you feel that they really know the answer? Do you see watch captains checking temperatures of food items? Is the ice being used to cool food items effective?

These are just a few of the items to illustrate my point. A good FSSI requires effort. You have to watch procedures, you have to ask questions, you have to listen to food service personnel, and you have to investigate potential problems. Use the information provided in the P-5010 CH 1 as a tool for examining food service operations to see if there are any potential or evident problems that could lead to an FBI. Then use the information as a tool to assist in correcting the problem. Our job is not to be just outside inspectors, but rather a part of the Navy Food Service team that helps provide safe and wholesome food to our shipmates. Use the inspection process as a chance to train people. This approach will earn respect from food service personnel and they will look to you as an asset rather than a hindrance.

H. E. Burke, II, LT, MSC, USN, Environmental Health Department, NEPMU-5

Heat stress update

Contrary to popular belief, you can still buy parts for the **VISTA 960 Heat Stress Monitor**. VISTA Scientific was bought out by Lunaire Limited and no longer makes the complete model. However, they are more than willing to provide you with spare parts. The table below is a current list of parts and prices. Please call **Ms. Marcy Staiman** to verify pricing and availability of parts. Their address, phone and fax lines are located at the end of this article.

PART #	DESCRIPTION	PRICE
156-163	Tunnel Air Fan	$ 3.00
156-80	Selector Knob	$ 4.00
960-0100-01	Screw	$ 6.80
960-0100-03	Rechargable Battery(AA)	$ 4.25
960-0100-04	Carrying Case	$190.00
960-0100-05	Tweezers	$ 5.00
960-0100-08	Battery Charger	$ 78.00
960-0200-10	Battery Holder	$149.00
960-0300-32	Label	$ 31.50
960-0300-AT	Tool	$ 3.75
960-0400-00	Globe Assembly 999505	$150.00
960-0400-C6	Extender Shaft	$110.00
960-0500-09	Toggle Run/Test Switch	$ 10.00
960-0500-10	Toggle On/Off Switch	$ 13.50
960-0500-11	Receptacle Battery Charger	$ 22.00
960-0500-FP	Front Panel Assembly	$ 88.00
960-0600-00	Assembly Back Panel	$ 86.60
960-1500-51	Circuit Board, PCB 1 999500	$215.00
960-1600-51	Circuit Board, PCB 2 999501	$330.00
960-1700-51	Circuit Board, PCB 3 999502	$607.00
960-1800-51	Circuit Board, PCB 4 999503	$295.00
960-1900-51	Circuit Board, PCB 5 999504	$150.00
960-RB101	Refill Water Bottle	$ 7.00
960-TB104	Globe Assembly Receptacle	$ 39.50
960-TB105	Fan Motor	$132.00
960-TB106	Wet, Dry Bulb Sensor Assembly	$102.00
CAL-HSM	Calibration	$220.00
960-0500-16	Cap, Dust	$ 6.50
960-0500-08	Rotary Switch	$ 37.50
960-0500-18	Gasket (Front/Back)	

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Condoms and monogomy prevent cervical cancer in women: New evidence

A recent scientific report in the American Journal of Epidemiology (April 1996), reports that the use of condoms by men prevents cervical cancer in women. The paper, *"Prostitution, condom use, and invasive squamous cell cervical cancer in Thailand,"* shows that husbands' sexual practices play an important role in their wives' risk of developing cervical cancer. Some of the highest rates of cervical cancer among women occur in cultures where social traditions accept the practice of men having multiple sexual partners, including prostitutes, both before and after marriage.

There has been evidence for a number of years to suggest that certain sexually transmitted viruses, human papilloma viruses (HPV) for example, cause cervical cancer, or act as a tumor promoter in women. Furthermore it has been shown in previous studies that women married to sexually promiscuous husbands are at a much higher risk of developing cervical cancer— presumably because of the increased likelihood of transmitting an infectious viral agent to the wife's cervix.

This study, conducted by researchers from Bangkok and Seattle, involved interviews with over 1000 monogamous women and their husbands in three different hospitals in Thailand, over a 9-year period from 1979 through 1988. Two-hundred twenty-five (225) women interviewed had a diagnosis of invasive cervical cancer, and the remaining 791 women were hospitalized controls with no cervical cancer.

During the interview husbands were asked detailed questions about personal sexual behaviors, such as the number of visits to prostitutes by week, month, or year. The risk of cervical cancer was found to be directly correlated with the husbands' total number of visits to prostitutes as well as his total number of sexual partners of any kind. A woman whose husband had over 280 "lifetime" visits to a prostitute, for example, was over two and one-half times as likely to develop invasive cervical cancer , as a woman whose husband had been monogamous.

Also a major predictor of risk of cervical cancer was whether the husband had used condoms during visits to prostitutes. The spouse of a man who "rarely" or "never" used a condom when visiting prostitutes, was over two times more likely to develop cervical cancer during this time period, than one whose husband "always" or "frequently" used a condom when visiting prostitutes.

The government of Thailand is currently promoting the use of condoms among prostitutes in order to prevent the spread of the human immunodeficiency virus (HIV). While cervical cancer rates in the United States have fallen by over 50% during the last three decades, cervical cancer rates in Thailand are among the highest in the world. So if the condom program is successful in Thailand many cases of cervical cancer will eventually be prevented. Need another sound , scientific reason to promote condom usage and monogamy? If so, here it is.

H. James Beecham, III, CAPT, MC, USN, Head, Tropical Medicine Department, NEPMU-6

Malaria updates

The 1995 World Health Report put out by the World Health Organization listed malaria as the most important tropical parasitic disease in 1995. Malaria deaths were estimated at 2 million per year, 90% of which were in Africa with the vast majority being among young children. Most of the malarial deaths outside of Africa occured in Afghanistan, Sri Lanka, Vietnam, India, Brazil, and Colombia. In addition to the deaths, there were an estimated four hundred million prevalent cases of malaria in 1993 with more than 2 billion people living in areas at risk of malaria.

There is a growing problem of drug resistance. The Health Information for International Travel 1995 written by the Centers for Disease Control and Prevention (CDC) lists that resistance of *P. falciparum* to chloroquine has been confirmed or is probable in all countries with falciparum malaria except the Dominican Republic, Haiti, Central America west of the Panama Canal Zone, Egypt, and most countries in the Middle East. In addition to chloroquine resistance, CDC describes widespread resistance to both chloroquine and Fansidar in Thailand, Myanmar, Cambodia, and the Amazon basin region of South America as well as parts of sub-Saharan Africa. Mefloquine resistance has also been confirmed in Thailand. Chloroquine resistant vivax has been documented in Irian Jaya and reported in other parts of Indonesia, Papua New Guinea, and parts of sub-Saharan Africa. There is also the presence of partial drug resistance reported to primaquine in Indonesia and other countries of Southeast Asia, Central America, and South America.

Now that you know a little about the significance of malaria, where it's transmitted, and drug resistance, you will understand the importance of checking with us at the Preventive Medicine Units or other public health authorities before you or any of your personnel go to malarious areas to find out what drugs are useful for chemoprophylaxis and where.

In addition, comprehensive guidance is provided in the Navy Medical Department Guide to Malaria Prevention and Control, NEHC-TM92-1, known also as the "Blue Book". Change 1 was put out in August 1995 and is available from NEHC. ALL deployed units should have this book.

C. Beadle, LCDR, MC, USN, Epidemiology Department, NEPMU-5

From the S.E.A.

In just a few weeks I'll be on terminal leave, retiring after 22 years, the last and best 5 as a PMT. It's amazing how fast the years go by; never underestimate the speed of time. Before you realize it, 'tomorrow' will be here. Whether you plan to stay in the Navy for four years or twenty, keep in mind that you have a second career to plan for. A good point of view is to look at each and every enlistment as your last one. Work to prepare yourself financially and through education and work experiences. After all, no one knows what tomorrow holds, and preparation is the key. Everything you do today to prepare for that second career will actually enhance your present career. You win, the Navy wins.

My column always focuses on education. Why? Because you have a future that can and should be better and brighter than the circumstances you now find yourself in. The possibilities are almost endless and education can get you halfway there. When I visualize the expression 'better and brighter,' I see someone standing at the bottom of a hill that has a road winding to a lookout point at the top. This might represent a college degree, a commission, or professional certification. Sure, sometimes the climb makes the leg muscles burn and at times the air seems too thin, but the views get better with every step and the body acclimates. Pretty soon you see that half the fun is in just getting there.

If you're sharp enough to be reading the FPH to keep up with your field, I believe you're motivated enough to do well in college. Even if you're at sea or overseas, the opportunities are there. There's no reason to wait until you leave the service or retire to work on your degree. Don't wait. Don't procrastinate. You and your loved ones deserve better than to start your second career on the bottom rung. There are many people I'd like to thank and say good-bye to, but I'll be brief. Thanks to CAPT Escamilla for his total commitment and support for education; thanks to HMCS Nix for his wise counsel and sense of humor; and a special thanks to HM1 Cole for some of the most stimulating and unusual discussions I've ever had. Take care, all. Semper Fi.

HMCS(FMF) B. Supalla, Senior Enlisted Advisor, NEPMU-6

NEPMU-7 is what is happening in Sigonella, Sicily, and we are in the market for highly motivated/ top notch PMTs to come join a hard-charging group of professionals to provide operational assistance and training in OH/ PM programs to military and civilian communities.

Sicily offers a variety of cultural activities including Greco-Roman theaters in Taormina, ancient Greek ruins/catacombs in Siracusa and the jet-set beaches of Palermo. You will have the luxury of being based at NAS Sigonella, which is the center point for Space-A travel throughout Europe.

Our Area of Responsibility (AOR) includes 120 countries (20^0 west longitude to 70^0 east longitude) throughout Africa, Southwest Asia, and Europe.

HMCS (SW/AW) C. O. Abrams, Senior Enlisted Advisor, NEPMU-7

Congratulations are in order! We have 5 new Senior Chief Preventive Medicine Technicians and a new Master Chief (now ex-PMT) from the last E8/9 selection board (HMCM Ducharme - NEHC, HMCS Abrams - NEPMU-7, HMCS Casiano - USS Idependence, HMCS Chavez - BUPERS, HMCS Inverso - NSHS Portsmouth and HMCS Nix - 1stMARDIV, HMCS Abell - NEHC). I am proud of all of you.

As many of you know, NEHC held its annual workshop in March. The number of attendees exceeded 2024. The total included over 400 Independent Duty Corpsmen, approximately 178 PMTs, and a significant number of Military Audiologists. This was the largest gathering ever for the NEHC Workshop. For those who were able to attend and participate, I thank you. For those who attended and DID NOT participate, I thank you, too.

However, because we only had 28 PMTs attend the Force Master Chief's brief, and 34 attend the PMT Town Meeting, we might have missed our best oppurtunities to demonstrate just how important it is to have funding for maximum attendance of the PMTs. We are extremely important to Navy Medicine. So, I strongly encourage everyone to attend and participate in these meetings, because this is where much of the learning and information exchange takes place. There is no substitute for direct communication through dialogue. During these times when things are being done differently, and money is meted-out very carefully, we need you to be involved in order that the community will be successful.

Did you know that the NEHC Homepage has been up and running? Thanks to HMC Tom Freese and HMC Judy Shuck, we now have links to BUMED and all of the NEPMUs and NDVECCs. This will enhance our "information exchange" beyond your imagination. Let's use it as a medium for "learning" from each other. Speaking of "electronic wizardry", the latest LINK lists the new e:mail addresses for the detailers. HMC Werner's address is:

p407cj@bupers.navy.mil

If the DSN does not work for you, try the INTERNET.

There have been significant changes in the degree requirements for the "Inservice Procurement Program" for EHO/ HCA, in that an applicant must have a Masters Degree. I will make detailed information available through the NEHC Homepage. It can also be found in the Environmental Health Officers' Newsletter.

In closing, I'll quote HMCS(FMF) Lugo. "Our goal as senior leaders is to expect change and prepare our people so they can face the challenges that await them with confidence." We are all leaders of a sort, and essense of that statement bears consideration with each waking. Best of luck!! See you around the Fleet.

HMCM(SW) J. D. Brown, Command Master Chief, PMT Technical Advisor Navy Environmental Health Center

Warehouse management: An essential component of pest control

An enormous amount of food and equipment is destroyed in warehouses long before these products can be shipped to users. As an extreme example, nearly 25% of the rice stored in the granaries of India is destroyed by rodent infestations alone. Pests such as the rice weevil, Norway rat and the pigeon not only eat warehoused food, they also foul the subsistence with urine and droppings which can present significant public health hazards.

Millions of dollars worth of equipment and supplies are destroyed annually in the "protected" environment of government and contracted warehouses. Some of this damage is inevitable, but much is easily preventable if each warehouse is properly managed by a certified warehouseman. Such support is obviously not feasible, so a little knowledge of proper warehousing techniques is essential for anyone involved in pest control for storage facilities. Much of what follows comes from recommendations of the American Warehouseman's Association.

Most of the pests which destroy warehouse subsistence or supplies can be categorized in one of three groups: rodents, birds, or insect pests of dry stores. Unfortunately, control efforts against one group may not be effective against other groups. The most common mistake in managing warehouse pests is to rely on pesticides for control; insect pests are particularly difficult to control with insecticides, yet such chemicals are applied regularly with the expectation of complete elimination of pest populations. In some cases, insecticides are dispersed as a space spray with the unrealistic expectation of killing red flour beetles in the middle of 50-pound sack of flour. Similar applications of rodenticides and avicides are often just as unrealistic and ineffective. Use pesticides as a temporary means of reducing pest populations, but they are rarely capable of maintaining a pest-free environment. The most effective means of warehouse pest management involves stock rotation, pest exclusion and sanitation efforts.

Stock rotation is especially effective at controlling insect pests. An infested package which is allowed to stay for an extended period of time will serve as a refugium and nursery for the developing pest population. As the pests outgrow one container, they will leave and infest other items. For this reason, a "first-in/ first-out" policy is essential to any warehouse management program. Older packages should be stacked on top of newer packages to allow easier access and to insure that no one container stays in the storage facility for long periods. This same policy applies to non-subsistence items as well. For instance, furniture companies often find that sofas and chairs which have been stored for longer than usual times become nesting sites for mice and rats. Good rotation prevents the establishment of pest populations.

> ***" Pest control must be based on regular inspections, not regular pesticide applications "***

Exclusion can also be an essential part of warehouse management, both from the building and from individual items. Rats can enter any hole larger than 0.5 inches in diameter and mice can enter holes larger than 0.25 inches. Such contortionism makes rodent exclusion difficult, but not impossible. Seal vents, seams, holes and cracks with metal screening mesh small enough to exclude the targeted pest.

Proper stacking is important in exclusion efforts. Pallets should always be at least 18 inches from walls and other pallets; food items should be at least 12 inches above the floor. Not only does this spacing decrease the pest's access to the product, the improved ventilation reduces the humidity around products resulting in decreased damage from insects and molds. The recommended spacing also allows for proper cleaning and inspection. Pest controllers, in particular, must have adequate space to set and retrieve traps.

Several devices have been marketed which can improve pest exclusion efforts. Air curtains are very effective at excluding flying insects and birds. Plastic strips hanging from overhead doors discourage entry by birds. When installed and used properly, these devices are important parts of exclusion programs.

Sanitation in the warehouse is the foundation of a good pest control program, especially with regard to removal of food spillage. Torn bags should be identified and taped shut, but excessively damaged products should be removed. Other hygienic considerations include regular removal of trash, scheduled cleaning of restrooms, and systematic inspections of all incoming stores. Sanitation does not end at the warehouse door, however. Outside vegetation should be cut back to a 100-foot radius and any piles of refuse, pallets or vegetation should be removed from the sides of the warehouse. These habitats encourage encroachment by rodents and snakes. Simple sanitary measures result in significant improvement in hygiene and safety.

Any pest control program for a warehouse must be based on regular inspections and maintenance, not regular pesticide applications. Inspections should include all inbound vehicles and products, the garage area, stock rotation policies, restrooms, surrounding grounds, positioning of pallets and structural openings into the warehouse. Pheromone traps can be placed throughout the warehouse to monitor and locate infestations of dry-stores insects and rodent traps should be placed in suitable areas. These traps must be visually inspected semi-weekly and trap catches should be graphed to help identify abnormal increases in pest populations. Regular inspections and good records will identify pest infestations before they become serious problems.

Medical personnel are not responsible for maintaining government warehouses, but preventive medicine specialists inspect warehouses, commissaries, and exchanges. An awareness of proper warehousing techniques helps to identify discrepancies in storage procedures and can provide useful policies to reduce risk of food-borne illnesses and losses due to pest infestations.

D. M. Claborn, LCDR, MSC, USN, Head, Entomology Department, NEPMU-5

Murine Typhus, Continued from page 2

the disease from flea to rodent to flea. Man becomes involved when the rodent, carrying infected fleas, co-habitates with man. The principle means of transmitting the disease from the flea to a rodent or man occurs when infected flea feces enters through the skin by rubbing or scratching in response to the flea bite. Other modes of transmission include the inhalation of infected flea feces and by infected flea bites. The flea on the other hand becomes infected when taking a blood meal from an infected rodent. This is an excellent example of commensalism as neither the flea nor the rodent are affected by the rickettsia. The flea remains infective for life with no deleterious effects on life span or reproductive capacity. The rat becomes infective in 6 to 8 days but the exact length of time it remains infective is unclear. Some investigators believe that a latent infection may persist for the life of the animal yet it has been reported that no rickettsia could be recovered from rats one month after infection.

Man is considered an accidental host and the rodents as reservoirs of *R. typhi*. The primary reservoir world wide are the commensal rats of the subgenus *Rattus* (e.g. *R. rattus* and *R. norvegicus*) but there have been numerous reports of many other commensal mammals capable of acting as reservoirs including the Polynesian rat in Hawaii, Thailand, and Indonesia, the African giant pouched rat in Senegal, the house shrew in Burma and bandicoot rats and the house mouse in various parts of the world. Incidents of domestic cats, opossums and oldfield mice acting as reservoirs have also been reported. Just as there are various reservoir mammals there are also a number of different vectors. Ten species of fleas have been identified as vectors but the major vector world wide is *Xenopsylla cheopis*. Three species of mites and one species of louse have also been reported as possible vectors.

The occurrence of human infections is historically associated with urban areas and an abundant population of commensal rats and their fleas. This is still true in most outbreaks worldwide. For example, a field study on the island of Evia, Greece where an outbreak of 49 human cases occurred, reported that 93% of the *Rattus norvegicus* trapped had serum antibodies to *R. typhi*. From the 53 rats collected over 300 fleas were collected, most all *Xenopsylla cheopis*. The rat population was described as "ubiquitous and abundant". This is a classical transmission cycle and obviously a serious health problem in this region. But there are also reports of outbreaks which do not follow this typical cycle. Thirty cases of murine typhus within a fifty square mile radius of a suburban area of Los Angeles prompted an investigation by county health officials. It was discovered that 90% of the resident domestic cats were infected as were 43% of the opossums that were trapped around the homes of those individuals that had been infected. Seropositive opossums were reported to have heavy infestations with the cat flea, *Ctenocephalides felis*, which will readily bite humans. One other interesting observation from this report was that the commensal rodent population only showed a 2.8% seropositivity and that *X. cheopis* was not found. This study indicates that this suburban outbreak of murine typhus probably involves the domestic cats, opossums and the cat flea, *C. felis*.

> ***"From 1930- 1945, murine typhus was a serious health problem in the U. S."***

This shows that murine typhus, which has historically been an urban disease, has the capability of spreading to more suburban areas. This is also evident in Hawaii. During the 1940's when typhus was a serious health problem, the focus of human infections occurred in Honolulu on the island of Oahu. Today the number of reported human infections is extremely low and the majority come from suburban and rural areas on the island of Maui. The most recent case from Oahu was a woman who lived and worked on a hog farm. The rodent population was so abundant that her husband would often shoot the animals from his porch. She would recover the carcasses and dispose of them. She could not remember being bitten by fleas while collecting the carcasses but the chances are very good that this is how she became infected. Hawaii Vector Control was notified of this case and tasked to survey the rodent population on the farm for a number of infectious diseases including murine typhus.

During the time this case was reported several people from the Navy Environmental and Preventive Medicine Unit No. 6 were working with the Centers for Disease Control and Prevention in Atlanta and the Hawaii Public Health Department to evaluate a new Enzyme-linked Immunoassay (ELISA) protocol for identifying *R. typhi* antibody and antigen in blood samples. We were very interested in obtaining samples from areas of known human cases since it correlates well with high rodent infections and we needed positive animals to test the new protocol. We obtained both rat and mongoose blood samples from the hog farm. One of the advantages of using the ELISA is that the Immunofluorescent Assay (IFA) which is currently the 'gold standard' test for *R. typhi* antibody, can not be used to test mongoose blood. Our results showed that not only are a significant percentage of the rats infected (32%) but that an equally significant number of the mongoose are also infected (28%). The mongoose has often been suspected to be a reservoir host for *R. typhi* but this was the first time it had been confirmed. The mongoose is ubiquitous in Hawaii and can be found in close proximity to suburban residences along with the roof and Polynesian rat. The mongoose may or may not play an important role in the transmission cycle of murine typhus in Hawaii but it is a reservoir and will need to be considered in the event of an outbreak.

As stated previously, the disease is not a major health problem in the United States This for the most part is due to the successful efforts to control the rodent and flea populations in our

Continued on page 10

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NEPMU-7

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Murine Typhus, Continued from page 9

country. However, rather than eradicating the problem these efforts have simply moved the reservoirs and vectors to more suburban and rural areas. Fortunately, although other small rodents and mammals are capable of acting as reservoirs, the incidence of contact between flea and human is still not as frequent as in a more crowded urban environment. For these reasons large outbreaks are unlikely in this country. There does appear to be some danger of increased numbers of human infections particularly in suburban areas where other small commensal mammals act as reservoirs, particularly the domestic cat. An increase in the probability of contact with infected fleas will also increase the probability of becoming infected.

K. F. Kirschner, LT, MSC, USN, Head, Microbiology Department, NEPMU-6

Fleet Public Health

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