

# 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. 3, No. 2, April, 1998

NEPMU-2 Norfolk, VA Edition

Route to:							
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## Current Epidemiological Evaluations of Leishmaniasis in Sicily, Italy

**Background:** Visceral leishmaniasis (VL) is a public health problem in countries bordering the Mediterranean Sea. The disease occurs in Central and Southern Italy, Sicily and Sardinia. The infection is zoonotic and acquired by the bite of an infected sand fly of the *Phlebotomus* species. Dogs, as well as some other peri-domestic

animals, are the reservoirs for the parasite. The *Leishmania* species is the kinetoplastid protozoan, *Leishmania infantum*, and has been known to be endemic to Sicily since at least 1901. <sup>(1)</sup>

Leishmaniasis is now maintained within the local canine population and is becoming more of a public health concern each year. Dogs are the principal reservoir for

human infection. In Sicily, especially Catania Province, canine leishmaniasis is endemic. The insect vector for leishmaniasis, the sand fly, is ubiquitous, thriving in the warm, moist environment of Sicily. <sup>(2)</sup> Estimates of leishmaniasis prevalence in Sicilian canines range from 15 to 50%. Non-vector, human to human transmis-

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## Sterile Cockroaches

The war on cockroaches continues, and the latest weapon in the pesticide arsenal is Insect Growth Regulators or IGRs. IGRs mimic the presence of a natural juvenile hormone and are grouped into two types – juvenile hormone analogues (juvenoids) that produce sterile cockroaches, and chitin synthesis inhibitors that prevent molting. Insects exposed to IGR's experience delays in development, changes in color, sterile egg cases, sterilization of adults, twisted wings in cockroaches and inhibition of molting

that results in death.

Chitin synthesis inhibitors disrupt normal development and molting by interfering with an enzyme called chitin synthetase. This enzyme helps in the formation of new cuticle. When immature insects are exposed to chitin inhibitors, they develop malformed cuticles, which cannot withstand the internal pressure during molting or can't give enough support to the muscles involved in molting. The insect is unable to cast off the old cuticle and dies.

Juvenoids interfere with the normal growth and development of insects by mimicking the presence of natural juvenile hormone. Insects affected by juvenoid based

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## From the OIC of NEPMU-2

As spring emerges over the horizon, Navy units face the annual pilgrimage of people coming and going to new duty stations. I will fall in line this year off to PSD and other stops on my check-out list before I PCS (is this a verb ?) to my next assignment. I would like to pause for a moment to consider where we are and where we are going at the Navy Environmental And Preventive Medicine Units specifically and the Navy Preventive Medicine community in general. I have had the pleasure of serving at NEPMU-6 from 1986-89 as an Epidemiologist and as OIC of NEPMU-2 from August 1995 to the present. We have changed a lot during this short period of time in several key ways:

**1) Diversity:** We reflect the American melting pot - people from many countries and backgrounds who work together for a common mission - to serve the operational Navy and Marine Corps. Women now serve in every department of this Unit and the professional respect they receive came because of their personal drive and accomplishments. Baby showers are now attended by both men and women for our shipmates having babies - although my wife rolls her eyes each time I come home with my latest story concerning my shortcomings at the competitive "games" we participate in at these events. The other walls that we have used to separate us have continued to diminish (i.e. military vs. civilian, religion, race, and cheeseheads (Green Bay Packer fans) vs. the rest of the

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## From the S.E.L.

In November of last year I attended the annual E-7 Development Board Brief presented here in the Norfolk area. They talked about what the board considers to be a priority in your selection to Chief Petty Officer. I would like to take some time to re-iterate their points and give you a few of my own specific recommendations. Not that I am the resident expert, but I have been around long enough to have a bit of insight into the process.

The brief focused on the following areas:

a. Professional performance at sea (professional/managerial/administrative excellence)

b. Accepting demanding tours of duty (Instructor, Recruiter, CC, Recruit Company Commander)

c. Educational/vocational training (off-duty education or participation in a Navy-sponsored program.)

d. Evaluations: **SINGLE MOST IMPORTANT FACTOR: SUSTAINED SUPERIOR PERFORMANCE.** Eval. marks and write up must correspond, personnel decorations (LOC, LOA), command and community involvement, consideration given to how a candidate compares against members of same pay grade, evals. and marks are closely reviewed to identify professional patterns/trends.

e. Duty assignment and history of duties: determined by transfers, job descriptions, performances as commensurate with rate, failure of PRT (If any failures within five years, chances for

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## Fleet Public Health

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**From the OIC of NEPMU-2:**

world). This is not to say we do not have a way to go, but people in the Navy are now much more likely to be judged on their performance instead of who they are.

2) **Timeliness of our response:** Our customers have become much more demanding to have information NOW. Sending information by "snail-mail" is not good enough. Faxes, electronic mail, web sites and CD-ROMS allow us to work harder and faster to get the "word" to the fleet and the Fleet Marine Force. One of my concerns is that we send information that has been analyzed and prioritized for the operational users. It is not enough to be a conduit on the information highway. We need to make sure that what we are sending is true and what the fleet needs to hear. I think we need to move aggressively to ensure that our products and services are available 24 hours a day. NEPMU-5 is doing some innovative head-scratching about putting both general information and specific customer results on the worldwide web. Why cannot our departments send results the day they are completed to operational units by e-mail or placement on a web site? NEPMU-2 (with NEPMUs 5 & 6 in the on-deck circle) is starting our BUMED Commercial Activities Study on outsourcing this month. We are being asked these kind of hard questions, because there are companies in the private sector more than willing to provide these services NOW.

3) **Computer Sophistication:** Hand in hand with the last point is that there is a price for everything. As we move to local area networks, web sites, and increased

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emphasis on rapid communication, all these electronic marvels told require tender loving care. This involves the right equipment, the right people, and the latest training. How we are going to do this in an era of diminished resources, is one of our greatest dilemmas. Our response is what we have always done - find motivated individuals to bring their time and talents to the problem and fix it. This is a short-term solution that is always people and effort dependent.

4) **Service to the Fleet:** One of my proudest times as an OIC was during our command review by the Navy Environmental Health Center in September 1996. We were involved directly with or indirectly by sending our Unit personnel to support four Joint Commands - US Atlantic, European, Southern and Central Commands. In the midst of our inspection, CINCLANTFLT called telling us that two former Warsaw Pact nation ships were arriving in Norfolk that morning and we had to defuse a thorny issue before the Ambassador of this new nation arrived the next day. This type of enthusiasm and dedication occurs regularly at each one of the NEPMUs. The future problems we face are great, but our military and civilians know that service to Sailors and Marines is why we are in business.

I would like to extend a word of thanks to all the personnel of each of the four NEPMUs and to our customers for making our job meaningful and fun.

**Richard J. Thomas, CAPT, MC, USN**  
OIC  
NEPMU-2

**From the SEL Continued from p.2**

advancement are slim to none).

g. Disciplinary and behavior problems will hurt you.

h. Summary recommendations: Start "turning to" early (E-5); keep personal records of your accomplishments. Submit NAVPER 1616/21; summarize your input for the year; be specific, objective and factual, not flowery. Order a copy of your microfiche. Review for accuracy. Do the hard jobs. Look at strength of recommendation: Trends or patterns of strengths that are looked for are initiative, leadership, management and administrative skills and professionalism, arduous duty, other involvement, special qualifications, warfare qualifications (E-5 and above mandatory at sea)

i. **ITEMS TO BE SENT TO THE BOARD:** Only send those things that **are not** in your microfiche. My suggestions to you are to view advancement as a race to get to a desired goal/location. That could be to Chief, to become an Officer, or other career goals. Start pacing yourself from the start (E-1 through E-5 is a good place to begin). Remember **SUSTAINED SUPERIOR PERFORMANCE**. My old saying and you have heard it before, it is what you consistently do over the long haul. As confusing as Navy life can be, we can stay focused through a good plan. Research and map your route prior to starting the race. Know which direction you need to go and stay on the path. Do not worry if you are going as fast as someone else, but focus on getting to where you are going one step at a time.

I can hear you all now saying  
**Continued on p. 4**

**From the SEL**

“E-1’s”. Who as an E-1 knows what they want? Do not underestimate our younger shipmates. Most of them know why they came in and they do have an inkling of the things they like. They may need some guided assistance in knowing what’s available, but you are never too young to start. I personally thought E-5, second term. But I have since reconsidered. We have some really sharp junior people out there. I work with a few great ones myself.

My specific advice is to make sure that throughout any given year you plan on completing, at a minimum, one to two educational goals (2 college classes/correspondence courses). Maintain all certification (CPR, CAT8, C1 status, warfare qualifications, etc). Attend, at a minimum, one Navy school, professional development course, professional seminar or conference. I know money is tight but look into what your community has available. Get creative. Volunteer in the command. Coordinate a project. Be an active participant of your recreation committee or support your command in other areas. Volunteer in the community. This can be as simple as a one-day evolution assisting a couple times a year. Take on leadership positions if possible. Take your collateral duties serious. This is the extra work. The stuff that needs to be done for the Unit or Command in general. Requirements we have as a command that affect us all. They usually fall outside of your job scope and broaden your breadth of knowledge. They are usually administrative in nature

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and require you to develop certain skills. They are usually a pain in the rump, but that’s what it takes. Stop fussing about stuff and “JUST DO IT”. Take advantage of leadership opportunities. The kind when they are looking for someone, anyone to volunteer. Even the kind you get stuck with. Take it, organize it, manage it, get it done. Study hard for the exam. EVERYTIME. This is critical. It is the only thing you personally have control over. Those PNA points can do wonders for you. Keep yourself in good shape and make sure you pass the PRT. This helps fight the stress of it all. Do not get me wrong. This challenge comes with stress. But if you do not take care of yourself, you will be no good to anyone.

Once you have done all this, then make sure it is recorded on your input sheet. Tell about the details. It does not matter how long your input sheet is, but it might matter how short it is. This is your responsibility. Your LPO, DH, DIVO or Chief does not know everything you do. We are not mind readers, nor do you want us to be constantly looking over your shoulder. Tell us boldly what you have done for the community, the command, the Navy.

My critics are out there saying, she forgot about the most important thing. Just doing your job well. To me that is a given, that is expected of us all. It is what you do in addition to your job that you will be remembered for. I am sure you heard me say that before as well.

**M.L. Lugo, HMCS  
Senior EnlistedLeader  
NEPMU-2**

**Sterile Cockroaches Cont from p.1**

IGR’s may develop delays in development, changes in color, egg cases that do not hatch, sterilization of adults, and the characteristic twisted wings, seen in cockroaches.

There are several IGR-based pesticides available to certified pest control operators, but only one IGR in the stock system. Gentrol, a juvenoid-based IGR containing Hydroprene, is on the list of standard pesticides stocked in the supply system. As NSN 6840-01-318-7416, it is listed as Insecticide, Hydroprene, EC (Gentrol IGR) and is available in a box of ten 1-oz bottles of emulsifiable concentrate.

Gentrol is tank-mixed with water and may be used in food service facilities as a crack and crevice treatment, using a hand-held sprayer. For rapid knock-down of cockroaches, Gentrol can be mixed with a residual pesticide and sprayed as an all crevice treatment. Mixing with a residual pesticide will not diminish Gentrol’s efficacy. Another method is to apply gel baits in cracks and crevices after Gentrol has been sprayed in the food service facility. Because Hydroprene increases feeding activity in cockroaches, there will be a higher number of roaches visible. The use of gel baits takes advantage of the increased foraging activity and provides them with an “alternate” food source. By combining Gentrol with residuals or gel baits, you increase the effectiveness of IGRs.

Currently, Gentrol is not on the shipboard pesticide list, but if you

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## CD-ROM Courses Available

The Naval Education and Training Professional Development and Technology Center (NETPDTC) has recently released a five CD-ROM set of interactive software. These CDs contain interactive learning programs in a wide variety of subjects. They are called Shipboard Training Enhancement Program (STEP) courses.

Of special interest to the Preventive Medicine community is the self-paced course on food service sanitation. This course allows the student to fulfill all of the requirements for both initial and refresher training. When the course has been completed, the student has the option of printing out a certificate of completion.

Covered in the CD-ROM are Pest Control, Microbiology, Foodborne Illness, Dishwashing, Inspection and Storage, Personal Actions, Food Preparation and Serving, and Food Safety. The student has the option of taking a pretest, which will allow the bypass of subject areas correctly answered in the pretest. This should prove to be of value for experienced personnel who are using the program for annual

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### Sterile Cockroaches Concluded

are interested in using IGR's on board your ship, contact the nearest Medical Entomologist for information and authorization.

HM1 F. Johnson  
Entomology Department  
EPMU-2

### Current Epidemiological Evaluations of Leishmaniasis Cont. from p.1

sion of *L. infantum*, occurs only from HIV-*Leishmania* co-infected persons. <sup>(3)</sup>

Incubation from time of initial infection with the parasite until clinical illness is not known precisely, but is estimated to be from 2 months to 1 year for both humans and canines; children and adults are equally at risk of infection when first exposed. <sup>(4)</sup> Skin testing throughout Italy has demonstrated that life long immunity from sub-clinical infection is possible. <sup>(5)</sup>

Before World War II, amebiasis, malaria and leishmaniasis were the three plagues of Sicily. After a campaign of malaria eradication in the 1950's and 60's with DDT, malaria disappeared and leishmaniasis became very rare. Malaria today is an imported disease in Sicily, as well as amebiasis. Human Visceral leishmaniasis is once again well established and endemic to Sicily. While this infection is considered a reportable disease in Italy, many cases are either mis-diagnosed or not reported if they are not hospitalized. Within the Italian community of Catania Province, Sicily, approximately 10-15 cases of VL are diagnosed via hospital admission each year. During 1995, Sicily as a whole reported a total of 38 cases of VL. <sup>(1,4,6)</sup>

**Current Concerns:** Until recently, there have not been any reported VL cases among US military personnel or their family members living in Sicily. In 1996, a 7-m/o infant was seen at the Naval Hospital, Sigonella and referred to Walter Reed Army Hospital for evaluation. The initial evaluation in Sicily did not

Continued next column

consider VL as a possible diagnosis. The diagnosis of VL was made at Walter Reed Army Institute for Research (WRAIR), both by rK39 ELISA antigen initially and by culture of the parasite in Dr. Joan Jackson's laboratory. In December 1997, a 15-y/o daughter of a Navy family was seen for possible lymphoma and referred to Walter Reed Army Hospital for further evaluation. The diagnosis of VL was made by WRAIR in this individual, as well.

Both of these patients lived in Catania near the seaside. The infant was born on the island and never traveled from Sicily before he became ill. The teenage youth lived one year in the same general area of Catania as the infant, and became ill just a few months after moving into government housing. Both patients lived in an area where the sand fly vectors are abundant. The housing area, in contrast, is relatively devoid of sand flies. The most likely source of infection was from the beach area of Catania, either from feral dogs in the area or from the family pet, in the case of the most recent illness. The family dog is being evaluated serologically for leishmaniasis infection.

**Study Methods:** Diagnosis of VL can only be confirmed by demonstrating the parasite in tissue or body fluids. All immunologic tests, such as *Leishmania* antibodies (ELISA), the Direct Agglutination test (DAT), <sup>(7)</sup> and Imuno Fluorescent Antibody test (IFA), the current "gold" standard, <sup>(8)</sup> are only approximations of infection. Sensitivity and specificity vary for each individual testing method, but current work

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**Leishmaniasis****Continued from p. 5**

at the Instituto Superiore di Sanita in Rome, Italy, has shown very high sensitivity and specificity with the rK39 antigen for detecting leishmaniasis infections. In comparative studies, rK39 was positive in more than 95% of the culture positive samples, while IFA was positive for 65% of the specimens. (personal communication, Gradoni, L).

Since the 1930's, no vector studies have been carried out in the Catania area of Sicily. <sup>(9)</sup> US Navy Environmental & Preventive Medicine Unit #7 is currently assessing the level of sand fly infestation in Catania Province, as well as gathering information about infection rates in dogs owned by US personnel. Sand fly studies have focused on enumeration of the species present which are capable of disease transmission to humans, especially in areas of Catania where VL has been documented in Italian residents.

From May through November 1996, and again in 1997, sand flies were collected using the sticky trap (oil paper) method. CDC light traps were also used for additional studies on sand fly infection with *Leishmania* parasites in September of each of the study years. Collecting sites were chosen throughout Catania and represented rural, semi-urban and pastoral areas. These sites represent the diversity of the region.



With sticky traps, about 5,000 sand fly specimens were collected and identified. Of *Phlebotomus* genus collected, the most common species was *P.*

*perniciosus* (23.3%), followed by *P. perfiliewi* (1.1%) and *P. neglectus* (0.2%); one specimen of *P. papatasi* was found in a collecting site near the Naval Air Station, Sigonella in 1996. *Sergentomyia minuta* (72.4%) was found at all sampling sites. All of the species caught, with the exception of *Sergentomyia minuta*, are vectors for transmission of the parasite to humans. None of CDC light trapped sand fly females caught in Brucoli and Sigonella stations and dissected for natural transmission study contained parasites. Therefore, it was not possible to prove the vertical transmission of *L. infantum* in this region of Sicily. *P. neglectus* during either of the study periods.

Dogs residing in areas where leishmaniasis is endemic can acquire the infection without clinical evidence of the disease. <sup>(10)</sup> Subclinical infections exist and are common

throughout *Leishmania* endemic areas of the world. As the feral dog population continues to increase throughout Italy and Sicily, it is important to know the extent of



this non clinical infection rate in dogs residing with US military families. A few cases of canine leishmaniasis, imported into the U.S. have been reported in dogs returning from overseas locations (personal communication, Quaka, T.E.). Currently, 1-3 dogs from US households in the Catania area are euthanized each week due to *Leishmania* infections.

To evaluate the level of infection among US owned dogs, USNEPMU-7, in a collaborative study with the US Army Veterinarian Office (Cpt. William Smith), is conducting serologic testing of dogs arriving in Sicily. It is hoped that these dogs can be re-evaluated annually, and that they will be tested again at the time of transfer from Sicily. The level of subclinical infection rates and epidemiological/demographic information relating to sero-positive dogs will provide data about the risk of canine infection. This information will also provide a better understanding of the risk for human VL infection during a 2-3 year tour in Sicily.

**Comment:** While only two cases of VL in family members of US personnel can be attributed to living in the Catania area of Sicily, both of these cases were life-threatening and placed each patient at extreme risk, due to the difficulty in reaching tertiary care centers, knowledgeable about this infection.

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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:

**[www-nehc.med.navy.mil](http://www-nehc.med.navy.mil)**

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

**Leishmaniasis****Continued from p.6**

USNEPMU-7 sand fly studies have verified that several species of sand fly vectors are present in the Catania area of Sicily. It was anticipated that some of the live flies would yield *L. infantum* parasites, but none were found. This suggests that there may be few infected flies at the trapping sites chosen, near US families. The need to evaluate the dogs living with US personnel is important in making inferences about the potential for human infection among US personnel living in Sicily and to learn more about demographic and geographic factors that may influence the risks for infection while assigned to duty in Sicily.

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**NOTICE!!****NOTICE!!****NOTICE!!****NOTICE!!****NOTICE!!****NOTICE!!**

**NEPMU-6, Pearl Harbor has  
 a new e-mail address  
 for the Unit.**

**It is:**

**nepmu6@nepmu6.med.navy.mil  
 (see page 2, column 3)**

**CD-ROM Courses Available****Continued from p.5**

refresher training.

Although this new STEP CD-ROM is unlikely to replace the certified Food Service Sanitation Instructors, it will augment their efforts. When in an isolated region, or at a very small command, these interactive CD-ROMs may be especially useful.

Also worthy of mentioning is an interactive course on shipboard CHT systems. This program covers legalities, plastic and food service wastes as well as sewage.

For further information, NETPDTC may be contacted directly at DSN 922-1640 or Commercial (850) 452-1640.

**HM1 D.A. Evans**  
**Environmental Health**  
**NEPMU-2**

**Joint MMART****Exercises**

**W**ith the ever increasing demand of Military Operations Other Than War (MOOTW), familiarizing ourselves with the operations of other service components and international allies becomes more critical. It has been noted, for example, that European Command has been involved in more MOOTW in the 90's than in the three previous decades combined. The wall has fallen, the world has changed again and so must we with it.

I had the opportunity to be deployed with the Army and Air Force while stationed in the Mediterranean. Ninety percent of the problems faced were due to variations of service regulations and SOPs. We really do fight differently, but most of these differences can be minimized with joint training.

NEPMU-2 had the opportunity to practice joint interoperability with the 714<sup>th</sup> Preventive Medicine Detachment at Ft. Bragg, NC. In an effort to train as realistically as possible, the Unit "deployed" 5 personnel over a two-week period to augment the

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## The Navy Disease Reporting System

**D**isease reporting is becoming easier and more efficient. The Navy Disease Reporting System (NDRS) software, available from the NEHC Internet homepage or from your local EPMU, is a stand-alone program that all Navy commands are now required to use. Use of the software is mandated by BUMED WASHINGTON DC 061600Z OCT 97. The program is for Disease Alert Report writing and routing as well as printing reports.

In addition to the reportable diseases and conditions listed in BUMEDINST 6220.12, BUMED WASHINGTON DC 061600Z OCT 97 requires reporting of seven additional diseases and conditions: chlamydia, gonorrhea, cryptosporidiosis, hantaviral disease, invasive group A streptococcal disease (including strep fasciitis, strep toxic shock syndrome, strep septicemia and drug resistant or complicated streptococcal pneumonia), varicella, and occupational expo-

sure to HIV.

The NDRS program requires a 486 processor, 8MB RAM and Windows 3.1 or 95. The best way to get familiar with the program is to install it and experiment with it. The intended benefits include making disease reporting easier and quicker for the originator. It should also make reviewing and responding to DARs quicker and easier for the reviewers. Another benefit of the NDRS is its ability to create a file for electronic filing by email.

The format of the NDRS report differs from the old DAR format listed in the instruction. When entering data into NDRS, you can add important information such as: source of infection, personal protective measures taken, preventive measures taken, treatment provided, and laboratory results pertinent to the diagnosis. The upcoming revision to BUMEDINST 6220.12 will clarify what information to include in a DAR. In the interim, it is recommended that this information be included in the "Comments" section of the NDRS.

**Continued on p. 9**

**Joint MMART Exercises** **Continued from p.8**

714<sup>th</sup> (and 155<sup>th</sup>) Preventive Medicine Detachment.

These units were committed to the field exercise. This exercise allowed for familiarization and cross training on both Army and Navy procedures regarding field preventive medicine. Seeing and working with the Army's variations of Navy AMMALS and field equipment proved insightful and highly educational. Additionally, it reduced the misconceptions and prejudices that are often present concerning other service components.

The first week included base set up and a rodent survey in some newly acquired training areas adjacent to Ft. Bragg. The rodents were trapped, tagged, bled and bagged. Specimens were then transported to the Combat Support Hospital for delivery to the 520 Theater Army Medical Laboratory. A number of sites were surveyed, which provided ample OJT for corpsmen and medics working with the survey. Typical of all field exercises, flexibility was the key and observing the 714<sup>th</sup>'s versatility with a schedule proved educational.

During the second week, the 714<sup>th</sup> moved to the Combat Support Hospital and the Navy Preventive Medicine personnel were able to experience life

within an operating field hospital setting, complete with guard duty, concertina wire and simulated assaults. Training in field sanitation and Navy IH surveys were utilized during this period. The Combat Support Hospital must maintain the same standards in the field as in permanent hospital facilities. The IH specialties were a welcomed new addition to the regular Army Preventive Medicine routine and provided ample opportunities for the Navy to train the Army.

Overall, the exercise was a fantastic opportunity for joint training for all involved. NEPMU-2 personnel trained as augmentees in a field environment and acquired a view into jointness that is rarely realized. Future joint exercises are being researched to include the Navy or Marine assets hosting Army Preventive Medicine personnel in the field. As we become more involved with other services and NATO or UN allies, this kind of training will prove to be invaluable in ensuring our personnel are as equipped as possible for any contingency.

**Steven E. Rankin, LCDR, MSC, USN**  
**Entomology Department**  
**NEPMU-2**

**NDRS** **Continued from p.8**

Eventually, environmental health surveys will include sections on evaluating a command's use of NDRS software. For further guidance, questions, or comments on NDRS, contact your cognizant EPMU.

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## Meningococcal Disease

In the past year NEPMU-2 has had two cases of group B meningococcal disease reported in active duty members in our AOR. This includes one case of meningococcal meningitis, and one case of meningococcal sepsis.

Meningococcal disease results from infection with *Neisseria meningitidis*, a gram negative coccus bacterium. Several serogroups of the bacterium exist and many are known to be associated with disease: currently serogroup B accounts for approximately 45% of all cases of meningococcal disease in the U.S., with group C accounting for an additional 45%. Although meningitis is the most common presentation of the disease, sepsis can occur in the absence of meningeal involvement. Meningococcal sepsis is associated with high case fatality rates (roughly 12% in the U.S.) even with aggressive treatment.

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# Ashore Occupational Safety and Health Management Evaluations (OSHME) and the BUMED Inspector General (IG) Process

Most of our activities have had the pleasure of going through this new combined process. It began about three years ago. Better? We'll let you be the judge of that. It does cut the visits done in the past by these two entities by 50%, so that has to be a good thing. Reports are now combined so no longer does a command have Implementation Status Reports (ISR) going out for two separate evaluations. You don't see "them" and then "us." You see a team comprised of various specialties and not just occupational safety and Health (OSH) folks. Are these MUCH different and are they in as much depth as in the past? In my opinion, no. We still utilize the Ashore NAVOSH (Navy Occupational; Safety & Health) Program Evaluation Guide and the Occupational Health Program Evaluation Guide but over the last three years we are looking much more closely at compliance with Joint Commission for Accreditation of Healthcare Organizations (JCAHO) requirements for our medical treatment facilities (MTFs). Hey, you "volunteered" to follow their guidelines! This alone takes a great deal of time. An example is that the "safety" team member has to balance his or her time looking at JCAHO "Environment of Care" and NAVOSH. Both of these involve program findings and workplace deficiencies. Normally this new process allows about 24 hours of a week actual time to look at programs and workplaces. Time for a "snapshot in time." A couple hours in an operatory or a warehouse can't give us a true picture as to what happens there for the remaining 2,000 or so hours in a year. It gives us only a "snapshot."

One thing that helps a great deal is when a program is organized. Obviously, some activities have better organizational skills than others (Good Example: Naval Hospital Okinawa). I have been to an activity where it took them over an hour to find an organization chart! Now we're certainly moving on to other requirements when someone is trying to find this but this is certainly time taken and time wasted. Manag-

ers know what we're going to look for. We have been on a three-year cycle for a long time and so everyone should know within two or three months when we're coming again. Since everyone should always be in compliance it should take no more than a couple days to get everything inventoried and ready for a look. I know that's not always the case. You may have been "putting out fire after fire" for the last six months, had OSHA paid a visit, and then here we come. One thing to keep in mind: If you need help we are still your regional points of contact for questions. Unlike IG teams we have a mandate to support you all the time and not just once every three years.

So, what will the future bring? If you've seen drafts of "23 Echo" you'll notice that OSHMEs are nowhere to be found. Yea! Well, not exactly. "Command Inspections" are still required and, guess what? They're required every three years and "Occupational Safety and Health will be an integral part of the command inspection process." We will continue to look at compliance. Really no way around that. Not much "gray" when a great deal of what we look at is set forth in law.

I can't finish without addressing this: A complaint I heard when we initially started this new process was that "we had insider information so this wasn't fair!?" Huh? If it's broken, it's broken! If someone else knows that it's broken we're supposed to hide it so no one else knows it? I don't want to write the ISR?! I think the object is to get it fixed, right? I

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## *Looking for Information on:*

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**OSHME & BUMED IG Processes Continued from p.10**

sincerely believe that complaint is a thing of the past as people realize we're on the same team. We want to fix what's broken and protect our people and our resources. Who cares who knows!

Let me close by saying this: "I have been a safety specialist since 1979. At first I never bought into the inspection process but once in awhile someone came in to look and when they left I felt they had really done our activity some good. We all "learned" something from their visit and I actually felt good when they were gone. It validated that I knew what I was doing and also that there was some room for improvement (Aarrgh, I wasn't perfect after all!). I "actually" learned something from the inspection process!" And the sign that this was a really good visit was that when they discovered something was broken they helped us with ideas on how to fix it! *That's our goal!* Validating your efforts and, when necessary, giving some assistance in improving the process – fixing what's broken! Hopefully, everyone we've visited feels the way I do. If our visit wasn't "wonderful," hey, we're improving too! Next time IT WILL BE BETTER!

Ed Adams, CSP  
BUMED Regional Safety Manager  
NEPMU-5, San Diego, CA



## Ambient Air Quality Concerns during the Indonesian fires and the new PM2.5 Standard

"Particulate matter" is the term used for the mixture of solid particles and liquid droplets found in the air. It originates from a variety of sources other than natural disasters including diesel trucks, power plants, wood stoves and industrial processes. The chemical and physical composition of these particles vary widely. While individual particles cannot be seen with the naked eye, collectively they can appear as black soot, dust clouds, or gray hazes.

Particles less than 2.5 micrometers in diameter are known as "fine" particles; those larger than 2.5

**Ambient Air Quality Concerns... Continued**

micrometers are known as "coarse" particles. Fine particles result from fuel combustion (from motor vehicles, power generation and industrial facilities, residential fireplaces and wood stoves.) Fine particles are formed in the atmosphere from gases such as sulfur dioxide, nitrogen oxides, and volatile organic compounds. Coarse particles, less than 10 micrometers in diameter, are generally emitted from sources such as vehicles traveling on unpaved roads, materials handling, crushing and grinding operations, and windblown dust.

The Environmental Protection Agency (EPA) is currently maintaining the national air quality standard focused on small particles less than 10 micrometers in diameter (known as PM10), about one-seventh the diameter of a human hair, to protect against coarse particle effects.

In the years since the PM10 standard was enacted, hundreds of significant new scientific studies have been published on the health effects of particulate matter. Recent studies suggest that adverse public health effects such as premature deaths and increased morbidity in children and other sensitive populations have been associated with exposure to particle levels well below those allowed by the PM10 standard.

Fine particulates are of health concern because they easily reach the deepest recesses of the lungs. The populations most at risk from these particulates are the elderly, children, asthmatics, smokers, workers in open areas, and people who have bronchitis, respiratory diseases, heart conditions and allergies. In addition, fine particulates can be carried hundreds of miles from their point of origin on wind currents.

The PM2.5 standard which focuses on fine particulates became effective 16 September 1997. This new standard is incorporated into Table-1. Measured ambient air monitoring results are compared against the standard and converted to the PSI. The PSI converts the measured pollutant concentrations in a community's air to a number on a scale of 0 to 500. On this scale 100 corresponds to the standard established under the Clean Air Act. A 0.14 PPM reading for sulfur dioxide or a 0.12 PPM reading for ozone would translate to a PSI level of 100. A PSI level in excess of 100 is in the unhealthy range. A PSI level at or below 100 is in the satisfactory range.

The index number is determined daily by EPA

Continued next column

Continued on p. 12

monitoring sites for each of five pollutants: sulfur oxides, particulate matter, carbon monoxide, ozone, and nitrogen dioxide. The EPA then reports the highest of the five figures for each major metropolitan area and all other pollutants are considered in the good to moderate range. Table-2 provides guidelines on general health effects and precautionary measures related to the PSI.

The EPA's PSI places maximum emphasis on acute health effects occurring over very short time periods, 24 hours or less, rather than chronic effects over months or years. Occupational Safety & Health Administration's (OSHA) Permissible Exposure Limits (PEL) for these contaminants are based upon eight-hour exposures for a forty-hour week over the course of a worker's lifetime (no ill-effect will be noted in the majority of the worker population). There is no correlation between OSHA's PEL and EPA's PSI.

A variety of factors in addition to PSI levels should be considered when applying the PSI to potential health effects. For example, the number of people actually exposed to air pollution, transportation patterns, industrial composition, and the representativeness of the monitoring sites need to be taken into account in developing an accurate ranking of metropolitan or disaster areas. Moreover, the PSI does not specifically take into account the damage air pollutants can do to animals, vegetation, and manmade materials such as building surfaces and statues. There is likely to be a correlation between increased PSI levels and increased damage to the overall environment. Finally, the PSI does not account for possible adverse effects associated with combinations of pollutants.

The widespread distribution of fine particulate associated with smoke from the Indonesian fires demonstrate the importance of establishing environmental monitoring to identify, warn and protect populations at risk.

In the 1960's, 82 percent of Indonesia's land cover was tropical rain forest. Forest cover is now estimated at only 53 percent due to logging concessions and timber estates that feed paper and pulp factories. These industries cleared the forest for oil palm and rubber tree plantations and expose rainforest peat for harvest. Fire is used routinely to clear scrub, grassland and logged-over forests to make way for the cash crops. The monsoon rains normally beginning in August would extinguish the flames. However, this year's weather deviated from its normal pattern which delayed the

monsoon rains until December. The hot, dry winds across Indonesia spread fires to neighboring forests, set them ablaze and caused a fourfold increase in forest fires.

The first telltale "hot spots" began to appear on satellite maps prepared in May 1997 by the World Meteorological Organization. At the time most Indonesians thought the fires were normal, but within two months the hot spot maps were sending an alarming message. By September, 650 fires were raging in central Kalimantan and thousands more were blazing nationwide releasing thousands of tons of minute smoke particles into the atmosphere. Visibility hovered between zero and 100 meters in many areas which, temporarily closed airports and impaired fire-fighting and relief efforts.

Changing wind patterns spread smoke particulate more than 2,000 kilometers across equatorial Southeast Asia enveloping Malaysia, Singapore, Burma, and stretching north and east into Thailand and the Philippines. The smoke haze turned the Southeastern Asian sky yellow-gray causing eye irritation and upper respiratory distress to countless individuals.

The closest ambient air monitoring stations are hundreds of miles from the fire zone in Malaysia and Singapore. Both had adapted the EPA's ambient air quality standards with the exception of the new PM2.5. They also used the EPA's PSI, which establishes guidelines for unhealthy ranges of pollutants, general health effects and cautionary statements, and emergency response actions to protect the public health.

The smoke haze contained carbon monoxide, carbon dioxide, nitrogen oxide, and sulfur dioxide particulates which significantly reduced visibility and sent pollution index readings in Malaysia and Singapore over 400 for coarse particulate matter. These dangerous new highs forced emergency actions and imposed a tremendous health threat to millions of people. The health threat from the smoke haze, composed of both coarse and fine particulate matter, was not monitored throughout most of the region because many of the affected countries had not established environmental monitoring policies.

Society is aware of the short-term effects of air

Continued on p. 13

**Ambient Air Quality... Continued from p. 12****Table 1. EPA REGULATIONS ON NATIONAL PRIMARY AMBIENT AIR QUALITY STANDARDS TO PROTECT THE PUBLIC WELFARE FROM A KNOWN OR ANTICIPATED ADVERSE EFFECTS OF A POLLUTANT.**

<b>Pollutant</b>	<b>Standard</b>
Sulfur Dioxides	0.14 PPM per 24-hour period not to be exceeded more than once per calendar year.
Particulate Matter (PM10)	150 µg/m <sup>3</sup> per 24 hour average concentration.
Particulate Matter (PM2.5)	65 µg/m <sup>3</sup> per 24 hour average concentration.
Carbon Monoxide	9 PPM for an 8 hour average concentration not to be exceeded more than once per year.
Ozone	0.12 PPM per 1 hour 0.08 PPM per 8 hour daily maximum
Nitrogen Dioxide	0.053 PPM annual arithmetic mean concentration.
Lead	1.5 µg/m <sup>3</sup> maximum arithmetic mean averaged

Source: 40 CFR 50

**Table 2. General Health Effects and Cautionary Statements**

<b>Index Value</b>	<b>PSI Descriptor</b>	<b>General Health Effects</b>	<b>Cautionary Statement</b>
Up to 50	Good	None for the general population.	None required.
50 to 100	Moderate	Few or none for the general population.	None required.
100 to 200	Unhealthful	Mild aggravation of symptoms among susceptible people, with irritation symptoms in the healthy population.	Persons with existing heart or respiratory ailments should reduce physical exertion and outdoor activity. General population should reduce vigorous outdoor activity.
200 to 300	Very Unhealthful	Significant aggravation of symptoms and decreased exercise tolerance in persons with heart or lung symptoms in the healthy population.	Elderly and persons with existing heart or lung disease should stay indoors and reduce physical activity. General population should avoid vigorous outdoor activity.
Over 300	Hazardous	Early onset of certain diseases in addition to significant aggravation of symptoms and decrease in exercise tolerance in healthy persons. At PSI levels above 400, premature death of ill and elderly persons may result. Healthy people experience adverse symptoms that affect normal activity.	Elderly and persons with existing diseases should stay indoors and avoid physical exertion. At PSI levels above 400 the general population should remain indoors, keeping windows and doors closed and minimize physical exertion.

**Continued on p. 14**

pollution because they can directly correlate eye irritation and raspy throats to smoke. Monitoring using the PM2.5 could provide earlier detection, warning and protection to risk populations. However, it is difficult to calculate the long-term effects from continued exposure of millions of people to dangerous levels of air pollution.

Additional information on particulate haze and

the new PM2.5 standard is available through the following WEB site, <http://www.geocities.com/HotSprings/n218/haze.html>, which was established to share air pollution conditions and information with the world.

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## The Gulf of Sabani

If you look on any map of the world in order to make travel plans for a nice vacation, you will not see the Gulf of Sabani (GOS), which includes the countries of Korona, Kartuna and Telari. However, for a significant amount of time this past summer, I was deeply involved in a joint training exercise there and have some travel stories to share.

JTFEX 97-3 is a USACOM directed, CINCLANTFLT executed, scenario-driven, joint exercise, which helps train our forces against third world territorial threats. In reality, this translates into the final training evolution prior to a Carrier Battle Group and Amphibious Ready Group's deployment, provides an opportunity for the Marine Expeditionary Unit to become Special Operations Certified (SOCEX), and other objectives which cannot be discussed due to the nature of security clearances.

My job was to assist COMSECFLT Surgeon in her quest to improve and enhance medical training objectives without significantly impacting the goals and objectives of the task force. This was our challenge and in my opinion, we achieved success.

The GOS is the Middle East super-imposed on the Eastern Shore of the United States with actual

geographical dimensions. In past exercises, if a ship disregarded the "notional" geography, their superior would tell the CO that they have run aground!

In order to develop the scenarios correctly, background messages were drafted using information derived from the MEDIC CD-ROM to develop realistic disease threats for GOS. In addition, CDR Conlon (Medical Entomologist) provided us with background information on GOS snake, scorpion and spider threats.... (Can't have a field operation without a vector-borne illness.... that just wouldn't be right!). As an EHO assigned to the JOIST (Joint Operations Intelligence and Simulation Team) as medical scriptioner, you can imagine there had to be at least one food-borne illness (FBI), dog-bite incident, tuberculosis, meningococcal meningitis, thirteen-spotted black widow spider bite and waterborne incident.... (Simply goes with the territory!).

My favorite scenario involved a German NATO Officer from the USS Mount Whitney. Our role player graciously volunteered to be a Koronan Intelligence Officer defecting from his country due to possible biological warfare (BW) agent exposure. The scenario involved requests for airlifts, asylum from the U.S. Embassy and involved NATO, NCIS and Medi-

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**The Gulf of Sabani****Continued from p. 14**

cal department personnel. Medical personnel are not commonly presented with Top Secret information, our goals were to test their response to unusual medical issues, (BW exposure, diagnosis and treatment) and decisions about which higher authority to contact if presented with highly classified information.

Another favorite scenario involved an FBI associated with a Steel Beach picnic (presented to 4 separate commands to compare responses). I re-searched the lot numbers and addresses of the local vendors for the ships in the Carrier Battle Group to ensure my ALFOODACT was as accurate as possible. All JTFEX 97-3 message traffic was clearly labeled \*\*EXERCISE \*\*\*\* EXERCISE \*\*\*EXERCISE, however, one FSO did contact me at the JOIST because he couldn't quite make out the lot number on the box of hamburger patties in his freezer and was ready to cancel the "sliders" for that day! The information packets were comprised of menu items, patient profiles, and food histories, which were given to the CMCs of the ships involved. Packets were delivered to medical department personnel over a three-day period, each one building upon the previous one until the outbreaks were in full swing. All of the ships had an "out" because had they read and responded to the ALFOODACT, i.e. messaged that they had put the item into a medical hold status and served something different, no further action would be required. The plot thickens as our "notional" FBI, caused by *E. coli 0157.H7*, just happened to coincide with the nation's largest recall of ground beef last summer!!!

**Meningococcal Disease****Continued from p.9**

Transmission of meningococcal disease is person-to-person by pharyngeal secretions; however, the vast majority of those exposed do not develop invasive disease, (although they may become asymptomatic carriers) and most patients with meningococcal disease have not had direct contact with a symptomatic patient. Asymptomatic carriers are thought to be the major source of transmission of pathogenic

As most of the information packets were disseminated to POCs during the final planning stages, during the JOIST watch periods, I became AFMIC, BUMED and FBIS (Foreign Broadcast Information Summary) and developed various intelligence products to add realism to the JTFEX and SOCEX medical play. I was also asked to provide information to other scripters to include psychological operations, human intelligence (CIA), opposing forces, naval air forces, mine countermeasures and Naval Criminal Investigative Services to enhance their respective intelligence scripting.

The exercise was a positive learning experience for a variety of reasons. Generally speaking, in our business, we are called upon to respond to preventive medicine "problems," this exercise provided the opportunity to create those "problems." JTFEX 97-3 allowed for complete Unit involvement as each department provided insight and information through the development of the scenarios. Medical departments afloat also benefited from training objectives incorporated into task force training elements. The exercise also provided me with an opportunity to work with the intelligence community and document the value of incorporating medical assets into training evolutions, not to mention another whole set of Navy acronyms.

If given the opportunity, I would strongly recommend volunteering for the role of medical scripter during a JTFEX! However, it is essential that you upgrade your present security clearance to the required level, to allow complete participation.

**S. M. Wright, LT, MSC, USN**  
**Environmental Health Department,**  
**NEPMU-2**

strains: *N. meningitides* is carried in the normal nasopharyngeal flora in about 25% of Americans (percentages range from 4% to 80% depending on the season, locale and degree of crowding). Screening for asymptomatic carriers is not recommended.

The U.S. strategy for the prevention of meningococcal disease includes quadravalent vaccination of high-risk groups, combined with chemoprophylaxis of close contacts of newly identified cases. The current meningococcal quadravalent vaccine pro-

**Continued on p. 16**

CIHL CHAT:

## Determination of Asbestos in Tile Mastic

In the last *CIHL CHAT*, we talked about identifying asbestos in floor tiles. Sometimes, when a floor tile sample is submitted for analysis, there may also be mastic attached to the bottom of the tile. In this case, it is important for both the tile and the mastic to be examined for asbestos content. One of the problems encountered during analysis of the mastic is that the adhesive interferes with the colors observed using polarized light microscopy (PLM).

When analyzing mastic, a representative sample is examined using a stereomicroscope for the presence of visible fibers. If fibers are observed, and they can be isolated without the mastic, they can be directly analyzed using PLM. If no fibers are observed, a small portion of the mastic is removed and treated with a solvent to dissolve the mastic and isolate the fibers. We have had good success using xylene, which can readily dissolve tar and is moderately effective on other types of adhesive. Xylene is flammable and has an OSHA permissible exposure limit (PEL) of 100 ppm. Toluene may also be used,

but it is slightly more volatile and is a recognized reproductive hazard to a developing fetus. Mastic samples treated with solvent should be prepared using a solvent hood, or an asbestos hood equipped with a charcoal filter so that an analyst is not exposed to the solvent. Additionally, care should be taken to minimize skin contact when working with these solvents.

We use a small watchglass to dissolve the mastic because only a small amount of solvent is required. We find that once the mastic is dissolved the fibers are much easier to isolate. They can easily be moved up the sides of the watchglass with a dissecting needle. The solvent is allowed to evaporate and the remaining fibers can be analyzed using PLM. Be sure that the solvent has evaporated completely—residual xylene can alter the colors observed by PLM. This procedure can also be used to isolate fibers in tar paper and tar roof shingles.

If you would like more information about asbestos analysis, or have any other questions or comments, please contact the NEPMU-6 Pearl Harbor CIHL at (808) 474-4428, DSN 474-4428. Your comments are welcomed and appreciated.

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### Meningococcal Disease

**Continued from p.15**

vides protection against serogroups A, C, Y and W-135. The vaccine does not provide protection against group B meningococcal disease; however, efforts to develop a group B vaccine are underway.

Currently all Navy and Marine Corps enlisted recruits receive the meningococcal vaccine early in the course of recruit training. This practice is intended to prevent epidemics of the disease in recruit training centers where, historically, such epidemics have occurred: isolated cases of meningococcal disease, particularly of *N. meningitidis* serogroup B, may still appear.

Meningococcal vaccine should be routinely admin-

istered to asplenic persons (over the age of 2 years), since these persons are particularly susceptible to serious meningococcal infections. The vaccine may also be recommended for travel to certain areas if the disease is highly prevalent in the area and the traveler will have extensive exposure to indigenous populations. Vaccination is not a requirement for entrance into any country, however, it is required for pilgrims to Mecca, Saudi Arabia for the annual hajj, and all personnel deploying to USCENTCOM AOR.

**B. Schibly, CDR, MC, USN**  
**Epidemiology Dept**  
**NEPMU-2**

**Welcome Aboard!**

**Fair Winds and Following Seas!**

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NONE

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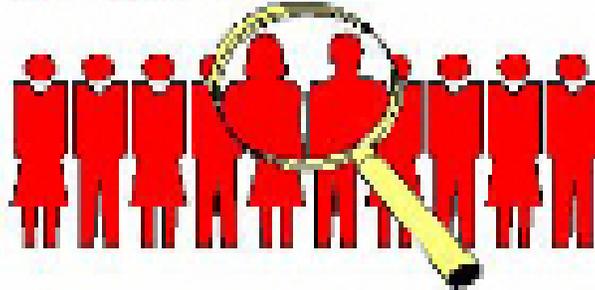
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