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From the OIC:

Chemical/Biological Warfare Close to Home

Recently I had the opportunity to attend an international conference in Croatia titled "Chemical and Biological Warfare Without Chemical/Biological Weapons." The theme is chillingly simple: *What would be the effect on the surrounding community if a chemical plant or a biological research facility were deliberately targeted by a battlefield commander or a terrorist?*

Croatia is a perfect setting for such a conference. Their 1991-95 war with Serbia was fought almost entirely among civilian population concentrations. The ancient walled city of Dubrovnik on the Adriatic coast was shelled relentlessly while the residents took shelter in their homes. Several chemical plants and chemical storage sites not far from the capital city of Zagreb were purposely bombed. It was this experience that the Croatians offered to share with the international scientific community.

A highlight of the conference was a

mock attack staged at one of the chemical plants bombed during the war. We watched from a nearby hillside as real military jets made low-level bombing runs on the plant. Live explosives sent towering clouds of smoke billowing into the air, far above the 250 foot static head of the water suppression systems. This plant produced ammonia and sulfur compounds, among other chemicals. Gases released in an actual attack would be deadly complex mixtures. The lesson was clearly visible to us. In an attack such as this the plant operators will not be able to control toxic emissions at the source. Clouds of deadly vapors and fumes will sweep across the countryside, over farms, towns, and cities. Casualties from such an incident could number into the thousands, as we learned from the chemical accident at Bhopal, India.

For the remainder of the week we discussed specific incidents from the war,

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Upcoming 50th Anniversary

Attention All! On 9 March 1999, the Navy Environmental and Preventive Medicine Units will be celebrating their historic 50th Anniversary! The NEPMUs invite everyone to give our staff your personal feedback. Tell us what your NEPMU means to you, or to your command.... Simply e-mail your responses

to:
epc0epu2@bumed30.med.navy.mil :
Attention: 50th Anniversary Committee.
You may choose to fax your comments at
DSN 564-1191 or
commercial (757) 444-1191.

We look forward to hearing from all of you!

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

From the S.E.L.



I want to recognize two departures, my own and HMCM Jackie Brown's. As my tour at NEPMU-7 comes to an end, I can truly say this has been the most challenging and the most rewarding tour of my career. I'm not going far. I'll report to NEHC in April, and if you need assistance feel free to contact me. I make way and welcome aboard HMC Jimmie Mayweather, who reported from II MEF, Camp Lejeune, NC. I know Chief Mayweather will do a magnificent job with the sailors and their families here at the MAGNIFICENT SEVEN!!!

For the Preventive Medicine Community as a whole, today is a cause for celebration, not sorrow, for the recent retirement of HMCM Jackie Brown. I say celebration because of all of the wonderful things he did, but here and there, there will be a touch of **personal sadness** as is true of any departure. History is not just a matter of dates, what makes history is what comes before and what comes after the dates that we all remember. The story of Master Chief Hospital Corpsman (Surface Warfare) Jackie D. Brown began 25 years ago when HM2 Jackie Brown decided to attend Preventive Medicine Technician 'C' School. Little did he know then that he would play a major role in reshaping the Navy's preventive medicine program for its enlisted members.

HMCM Brown dedicated 25 years to the preventive medicine community, ensuring its success over the years through his exceptional leadership and foresight into the future. He empowered Navy Medicine to select and train the highest quality PMTs within the tri-services, which today has significantly enhanced the operational readiness of our preventive medicine community and DOD. Was he a visionary or was it destiny that enabled him to uphold and sustain these initiatives/values over the years, which we now call Navy Core Values of Honor, Courage, and Commitment? These are words that Jackie has preached and lived by for all of his life, words that we should abide by in our daily walk through life. HMCM Brown is a legend and mentor to past, present and former PMTs and yes, his legacy and vision will continue on. That's what the celebration is all about and the rest is H.I. S.T.O.R.Y.!!! WE LOVE YOU JACKIE BROWN and to this we extend the traditional FAIRWINDS AND FOLLOWING SEAS.

HMCS (SW/AW/FMF) COURTNEY O. ABRAMS

Think Populations



See Individuals

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Chemical/Biological Warfare Close to Home

(Continued from page 1)

lessons learned, and theory. For example, the Croatian Nuclear Commission described the hazards from lightning rods downed by the shellings. Many lightning rods contain small radioactive sources to enhance their effectiveness. During the shellings, these sources were scattered throughout population centers. Fortunately, Croatia had a pre-war registry program which allowed authorities to locate and retrieve most of the radioactive sources, but the process took months.

We even debated whether anyone can really prepare for a catastrophe like a chemical or biological plant attack. When you add in all the uncontrollable variables, the uncertainties, and the sheer chaos, it's hard to argue that anyone can ever be fully prepared for disaster. But experience has shown the benefits of advance planning and preparation. The Croatians discussed various ways that their community governments, military, and industry are working together to plan and prepare for possible disasters in the future. The war made believers out of them.

There were other practical demonstrations at the conference to show some new equipment which can help prepare for and recover from disastrous incidents. **DISCLAIMER:** This discussion is not meant as an endorsement of any of the products or companies mentioned, but is simply an illustration of some of the means available for dealing with emergency situations.

The Canadian Defense Research Establishment (www.dres.dnd.ca) demonstrated, again using live explosives, a bomb suppressant system. The suppressant foam is pumped into a small, tent-like structure placed over a bomb. When the bomb goes off, the foam absorbs the blast and also neutralizes most chemical and biological agents.

Crosco Chemical Company of Croatia demonstrated a system to extinguish uncontrolled oil well fires. A mixture of nitrogen gas and water is pumped from a nozzle on a boom. The water cools and the nitrogen smothers, cutting two legs of the fire triangle. We sat close enough to feel the tremendous heat of the fire. The extinguisher worked in seconds.

The Drager Company of Germany, maker of the familiar chemical detector tubes, displayed new five-tube sets specifically designed for use in civil defense situations. You break the five tops at the same time and simultaneously draw five sample gases common to urban accident scenes. They also showed new technology they are developing which will replace the common de-

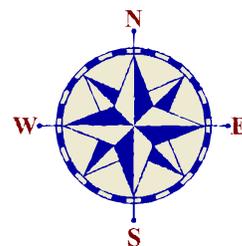
tector tubes with a microchip sensing system. There will no longer be a need to break tubes open and draw gases through them.

And finally, plant engineers from a Croatian chemical plant which was bombed in the war described how they now use the DuPont SAFER/TRACE computer modeling system. Through computer modeling they are able to plot accidental chemical releases from their plant and predict gas cloud movement under real conditions of topography and prevailing winds. The system will eventually be fitted with chemical sensors placed in the countryside around the plant to trace gases should an accident actually occur.

My point is that chemical and biological warfare is not solely a deployment concern. It can come to us anytime and anywhere, at home or at work. Recall some of the events which have actually taken place recently. Letters were mailed to a clinic saying they contained anthrax; a package marked "anthrax" broke open on a Navy flightline; a railroad tank car crashed near a town releasing toxic chemicals; there has been a rash of apparently deliberate poisonings in Japan. When I see these stories in the news I always ask myself, how would I respond if I were the one to get the first frantic call for assistance? It gives me the chills every time I think of it.

To help us prepare, we at NEPMU 7 have started a series of "mini-war-games." We divide up into four groups: Perpetrators, security forces, NEPMU, and Naval Hospital. The "perpetrators" instigate and control the scenario: War, terrorist attack, or accident, either biological or chemical. The others do not know what the cause is. They only see the results, and must respond as the situation unfolds, getting only as much information as would normally come their way in a real casualty. Hopefully these drills will hone our skills for dealing with a catastrophe. The benefit for us is that the scenarios are tailored to the way we would respond if an incident occurred in our own backyards.

CDR THOMAS ANDERSON, OIC, NEPMU 7



Malaria Resurgence in Europe

Global Impact of Malaria

The World Health Organization estimates that two billion people (about half of the world's population) are at risk of malaria exposure. Each year, 300-500 million people become ill from this deadly parasitic disease that is responsible for more than several million deaths. Every hour, 200-300 children die. The most affected children are under five years old (approximately 800,000 in 1995). If malaria is not brought under control, these numbers will escalate further. Pregnant women and non-immune adults are also severely affected. Families and communities suffer worldwide, as do national and global economies.

European Situation

Malaria was widespread in Europe in the 19th century. The discovery of the Plasmodia cycle was not until the late 1800's. From 1946 to 1951, campaigns began to expunge malaria in Cyprus, Sardinia and Greece, with nearly all of Europe reaching malaria eradication by 1973. Despite all efforts, malaria began its European re-emergence in 1990, with several Anopheles mosquito species endemic throughout the European theater.

Several factors have contributed to the re-birth of malaria in the European region:

- Socioeconomic instability of the independent states of the former Soviet Union
- Mass population movements and civil unrest
- Import of malaria parasites via people or animals to areas where mosquitoes may spread the disease
- Lack of funds and trained personnel
- Malaria not recognized as a high profile disease

Imported malaria cases may occur via:

- Refugees, travelers and immigrants
- Infected female Anopheline mosquitoes "stowing away" on ships and aircraft
- Environmental changes (natural or manmade) that support the malaria life cycle
- Drug and pesticide resistance
- Improper drug prophylaxis and/or personal protective measures

According to recent CDC (Centers for Disease Control and Prevention) reports, the following highlights the current malaria risk scenario in Europe:

Eastern Europe: Armenia - eastern border areas, Azerbaijan - southern border, Khachmas area in the north, and the Baku suburbs. Tajikistan - mainly in southern border areas, but also in some central and western areas.

Western Europe: has a growing problem with drug resistance and international travel. "Imported malaria" has been increasing steadily since the 1980's.

Southern Europe: is at risk due to possible imported cases. The vectors for malaria are present, with population movement and migrant workers as important factors.

Northern Europe: is at risk due to presence of the mosquito vector; however, dramatic changes in the condition of the ecological and socioeconomic structure would be necessary to support the disease.

What is to be done for Europe?

As part of a long term strategy for the control of malaria in Europe, WHO Regional Office for Europe has set up the *European 1998-2000 Malaria Surveillance and Control Program* with two offices - one in Rome, Italy and the other in Moscow, Russia. The proposed European-wide strategy for the next two years is to:

- establish surveillance and early warning systems for the timely detection of epidemics,
- strengthen national capabilities in malaria case detection and treatment,
- improve technical capabilities of public health personnel, and reinforce the capacities of public health services,
- reinforce health education and information on malaria prevention.

Individual Protection Remains the Key

The species of malaria occurring in humans (*Plasmodium vivax*, *P. malariae*, *P. falciparum* and *P. ovale*) determine incubation period and severity of symptoms which usually begin 9-30 days after infection. Symptoms can include fever and flu-like symptoms, chills, general aches, and tiredness. Untreated malaria can cause anemia, kidney failure, coma, and death.

DEET (diethyltoluamide), the most effective repellent currently available, should be applied to exposed skin. Permethrin-impregnated clothing, bednetting, and screens are very effective when venturing into at-risk areas. Further, long sleeves and pants should be worn

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Check your Prime Vendors

As the Department of Defense gets smaller, the ways of doing business on a daily basis continue to change with improving technology. It would appear that everything is getting better and smoother. In the area of dry stores, shifting from huge supply warehouses to Prime Vendor has its advantages. The shelf life is usually better, products are fresher, and response time (from placing the order to receipt of product) is much faster.

However, as with any new development, there are glitches, and we should not relax our standards because we assume that things will be much less complicated. Such is the case with stored products' pests in Prime Vendor products. In the Norfolk area, there have been such complaints - many identified after the vessel has deployed. Once this happens, it may be difficult to obtain a refund or replacement. So here are some simple steps that might help reduce the headache that still exists from a simplified system.

1. Continue your pier side and routine storeroom inspections. Make sure your 'Jack of the Dust' is trained, qualified and doing his/her job correctly for early detection of pests. Rotation of stock is part of his/her job and weekly inspections for stored products' pests will help identify an infestation early. The use of pheromone traps can be a useful survey tool. Early identification of the infestation, either at the pier-side or in the dry stores, is the best way to keep it from spreading. If you do find an infested product, get it out of the dry stores area and dispose of it as quickly as possible. Removing the product reduces the potential of additional dry stores becoming

infested.

2. Keep the dry stores clean, without spills or leaks. When dry stores spills are not cleaned up, they become optional sources of food for the pests, and the infestation will spread quickly to other stock. Having clean dry stores, especially prior to deployment, not only reduces the potential for infestation from stored products' pests, but it also validates that the infestation was not on board prior to on-load of the Prime Vendor's products. This will assist with claims to FISC for reimbursement or replacement.

3. Once the infestation is identified, determine the source. As I mentioned above, clean dry stores spaces, properly rotated stock, and early detection of the newly received infested product, could aid in reimbursement or replacement by the "Prime Vendor" company. Have your Supply Officer contact FISC and seek advice for the claim. Most Prime Vendor companies want Navy business and they can be very cooperative with addressing the matter. However, if the stock hasn't been rotated in six months, there are numerous infested spills, or if there is an old infested stock in the space, your ship may needlessly absorb the expense. Worse yet, your ship may be the source.

In closing, keep doing your job. You always look good any time you can save your ship some funding. It also increases your credibility and reputation with ship's company. If you need any additional assistance, then contact your area Navy medical entomologist at the NEPMUs or DVECCs.

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Malaria Resurgence in Europe

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from dusk to dawn, as the Anophele mosquito is most active during this period.

There are several types of drugs available (as properly prescribed by a physician) to combat the malaria parasite in pre-, during, or post-exposure phases. Medications are usually taken during all three exposure phases when visiting a known malarious area. These drugs include: Chloroquine, Mefloquine, Tetracycline, and Primaquine.

A Final Thought

Taking anti-malaria drugs is so much easier to live with than dying from the disease. Hence, "Falling ill is not something that happens to us, it is a choice we

make as a result of things happening to us."

--- Jonathan Miller, *The Body in Question*

HM2 BRENT SNYDER AND HMC (FMF) PHIL ST.ONGE
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OPERATION HANDCLASP

With AIDS Orphanages in Romania



Operation HANDCLASP is a humanitarian operation where U.S. Navy ships offer assistance to the community in the ports they visit. One of these operations was conducted in Constanta, Romania. Constanta is a commercial shipping port and home to the Romanian Navy. It is situated on the western coast of the Black Sea. I provided safety and health support to renovation and construction teams from U.S. Navy ships and to Seabees rendering humanitarian assistance to local orphanages there - including AIDS orphanages.

Prior to Ship's crew arriving at the orphanages, I met with the Children's Infectious Disease section of the Municipal Hospital of Constanta to determine the infectious risks to the ship's crew. According to the Head Physician, children with AIDS frequently carry other contagious diseases such as: recurrent pneumonia; pulmonary and extrapulmonary tuberculosis; lymphoid interstitial pneumonia and pneumocystis carinii pneumonia.

The Head Physician shared much valuable information with me: since the 1990 revolution, 1,500 known cases of children with AIDS have been followed; six hundred of these children have died; six hundred more are in community and the remaining three hundred are institutionalized. According to the World Health Organization, fifty-four per cent of all European children with AIDS are in Romania.

Children are tested for tuberculosis (TB) every three months. Because AIDS interferes with the standard PPD test, only acid-fast sputum smears are done. Children positive for TB are not isolated from the other children. Presently three children in a hospice at Cernavoda and two children at the hospital are suffering from acute tuberculosis. The treatment they receive is rifampin, pyrazinamide, isoniazid and ethambutol. Although all HIV positive children should receive prophylaxis for TB it is expensive and only a few do. The prophylaxis consists of isoniazid and rifampin or isoniazid and pyrazinamide. Very few children receive medications to treat HIV, such as AZT, 3TC and Indinavir. None of the children in the orphanages that the ship's crew was visiting were positive for TB.

We discussed other opportunistic and contagious diseases that AIDS children are susceptible to. These included skin diseases, such as scabies and herpes and other mycoses. Many children are subject to weight loss, diarrhea, *Candida albicans* and *molluscum contagiosum*. She

assured me that healthy crewmembers, who are visiting for a half-day, would not be susceptible to these diseases, provided they are careful not to touch any open sores on the children. There was one child with a necrotic lesion on his neck that we were particularly cautious about.

I discussed this information with the ship's Medical and Dental Officers and we developed recommendations. I forwarded all of this information I collected, with recommendations to the U.S. Navy Commander assigned to the Defense Attaché Office, the Community Relations Officer who is the ship's chaplain, and the Seabees. Specific instructions were given for no sick crewmembers to visit the orphanages since the AIDS children have very little resistance to any diseases. In addition it was recommended that all crewmembers that participated in the HANDCLASP operation receive a PPD test three to four months after the event. Health care providers were to observe universal precautions when rendering humanitarian medical and dental checks for these children. Crewmembers should not work on sewage systems without gloves, to avoid potential cuts or scratches being exposed. We recommended that no ventilation systems be renovated. The crewmembers should be allowed to play with the children. All crewmembers were advised to wash their hands after finishing their work.

We visited five orphanages. The first facility had twenty-four AIDS children. At this site the teams worked on landscaping, repair of appliances and repair of the roof. The second orphan-care facility housed eighty orphans. These children did not have AIDS. One room housing about twenty little girls had no heat. The team took apart the steam radiator and flushed it. Qualified ship's electricians also provided electricity. Some of the internal wiring, which was not functioning, was replaced or reconnected. Precautions were observed that no systems worked on were energized as well as for proper grounding. In the third home, where ten children in the advanced stages of the AIDS are afforded to die with the care and affection of a "family," landscaping work and the installation of a playground were conducted. We visited a fourth facility; home to thirty orphans who did not have AIDS, to evaluate it for future assistance. Because the ceiling was severely leaking and

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Meningococcal Meningitis In San Diego Personnel

N*eisseria meningitidis* causes spinal meningitis (meningococcal meningitis) in young adults. It is endemic worldwide, though epidemics also occur. In the United States, most cases of meningococcal meningitis are due to serological Groups B and C, although Group A is the most common cause of major epidemics worldwide. Up to 5-10% of populations in areas with endemic disease may be asymptomatic carriers of the bacteria. During epidemics, this rate can be closer to 50%, especially under crowded conditions.

Meningococcal meningitis is transmitted by direct contact, primarily by respiratory droplets from the nose and throat of infected persons. The spread of disease is of particular concern in crowded conditions such as in a barracks or on a ship. Meningococcal meningitis is characterized by a sudden onset of fever, intense headache, nausea and vomiting, stiff neck, and rash. The incubation period is usually three-four days, although it can range from two to 10 days. With early diagnosis and treatment, mortality rates are between 5-15%. Treatment of meningococcal meningitis is with intravenous penicillin or other antibiotics.

All recruits are immunized against four of the most common strains of meningococcal meningitis. The quadrivalent polysaccharide vaccine contains group A, C, Y, and W-135 polysaccharides. There is currently no licensed vaccine against Group B in the United States, but one is being developed. All close contacts of a patient with meningococcal meningitis need to be given antibiotics as soon as possible to try to prevent disease. Close contacts include those who have been touched by, kissed by, or who have shared eating utensils with, or were exposed to droplet contamination from the nose or throat of the infected individual.

Recently, there were three cases of meningococcal meningitis in Naval personnel assigned in San Diego. Two of these cases were confirmed to be meningococcal meningitis (one Group Y and one Group B) and one was considered a probable case. None of these three individuals had contact with any of the others and there was no common source for their disease. In all three cases, close adult contacts were given either one dose of Ciprofloxacin 500 mg orally or four doses of Rifampin 600 mg (one dose twice a day for two days).

Personnel from the Navy Environmental and Preventive Medicine Unit No. 5 (NEPMU-5), from the Na-

val Hospital Camp Pendleton, and from the Naval Medical Center San Diego investigated these three cases. In two of these cases, the investigation included looking at the pharyngeal carriage rates of *Neisseria meningitidis* in personnel who were undergoing similar training, but who would not have been exposed to these cases. The carriage rate for personnel from one training area was 11% (range was 8 to 14%) and for personnel from the other training area was 20%. Personnel from the former training area spent considerable time in the field which possibly accounts for their lower carriage rate.

The third case occurred aboard a ship. Shipboard personnel who were considered close contacts included those who berthed with the ill individual, those who worked with him, and those who were his friends. They were all prophylaxed with ciprofloxacin. In addition, all crew members were educated by the ship's medical department on the signs and symptoms, mode of transmission, complications, and treatment of meningococcal meningitis and were given instructions to report to the medical department if any of these signs and symptoms occurred.

There were no cases of meningococcal meningitis reported in 1997 in Naval personnel in NEPMU 5's area of responsibility (AOR) – which includes all of the western United States, Canada, Mexico, and French Polynesia. The three cases reported here occurred in a two-week interval in October 1998; no other cases of meningococcal meningitis were reported in our AOR in 1998. This represents a significant increase for us. The local public health department in San Diego had no cases reported in October 1997 and had not had any reported in October 1998 until these cases occurred. But does this constitute an Outbreak? The available epidemiologic evidence suggests a “blip” rather than an “outbreak.”

Safety of the quadrivalent meningococcal vaccine has been demonstrated; complete efficacy against group Y strains has not. Our one case of group Y meningococcal meningitis in an individual vaccinated only months before reminds us that no vaccine is 100% effective. Personal preventive measures such as good handwashing practices need still be followed. Units in environments where handwashing facilities are not readily available may wish to consider procurement of the new waterless hand sanitizers.

**LCDR CHRISTINE BEADLE, MC, USN
EPIDEMIOLOGY DEPARTMENT
NEPMU-5**



New Partnership with San Diego-based Ships



Tired of doing more with less? How would you like to do less with more? Admiral Johnson's recent directives to slow down ships' in-port schedules provided NEPMU-5 the opportunity to change the way it provides environmental health and industrial hygiene services. Although COMNAVSURFPAC still requires both surveys, they will soon be available in a different and more palatable form. Instead of the traditional "survey," with its checklists and inspection teams, PMTs from NEPMU-5 will be assigned specific ships to assist with any and all preventive medicine matters. Through weekly visits, calls, and/or email, the NEPMU-5 PMTs will identify any shortfalls in San Diego homeported ships' preventive medicine programs and then will stick around to help fix the problems identified. Need someone to provide the annual Health Aspects of Marine Sanitation Devices training? Get your quotas for a class at NEPMU-5? Arrange for a workplace monitor to check one of your spaces? Prepare a pre-deployment brief? San Diego based ships will just ask *their* PMT to do it.

Representatives from NEPMU-5, COMNAVSURFPAC, Afloat Training Group, Regional Support Office, PHIBGRU THREE, and DESRON ONE came together at a recent meeting to discuss the best way to implement these changes. We decided that since large deck amphibious ships already have a PMT onboard, the best course of action was to assign a PMT TAD to PHIBGRU THREE—someone who could accompany HMCM Knieval on his QA visits. Other large ships such as carriers and subtenders would be assigned to our most experienced PMTs, since they too have their own onboard PMT.

Each PMT, excluding the one assigned TAD to PHIBGRU THREE, would be responsible for three to five ships. What used to be full scale environmental health (EHS) or industrial hygiene surveys (IHS) once every two years will soon become much less formal and more frequent visits by NEPMU-5 professionals. To demonstrate their strong support for this program, HMCM Jackson (RSO), HMCS Lewis (DESRON ONE), and HMCM Knieval (PHIBGRU THREE) will accompany PMTs on their first visit to introduce them and explain how the new system works. We've given ourselves a short timeline—to begin immediately after shipboard commanding and executive officers are notified of the new system. Officers from NEPMU-5 will visit with CO/XOs from each ship homeported in the San Diego area

to answer any questions.

PMTs will be able to harvest data from the ship's own log of medical interventions (SAMS) to identify potential problems in their early stages. An epidemiologist at NEPMU-5 can then analyze these data with special software and interpret the data and identify injuries or illness that appear in clusters. As a result, the PMT will be able to provide focused intervention to decrease occurrences and return crew time back to the ship. Everyone wins: the medical department has fewer patients, individuals have less illness/injury, and the crew spends less time at sickcall and more time on the job. This is what preventive medicine is all about.

Aircraft carriers and submarine tenders also have onboard PMTs. Our more senior PMTs will be assigned to these ships, since we still have to work out details of how to best use NEPMU-5's assets to assist these ships. We will continue working with the cognizant type commanders to establish the partnership that works best for these ships.

Any ship desiring a traditional EHS/IHS may of course request one, although we expect the demand to drop sharply once PMTs have had the chance to make a few shipboard visits. Why might a ship want an EHS/IHS? To serve as a baseline for newly commissioned ships, to document serious deficiencies from a PMT/IDC who was relieved for cause, or to raise concerns up the ship's chain of command when in-house cooperation from another department is lacking.

Over a period of time, NEPMU-5 PMTs will become very familiar with their ships' preventive medicine programs. As such, they will be in a position to recommend that their ships receive (or not) a waiver of the traditional EHS. This recommendation will be a formal one—in writing—and sent up the ship's chain of command. COMNAVSURFPAC has stated that since it considers NEPMU-5 to be the subject matter expert on environmental health issues, it will accept these recommendations for waivers the same as if a traditional EHS was completed. Recommendations for a waiver will be given when the ship is at a Preventive Medicine C-1 or C-2 status; PMTs will continue using our current checklists as an in-house tool to assess C-status. (Checklists are available on our website at <http://trout.nosc.mil/~nepmu5> or in COMNAVSURFPACINST 6000.1G and

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OPERATION HANDCLASP with AIDS Orphanages in Romania

(Continued from page 6)

the walls were also in poor condition, a different site, to which the center could move, was targeted for repair. The fifth site visited was another AIDS orphanage for forty-four children. It was evaluated for future renovation. This site was in great need of repair and aid. During a winter season where the temperatures dip to -20 to -30 C the children frequently have no hot water for over a week at a time. These children lived in very poor conditions.

Although my command of the Romanian language is minimal, I also served as liaison/interpreter during this visit. This was especially welcomed by orphanage staff and construction team leaders. I coordinated with orphanage staff to identify work that needed to be completed and then ensured that the proper teams were advised of the situation. Improvements were made to orphanage electrical, heating and plumbing systems. The teams performed landscaping, painting and installation of playground equipment at three of the facilities. Operation HANDCLASP assistance (food, clothing and medicine, as well as medical/dental care) was also provided.

A variety of health and safety challenges were encountered during the visit. I provided assistance and recommendations to the renovation and construction team leaders regarding safety and health hazards that are normally associated with construction activities. I collected

and analyzed samples of building materials to ensure that sailors and marines were not inadvertently exposed to lead, asbestos or other contaminants commonly used in construction of older buildings. No asbestos was detected and lead content was below the detectable limit. As a qualified Respiratory Protection Program Manager, I offered personal protective equipment such as respirators and impermeable suits to ensure the mission was accomplished safely. Additional samples of building materials were collected and analyzed from facilities targeted for future renovation by the Seabees. Again, no asbestos was detected and lead was below the detectable limit. All project coordinators and team leaders were kept apprised of findings and I provided on-site safety supervision throughout the undertaking.

Orphanage workers and children were all extremely grateful for the assistance provided. Knowing that their efforts were going toward helping the children was a motivational highlight for the deployed Sailors and Marines.

**LT WILLIAM HOWL, MSC, USN
INDUSTRIAL HYGIENE OFFICER
NEPMU-7**



New Partnership with San Diego-based Ships

(Continued from page 8)

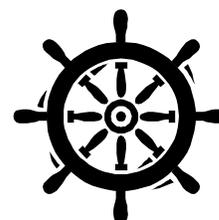
OPNAVINST 5100.19C.)

The PMTs will also be integrated into the delivery of industrial hygiene services. Industrial Hygiene Officers (IHO) visit ships once every 18 – 24 months, with minimal contact in the interval between visits. The PMT will be a frequent presence during this interval, serving to guide the ship through corrections of deficiencies identified in prior IH surveys. The PMT will also implement the ship's workplace monitoring plan, collecting quantitative data to definitively assess risk. Through frequent focused interventions and quantitative workplace evaluations, program deficiencies will be minimized, subsequent occupational disease and illness will be reduced, and potentially unnecessary programs will be eliminated. When the IHO returns for future visits, the ever-present PMT will have assisted the ship in resolving

deficiencies and will have gathered an abundance of IH related data. Together as a team, the IHO and PMT will combine knowledge to provide a periodic evaluation of the effectiveness of the ship's occupational safety and health program.

We are always looking for ways to better serve you—the people at the pointy end of the spear!

**LCDR JULIE DEL VECCHIO, MSC, USN
ENVIRONMENTAL HEALTH DEPARTMENT
NEPMU-5**



Adenovirus Vaccines In U. S. Navy Recruits

Adenoviruses have been causally associated with outbreaks of acute respiratory disease, or ARD, which typically occur in military training settings. ARD is a febrile respiratory illness with symptoms of sore throat and cough, rhinorrhea, headache, chest pain, and malaise. Symptoms typically last 3-10 days. ARD can develop into pneumonia and deaths have been reported. There is no specific therapy. Vaccines for adenovirus types 4 and 7 have controlled acute respiratory disease (ARD) in recruits since 1971.

The etiology of ARD is diverse, but in pre-vaccine days some 60-80% of ARD in recruit training camps was caused by adenoviruses. During a recent outbreak in unvaccinated recruits, over 90% of ARD cases were culture-positive for adenovirus. Vaccination is the only consistent control of adenoviral-related ARD.^{2,3} Environmental controls, such as germicidal sprays and UV sterilization, have failed. Cohorting—putting recruits into separate groups that have minimal interaction between groups—has been partially successful. Administrative controls such as handwashing have been anecdotally reported to have had limited success, but have proven unable to control outbreaks. Without adenovirus vaccines, outbreaks of ARD have the potential to shut down recruit training camps.

Prior to routine vaccination, adenovirus-associated ARD outbreaks were common, produced significant morbidity, placed a heavy burden on the medical care system, and interfered with military training and the supply of trained people needed to maintain a strong, prepared military force. In 1995, the sole manufacturer permanently stopped vaccine production. Existing supplies are expected to be gone by February 1999. A new manufacturer and production facility is needed.

Both the US Army and Navy have done cost-effectiveness analyses of reacquiring and using adenovirus vaccines. The analyses use different data sources and methods, are complementary, and show adenovirus vaccines to be both cost-effective and wise investments. Annual outpatient and inpatient morbidity, costs of illness (both medical and lost training), and vaccine program costs (including start-up, production, and distribution costs) were modeled in a decision analysis. For the Navy, results were based on 49,079 annual trainees, winter vaccine-preventable ARD cases of 2.9 per 100 person-weeks, summer disease incidence at 10% of winter rates, hospitalization rate of 7.6%, and new facilities costing

\$12 million. Compared to no vaccination, seasonal use averted 4,015 cases and saved \$2.7 million and year-round use prevented 4,558 cases and saved \$2.6 million. These are annual savings.

Reacquiring and using the adenovirus types 4 and 7 vaccines, seasonally or year-round, will save money, avert suffering, and contribute to a prepared naval force.

**RANDALL N. HYER, MC, USN
MEDICAL EPIDEMIOLOGIST
NEPMU-7**

Notes:

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Operational Preventive Medicine Course '99: A Forum for Lessons Learned

Where do I find malaria chemoprophylaxis information for Eritrea? Who can tell me what diseases will I find in Lithuania? What are the current emerging infections of concern in the operational environment? What should I expect from a Joint or multi-national operation? What is a MOPP, MAGTF, FDPMU, FSSG, T/O, and AMAL? Is there any way to make an MRE taste better? How many pairs of underwear should I pack in my sea bag? These are just a few of the questions that were answered during previous Operational Preventive Medicine Courses (OPMC) conducted annually at Navy Environmental and Preventive Medicine Unit No. 5 (NEPMU-5) in San Diego.

The objective of the OPMC is to identify mission critical public health concerns in operational settings, with an emphasis on planning and practical management of preventive medicine operations from pre-deployment to post-deployment. The Course is a forum for lessons learned during field operations, from Vietnam to Desert Shield/Storm, Restore Hope, Native Fury and Tandem Thrust; and, for 1999, CENTAM Relief. The course brings together instructors and students and provides them with opportunities to share personal operational experiences and to network with other public health professionals. The student learns through lectures, hands-on activities, and scenarios. The course relies on instructors who are subject matter experts on a variety of public health and medical topics, as well as instructors with extensive deployment experience. This provides the student with not only the current issues in operational preventive medicine, but also the practical aspects of deploying to the field. Included in the Course is a two day field exercise which allows the student hands-on experience with preventive medicine equipment and procedures and "living-in-the-field" skills.

The Operational Preventive Medicine Course will be conducted at NEPMU-5 from 07-18 June 1999. Some of the topics to be covered during this year's course include epidemiology, international health care issues, field medical entomology, chemical/biological warfare, pre-deployment planning, after-action reports, venomous animals, briefing techniques, lessons learned, and Fleet Marine Force organization. We generally are able to award about eighty hours CME to physicians and CEUs to IDCs.

Although the Course primarily targets physicians, it is open to Navy active duty and reserve Medical Service Corps, Medical Corps, Nurse Corps, Dental Corps officers, as well as PMTs and IDCs E-7 and above. E-5s and E-6s will be considered on a case-by-case basis. The student's command is responsible for funding and for arranging travel and billeting. To request a quota, contact the NEPMU-5 Training Department at DSN: 526-7086 or commercial (619) 556-7086. For more information contact LCDR Medina, the Course Coordinator, at DSN: 526-7077 or e-mail: mjmedina@nepmu5.med.navy.mil. You can also obtain information and register online at the NEPMU-5 website at <http://trout.nosc.mil/~nepmu5>.

LCDR MICHAEL J. MEDINA, MSC, USN
OPMC 99 COORDINATOR



Adenovirus Vaccines in U. S. Navy Recruits

(Continued from page 10)

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Preventive Medicine Support for NMCB 74 Detachment Nazareth, Ethiopia

Ethiopia is a country in which I never imagined I would have the opportunity to work. Until recently, my only exposure to it was in National Geographic specials or the news. However, the Naval Mobile Construction Battalion (NMCB-74), Okinawa, Japan had a Deployment for Training (DFT) detachment in-country, working on the construction of a school for the town of Nazareth. The U.S. Naval Central Command (NAVCENT) was coordinating force protection for the DFT and directed the detachment to move from a hotel to tent campsites. NAVCENT requested U.S. Navy Environmental and Preventive Medicine Unit Number 7 (NEPMU-7) to provide one Environmental Health Officer and a Preventive Medicine Technician to perform the site survey.

NEPMU-7 sent HM3 Robert F. Kabata and myself to Ethiopia to conduct a survey of the proposed tent campsite. The DFT was also experiencing a serious diarrhea problem and the team was asked to assess this problem. The NEPMU-7 team was in-country for ten days, making observations and providing preventive medicine recommendations to NMCB-74.

When the NEPMU-7 team arrived in Ethiopia, the DFT was living at the Rift Valley Hotel, just outside of Nazareth. Nazareth is a small town 60 kilometers southwest of Addis Ababa the capital of Ethiopia. The hotel was nice and clean with very friendly workers who went the extra mile to ensure the DFT was as comfortable as possible during its stay. The hotel prepared and served all meals consumed by the DFT. Our inspection of the kitchen found a large number of flies in the area, due to open, unscreened doors and windows. Most food appeared to be cooked thoroughly. The team advised all DFT personnel to return any meat that was not done throughout for further cooking. Ethiopia uses night soil for growing vegetables and the kitchen staff did not wash the fruit or vegetables before serving them. As a result, we advised all DFT personnel not to eat the raw vegetables. Fruits and fresh salads were most likely the major causes of the diarrhea problems. By the time the team left Ethiopia the number of diarrhea cases had dropped significantly. DFT personnel were drinking bottled water from a US-approved source obtained from outside of the country. The diarrhea problems could have been avoided if the personnel had received an environmental health and safety briefing on Ethiopia, obtainable from NEPMU-7, before deploying.

The NEPMU-7 team conducted an environmental health and safety inspection of the construction site. The DFT had dug a straddle trench latrine. The Ethiopian Army personnel working with the Seabees were not using it correctly. After defecation the personnel were not covering the excrement with dirt. Plus there was no hand washing station. The NEPMU-7 team brought these problems to the attention of the DFT Independent Duty Corpsman (IDC). Two days later the DFT constructed the nicest burn barrel latrine I have ever seen. This latrine had all the comforts of home except running water. Inside the latrine there was a magazine rack with magazines, a cover rack, a toilet paper holder with paper, a cover for the defecation area and an in-use/vacant sign on the outside of the door. However, there was still no hand washing station. No other problems were noted at this construction site.

This construction project was a joint endeavor between the DFT and the Nazareth Children's Center and Integrated Development (NACID) Center. NACID, a Catholic funded organization, manufactured all the cement blocks used for the project. The NACID facility, located across the street from the construction site, contains an orphanage with 30 children living on the grounds. Also on the grounds is a school, a clinic with one doctor for both the orphanage and the surrounding villages and a family planning clinic. The doctor for the facility has been partially trained in England. One day the NEPMU-7 team had the opportunity to accompany the doctor on his rounds to the neighboring villages. When at the villages I felt as if I was in one of those National Geographic specials. It was truly an experience of a lifetime. The doctor showed us that NACID dug wells and put in water storage tanks for the villagers. This was the only source of potable water for the villagers.

The NEPMU-7 team and the DFT IDC visited the local hospital in Nazareth. This hospital is not one any American would want to use at any time. The reuse of disposable products, required because of a shortage of supplies, without proper disinfection between use is typical of this hospital. Unfortunately this is the only hospital available in the area.

The NACID grounds were to host one of the tent campsites the NEPMU-7 team surveyed. Two areas of the NACID grounds were inspected, the soccer field and an open field. The soccer field, really just a large open

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Partnership For Peace Exercise in Romania

Partnership for Peace Exercises are training exercises between NATO/American Forces and Forces of emerging Eastern European countries, meant to promote familiarity and enhance the ability of these forces to work together. One of these exercises was between the Romanian Military and a Marine Expeditionary Unit aboard ships deployed in the Black Sea. I provided industrial hygiene and preventive medicine support for operations at the Romanian Training Site.

This Amphibious Live Exercise took place on a large open plain in northern Romania, just south of Ukraine. The Exercise involved humanitarian assistance, medical and weapons static display, civil disturbance and security operations, weapons familiarization fire, defensive live fire, and mine awareness and mass casualty exercises.

I arrived in Romania with the Exercise advance party staff of several Marine Corps Officers from the Marine Expeditionary Unit. We all met with Romanian Military leaders the following morning. Prior to traveling to the training site for a pre-site survey, I visited the piers, where U.S. Navy ships would berth, to identify potential risks to American sailors. Several open plumbing utilities pits were found to present a hazard and were brought to the attention of the Force Protection Officer. The pits were all covered the following day. This prevented the all too frequent event of Sailors or Marines falling into pits and injuring themselves.

I joined the advance party and the Romanians to conduct a site survey of the training area and barracks. The barracks were in quite a state of disrepair, but workers were very busy preparing for the exercise, which would begin in a couple of days. I took building samples to analyze for asbestos and lead. I also took a sample of tap water and of bottled water for later analysis. Several pallets of bottled water for drinking were purchased in Romania. The analysis was done for gross alpha, gross beta, arsenic, barium, cadmium, chromium, copper, lead and mercury. The results of the analysis showed that all levels of contaminants were well below the EPA standards in both the tap water and the bottled water.

The position where the tents for berthing and operations would be staged, as well as the latrines and the bounds for the live fire exercise were visited. Road-blocks would be set up for safety throughout the exercise. The ground had become frozen, and two feet be-

low the topsoil was much less porous shale. The practice by participants, of urinating in random locations in the training area, could not be accommodated. Urine would stay on the surface of the ground, presenting a sanitation hazard; therefore, a large ditch, which ran to the side of the training site, would be used for urinating. This would isolate that operation, and thus prevent the training site from contamination.

I visited the local Romanian military and civilian medical institutions to learn their capabilities in case any of our troops would have an immediate need to be admitted to one of them. The flight surgeon, a medical planner/regulator, a member of the Sixth Fleet surgical staff and the two ship's doctors joined me. Our findings were turned over to the Sixth Fleet Surgeon.

After the convoy from the ships arrived and the amphibious assault vehicles, tents and latrines had been staged, NEPMU-7 returned to the training site and barracks. The barracks samples taken were analyzed. The analysis did not detect asbestos. The levels of lead were below the detection limit. The barracks were found to be very clean and quite habitable. Racks with mattresses were provided for 150 Marines and the other 100 Marines that stayed in the barracks slept in cots, which they brought with them. Shower facilities were present.

Another 70 Marines slept in tents at the training site. The latrines were located over 100 meters from the operations and berthing tents. The weather was cold and windy and heaters were in each of the tents. No evidence of rodents or pests was noted. Only one accident occurred where a Marine broke his leg on the last day of the live fire exercise while climbing out of a ditch at the training area during patrolling assaults. These types of accidents are difficult to prevent. The Marine lost his footing on the frozen ground. The point is that we were able to efficiently and effectively respond. The Marine was flown on an American helicopter to the Romanian Navy Headquarters and then brought by U.S. ambulance to the Ship.

We were able to provide valuable industrial hygiene and preventive medicine support to these Marines.

**LT WILLIAM HOWL, MSC, USN
INDUSTRIAL HYGIENE OFFICER
NEPMU-7**



On the Road with NEPMU-7 In Bohemia

U.S. Navy Environmental and Preventive Medicine Unit Number Seven's (NEPMU-7) CDR Byron Hendrick and HMC John Huettner recently visited the Czech Republic for a military-to-military event entitled "Biological Warfare Vaccination for Deployable Forces." The two-person team traveled to Ceske Budejovice, a small town in southern Bohemia where the actual four-day working conference was held. Both members were pleased to find the Czech military doctors eager to share information about many areas of military health and preventive medicine.

The conference moderator was the Chief Hygienist of the Czech Army, a Ph.D. epidemiologist and colonel with almost thirty years military experience. Of equal rank and academic stature was the director of the Central Military Medical Institute (CMMI) in Prague. The director of the Ceske Budejovice branch of the CMMI, hosted the conference whose attendees also included directors of the other two branches of the CMMI, located in Brno and in Plzen, as well as heads of epidemiology departments of each site. The leaders of military preventive medicine in the Czech Republic were well represented at this interchange.

CDR Hendrick initiated the conference with a briefing on standard vaccination agreements (STANAGS) between NATO countries and their observance in U.S. Forces. HMC Huettner presented on the hierarchy of controlling institutions for immunization planning, the processes of vaccine development and implementation, the importance of a strong NCO corps in military medicine and its use in units such as the Navy Forward Laboratory and the Theater Medical Surveillance Team. CDR Hendrick explained the basic regulations and documents of U.S. vaccination policy, the reporting system for epidemiological data, medical support in a biological environment, the use of antibiotics and chemoprophylaxis in the U.S. Armed Forces, and the vaccination of US troops against biological warfare agents.

The Czechs took note of the U.S. Navy's use of enlisted corps in accomplishing the medical mission and were especially interested to learn that we have enlisted medical personnel who not only run all the preventive medicine and other medical programs aboard a ship but see patients, diagnose illness, prescribe medicine and even perform surgery if called upon to do so (independent duty corpsmen). As all non-officers in the Czech Army are

conscripts, the idea of a volunteer force that would work more intimately with the professional side is a novel, yet interesting approach that they are considering embracing.

The Czechs provided a good deal of information on the organization and tasks of their medical corps, the structure of their military hygiene service, and an overall scheme of their vaccination programs. A tour of the laboratory facilities was provided, as well as an inspection of the serum bank. The medical surveillance of deployed forces was discussed and the benefits of certain aspects of the EpiNATO Disease/Non-battle Injury (DNBI) reporting system were emphasized. A number of tropical medicine topics of interest to the Czech representatives were also covered.

Throughout the week, it was obvious that Czech military medical professionals were dedicated to preserving the health of the Czech Army and were very knowledgeable about all issues concerning this goal. The Czechs were receptive of similar conferences in the future to exchange information on compliance with NATO directives on DNBI surveillance and the capabilities of U.S. Navy environmental and preventive medicine units in supporting NATO missions.

HMC JOHN D. HUETTNER
MICROBIOLOGY DEPT.
NEPMU-7

New Health Promotion Department at NEPMU-2

NEPMU-2 in Norfolk has recently stood up a Health Promotion Department to provide direct program support to the Atlantic Fleet and Fleet Marine Force. A primary goal for the staff is to reach out to the TYCOMS and assist with the establishment, development, maintenance, and evaluation of worksite health promotion programs. The key message is to know that wherever your command is on the continuum of implementing a worksite wellness program, from just thinking about getting started or "well" on your way, assistance, support, and guidance is available from NEPMU2.

For more information, contact Ms. Nancy Von Tersch at DSN 564-7671 x311, or commercial: (757) 444-7671 x311; FAX: (757) 444-1191; DSN 564.

Hail & Farewell

Welcome Aboard!

Fair Winds and Following Seas!

NEPMU-2

HM1 Paul King, USS BOXER

HM1 Keith Moore, 2D SRIG 2D Medic Bn, Camp Lejeune, NC

HM2 Adeline Luna-Simpson, NAVHOSP, Naples, IT

NEPMU-5

HM3 Josie Miller, USS Berford

Ms. Penny Gullette, civilian sector employment

NEPMU-6

None

NEPMU-7

LT M. Smith, DVECC, Bangor, WA

HMC J. Mayweather, IIMEP, Camp Lejeune, NC

HM1 M. Richardson, NNNMC, Bethesda, MD

NEPMU-2

CAPT Carl Stein, NEHC, Norfolk, VA

LT Kevin Bryant, separation

HMCS Melanie Lugo, retirement

Mr. L. Errol Gillette, NEHC, Norfolk, VA

NEPMU-5

Mr. Steve Yuhás, resignation

NEPMU-6

HM1 Beverly C. Pitcock, Fleet Reserve

NEPMU-7

None

Preventive Medicine Support for NMCB 74 Detachment Nazareth, Ethiopia

(Continued from page 12)

dirt field, was not recommended. With no trees lining it for protection from the wind, it would be extremely dusty and, with no vegetation, would become extremely muddy when it rained. The open field, which was lined with trees and grassy, was the better of the two sites. It also offered easier access for moving equipment onto it. When we inspected this site the orphanage was in the process of moving three hay piles from it. There were two good areas near this site on which to place the shower and latrine. NACID also had one windowless building that they would allow the DFT to use. Its concrete floor was broken up and covered with dust and bird droppings. Use of this building would have required a great deal of cleanup. Cleaning personnel would have had to wear personal protective equipment including a dust mask, coveralls and rubber gloves during cleanup, followed by a shower and thorough washing of their clothes. We advised the Officer in Charge of the DFT, who wanted to use the building as the chowhall, not to use it for any purpose.

A second tent campsite was on Debre Zeyt Ethiopian Airborne Base. The DFT were to construct a rappelling tower for the base if they finished the school building before their scheduled day of departure. The NEPMU-7

team surveyed three sites for the campsite, a soccer field, a field near the construction site and an open field. The soccer field had the worst environmental problems, with human feces, animal bones and trash around it. The field near the construction site was too close to the Ethiopian barracks so that DFT personnel would not have had any privacy and would have required that the tents be split into two groups. The open field was the best choice, with the fewest environmental problems and easiest access for bringing in equipment. It also afforded the most privacy of all three sites.

One day the NEPMU-7 team was able to travel to Addis Ababa and visit the US Embassy and meet with the Embassy Nurse Practitioner. The Nurse is an Ethiopian who is licensed to work in two states in the US. Unfortunately the Embassy doctor was out of country at the time of our visit.

The NEPMU-7 team thoroughly enjoyed this opportunity to work with NMCB-74 and to work in another country in NEPMU-7's area of responsibility. Any personnel deploying to any location in Europe, Africa or Southwest Asia should contact NEPMU-7 before deploying. We can brief you on all the disease, environmental health and entomology issues of that location or deploy with your unit to conduct environmental surveys in-country.

LCDR DEBORAH A. CADY, MSC, USN
HEAD, ENVIRONMENTAL HEALTH DEPARTMENT
NEPMU-7

***NEXT ISSUE, MARCH '99,
Celebrates the 50th anniversary
of the NEPMUs:*** Articles are

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