



Safety and Environmental Health (G-WKS)

Coast Guard Occupational Health

OMSEP

The Occupational Medical Surveillance
& Evaluation Program (OMSEP)

Enrollment in OMSEP

**Welcome to Part 2 in a 25 Part Series on
OMSEP, the U.S. Coast Guard's
Occupational Medical Surveillance and
Evaluation Program**

This Part of the OMSEP Series will outline

Enrollment
in the Program

This is part 2 in the 25 part series on the Coast Guard's Occupational Medical Surveillance and Evaluation Program. This lecture will specifically address the changes that have recently taken place with implementation of OMSEP, especially with regards to the enrollment aspects of the program.



Before Getting Started

- Time required: 1 Hour
 - Although it may not take a full hour for all participants, the program includes a pre-test, a lecture, and a post-test.
- Necessary Materials
 - COMDTINST M5100.47 (series), Safety & Environmental Health Manual
 - COMDTINST M6000 (series), Medical Manual, Chapter 12

Before starting, make sure there's an hour of time set aside and that you have the necessary materials. It probably will not take that long to complete this section of the OMSEP series. However, each participant will be required to take a pre-test, observe a presentation, and take a post-test.



Overview

- Pre-Test
- Presentation / Lecture
 - Background
 - Occupational Health Systems
 - OMMP = OMSEP
 - Enrollment
 - Criteria
 - Roles & Responsibilities
- Post-Test



Objectives

- Upon successful completion of this lecture, a participant will be able to:
 - Define the CG medical surveillance action level (MSAL), the OSHA permissible exposure limit (PEL), and the American Conference of Governmental Hygienists (ACGIH) Threshold Limit Value (TLV) and explain their relationship to OMSEP enrollment.
 - Describe requirements for exposure assessment / work-site sampling within the context of OMSEP..
 - Discuss USCG roles and responsibilities for the enrollment process.

The objectives of the Enrollment module are specified above. These form the basis of the pre- and post-tests.

Pre-Test

So, let's move into the pre-test.



Occupational Health System Components

- Industrial Hygiene
 - Anticipate, Recognize, Evaluate, Control & Manage Workplace Hazards
 - Define Exposure Groups and Levels
- Occupational Medical Monitoring
 - Conduct Physical Exams Specific to Exposures
 - Review Medical Exam & Provide Feedback
 - Use Data to Perform Epidemiological Studies
- Hearing Conservation

We'll begin this presentation with a quick review of some of the information presented during Lecture 1.

Occupational Health Systems are part of the requirements of the Occupational Safety and Health Act of 1970. Executive Order 12196 of 1980, which was codified as 29 CFR 1960, applies the provisions of the OSHA act to Federal Agencies. Our Safety and Environmental Health Manual (SEH Manual) provides that absent of other specific instructions, the Coast Guard will conform with these OSHA requirements. The SEH manual also outlines what the components of our OHS are and provides some specific guidance to medical personnel in the MedManual. Simply put, OHS's are a **systematic** approach to exposure recognition, evaluation, and control that includes medical surveillance of exposed personnel.

They have two main elements: The first is Industrial Hygiene (IH) which utilizes a fundamental risk management process, the REC model--recognize, evaluate, and control--to eliminate or mitigate physical, chemical, biological, and ergonomic hazards in the workplace. While employing this process, personnel are identified and can be grouped by their characterized exposures. This process is the key to enrollment and will be expanded upon later. Once exposures have been characterized by IH processes, the OHS's second element---Medical Monitoring--can be used to perform exposure specific exams. These are essentially a check on whether the hazard controls are working properly. They also provide medical data necessary for analyses aimed at correlation between work-place exposures and diseases.

In the Coast Guard, the Hearing Conservation Program is another element of our OHS and is a hybrid of IH and Medical Monitoring. It directs an REC process in which noise sources are identified, area and personnel sound surveys are conducted, and engineering & administrative controls with personnel protective equipment are employed to eliminate and mitigate the impact of noise upon our personnel. Personnel working in high noise areas are also provided regular audiometric testing to monitor for any changes to hearing acuity.



Definitions

- 8 Hour Time Weighted Average (TWA)
- Permissible Exposure Limit (PEL)
- Threshold Limit Value (TLV)
- Short Term Exposure Limit (STEL)
- Ceiling Limit (C)
- Excursion Limit

Several definitions are needed before we go into how the industrial hygiene process identifies personnel at risk of exposure to work-place hazards, thus defining the populations that to be enrolled in OMSEP.



Definitions - 8-Hour TWAs

- Reflects an average exposure over a “normal” 8 hour shift
- All high and low concentrations are averaged with respect to time.
- Calculated as follows:

$$TWA = \frac{C_1T_1 + C_2T_2 + C_3T_3 \dots + C_nT_n}{8}$$

C=Concentration of contaminant; T= Incremental exposure time

The eight hour Time weighted average is the “gold standard” for exposure assessment. Most consensus and regulatory exposure limits are based on this type of measurement.

An example: A worker is exposed to chemical A at concentration of 100 mg/m³ for 3 hours of his shift. He takes an hour lunch (assume a 0 mg/cm³ concentration), works two hours in which the concentration is only 50 mg/m³, has an hour break (again assume a 0 concentration), and finishes his shift with an hour at 80 mg/m³. The TWA would be:

$$TWA = \frac{(100)(3)+(0)(1)+(2)(50)+(0)(1)+(80)(1)}{8} = \frac{480}{8} = 60 \text{ mg/m}^3$$



Definitions - PEL

- OSHA sets permissible exposure limits (PEL's) to protect workers against the health effects of exposure to hazardous substances. OSHA PEL's are based on an 8-hour time weighted average (TWA) exposure
- PEL's are regulatory limits on the amount or concentration of a substance in the air. They are enforceable by law.

The PEL's are established by OSHA and are legal exposure limits. Unfortunately, they are extremely difficult to update and many do not reflect the most recent toxicological data.



Definitions - TLV

- Threshold Limit Values (TLVs®) represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse health effects
- TLV's are intended for use as guidelines or recommendations in the control of potential workplace health hazards; they are not enforceable by law

TLV's are set by the American Conference of Governmental Industrial Hygienists (ACGIH). They include chemicals and physical stressors such as noise. They are not regulatory but are updated frequently to reflect updates in scientific evidence.



Definitions - STEL's & Ceilings

- STEL: 15-minute average exposures which should not be exceeded at any time during a workday even if the 8-hour TWA is within acceptable levels.
- Ceilings: Concentrations that should not be exceeded during any part of the workday--not even for an instant.

The short term exposure limit and ceiling limit are used for chemicals in which a short exposure is known to cause adverse human health effects. PEL's are only expressed as TWA's.



Definitions - Excursion Limits

- Provides for substances with a TLV-TWA but without enough toxicological data available to develop a STEL.
- Excursions may exceed 3 times the TLV-TWA for no more than a total of 30 minutes during a workday and under no circumstances should they exceed 5 times the TLV-TWA
- The overall TLV-TWA shall not be exceeded.

Many chemicals do not have sufficient data to allow setting of STEL's or C- limits. In such cases, a number of statistical models have shown the 3X and 5X rule to be effective. Although PEL's are not expressed as STEL's or C-limits, the concept of excursion limit can be applied.



IH Process & Enrollment

- Recognition - Hazard Identification
- Evaluation - Exposure Assessments
 - Qualitative
 - Use of Professional Judgement
 - Known risks to groups
 - Quantitative
 - Directly compare to Exposure Limits
 - Should be used to substantiate qualitative assessments

With the definitions in mind, we want to ensure that medical monitoring is provided for personnel at risk of exposure; enrollment is based on on such risk. Essentially, the industrial hygiene process is used to first identify hazards and risk of exposure and then evaluate them. The preferred assessment process involves quantitative methods, e.g. air sampling or use of instrumentation, for which the results can be compared to exposure limits such as the TLV or PEL. Quantitative assessments should also be conducted to substantiate any qualitative assessment.



Enrollment - Criteria

- Enrollment recommendations
 - Qualitative Assessment
 - Known or historically established potential for exposure risk
 - Marine Safety - Resident inspectors, Pollution investigators, Port safety, Vessel inspectors, Marine investigators
 - Firefighters

Many situations may necessitate a qualitative use of professional judgement to determine whether a reasonable risk of exposure can be anticipated based on the work environment and operations conducted. This type of assessment process is aided by knowledge of groups of workers that have a known or historically established risk of exposure, for example in the Coast Guard, marine safety personnel.



Enrollment - Criteria

- Enrollment recommendations
 - Occupationally at risk
 - Medical surveillance action level (MSAL)
 - 50% of lower of TLV/PEL
 - 84 dBA TWA for noise
 - Exposure duration time
 - 30 days or more per year at or above MSAL

When using the preferred quantitative approach for enrollment, the standard used is the Medical Surveillance Action Level (MSAL), which is generally set at 50% of the lower of the TLV or PEL unless there is specific Coast Guard policy that otherwise sets that limit. Such an example of this would be for noise. 50% of the TLV would be 82 dB; however, we use 84 dB as our standard for monitoring. The amount of exposure is important as well. The TLV's and PEL's are based on a 40 year lifetime of work at the given exposure level. The Coast Guard uses an duration standard of 30 days per year. Thus for enrollment based upon a quantitative exposure assessment, Coast Guard personnel need to be exposed above the MSAL for 30 days or more per year.



OMSEP - Roles and Responsibilities

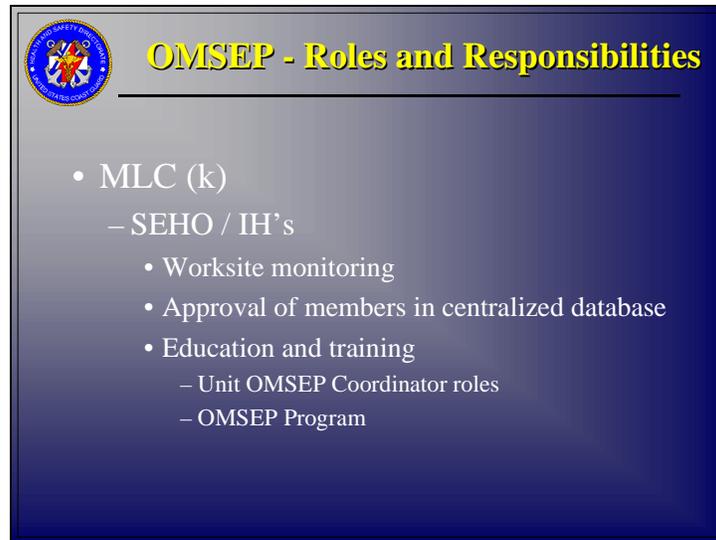
- Unit
 - Member
 - Exposure info & documentation
 - Physical exams
 - OMSEP Coordinator
 - OMSEP data collection
 - Entry of members into centralized database
 - Interaction with SEHO / IH's
 - Physical exam coordination

As we now know what the enrollment standards are based on, let's outline how the actual enrollment process works and what everyone involved does.

Members will be responsible to outline the exposures that they believe may have occurred in their present position, any past positions, and in their "off-duty" / home

environment. They will provide this information to their unit OMSEP coordinator. They can use the 5447 form, MSDS's, or any methodology which can clearly convey their perceived exposures.

OMSEP coordinators must be appointed at each unit and will collect all exposure information from members. They will enter members into the MLC OMSEP database via the intranet and will be the POC to work with the industrial hygienist-the Safety & Environmental Health Officers (SEHO's) regarding enrollment approvals. They will also work with clinics and other medical providers to coordinate physical exams.



The slide features a blue background with a white border. In the top left corner is a circular logo with a red cross and the text 'SAFETY' and 'HEALTH'. To the right of the logo, the title 'OMSEP - Roles and Responsibilities' is written in yellow. Below the title, a bulleted list in white text outlines the responsibilities of the MLC (k) in collaboration with SEHO / IH's.

- MLC (k)
 - SEHO / IH's
 - Worksite monitoring
 - Approval of members in centralized database
 - Education and training
 - Unit OMSEP Coordinator roles
 - OMSEP Program

SEHO's will use the exposure information provided by the units. They can compare these with any worksite evals--conducted at the unit, from the IH database that has info on similar units, or from a literature search of similar processes in industry--to make an enrollment approval in the OMSEP database. Members and the Unit OMSEP coordinator can be interviewed to resolve any discrepancies between the reported exposure info and the standards for enrollment.

SEHO's will also provide unit-level training for the OMSEP coordinator, as well as the overall OMSEP program.



OMSEP - Roles and Responsibilities

- MLC (k)
 - Clinic Medical Officers & Administrators
 - Provide / Oversee Physical Exams
 - ICD-9 diagnostic coding
 - Contract provider / IDT oversight
 - Medical record admin
 - Patient notification
 - (k) and (kse) Staffs
 - Centralized OMSEP database management
 - Physical exam oversight

Medical Officers will be responsible to ensure that all physical exams are appropriately conducted and recorded. The Clinic Administrators will regularly access the OMSEP database and will work with unit OMSEP coordinators to coordinate physical exams

MO's will also be responsible for all contract provider / IDT oversight, will ensure proper record handling, and will be the conduit for information to patients.

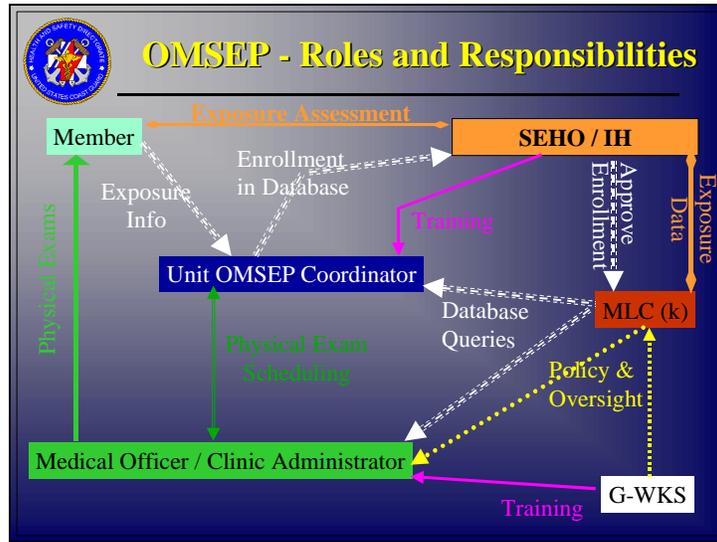
The MLC (k) divisions will maintain the physical database. Presently, it will reside at MLC Atlantic. Each of the MLC's will also provide QA for the physical exam process, ensuring that exams are conducted correctly and in a timely manner.



OMSEP - Roles and Responsibilities

- Commandant
 - G-WKS-3
 - Policy - Chapter 12 of Medical Manual
 - Physician & Medical Staff Training
 - Overall Program Oversight
 - G-WKS-2
 - Policy - SEH Manual
 - Exposure Assessment Oversight

The role of headquarters has been substantially reduced. Instead of being the repository and “decision-maker”, they will instead concentrate appropriately on ensuring that the program has adequate policy & oversight. They will provide specific training on the program and system to physicians and other medical personnel.



Here's a "simple" diagram that outlines the roles and responsibilities. I know it seems complicated and cluttered ... but let's take it one step at a time...

The **member** provides exposure data, e.g. MSDS's to the **Unit OMSEP Coordinator**.

The **Unit OMSEP Coordinator** enrolls the member via the intranet into the OMSEP database for review by the cognizant **Safety and Environmental Health Officer**.

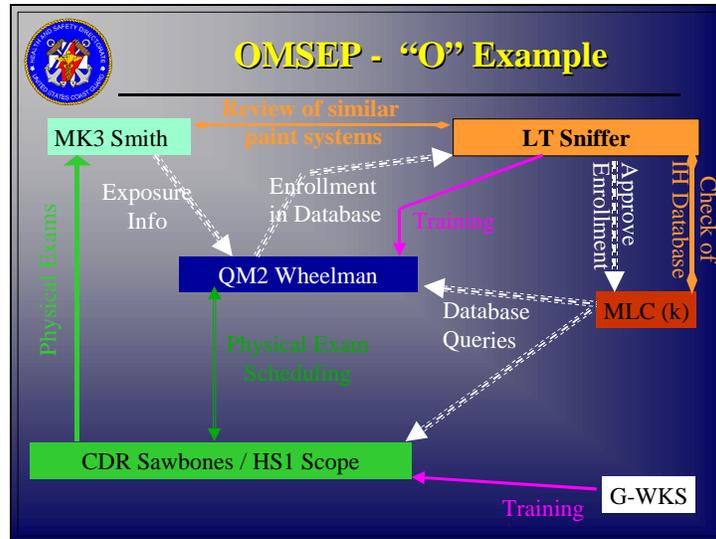
The SEHO incorporates the exposure data from the unit, any additional worksite exposure assessments, the MLC managed CG database of IH exposure information, and professional judgement to develop an exposure profile. They apply the enrollment criteria to make an enrollment approval in the OMSEP database which resides at MLC. The **Unit OMSEP Coordinator** and the **Medical Officer/ Clinic Administrator** can query the database and can then work together to schedule physicals.

HQ provides oversight of the MLC's and develops the associated policies.

They will also provide specific OMSEP training for the MO's and medical personnel.

The SEHO's and MLC will provide training on the program to units

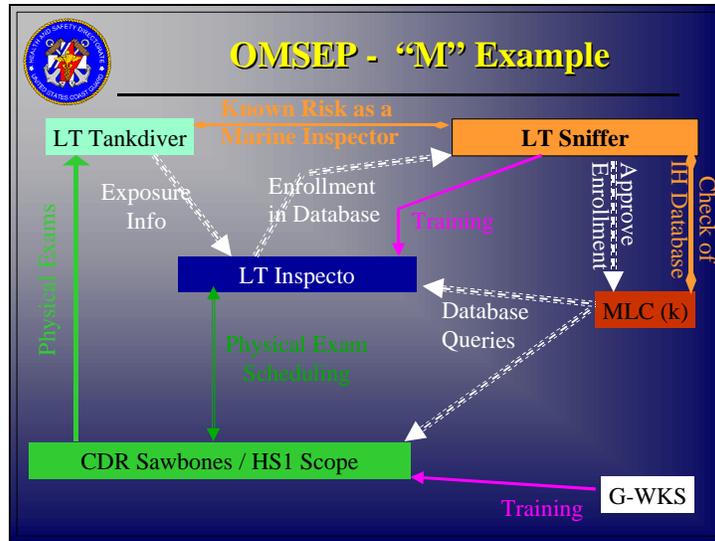
Let's look at a couple of examples:



MK3 Smith at CGC HAMMERHEAD reviews his perceived exposures with the Unit OMSEP Coordinator, QM2 Wheelman, noting that he is potentially exposed to noise, fuel oils, and paints. Having just received OMSEP coordinator training from the cognizant SEHO, LT Sniffer, QM2 Wheelman logs onto the intranet-based OMSEP database and enrolls MK3 Smith, noting the various exposures.

LT Sniffer, during his routine weekly review of the OMSEP database, sees MK3 Smith is in the SEHO Pending Approval List for his AOR. LT Sniffer uses the internet and HMIS to look up MSDS's for the fuel oils and paints noted. He also checks the IH database for any studies that have been conducted regarding the paint systems and noise on the cutter. The database has info from a number of sound level surveys, indicating several high noise areas aboard the cutter. Given the nature of an MK's work, LT Sniffer feels it is likely that MK3 Smith would have been exposed to TWA's in excess of the MCAL of 84 dB more than 30 days a year. Although no specific exposure assessments were conducted for the components of the paint systems used aboard HAMMERHEAD, LT Sniffer uses several references on assessments of similar paint systems that found no evidence of exposure near the MCAL. Based on this, LT Sniffer approves MK3 Smith under the noise protocol. He then schedules a visit to HAMMERHEAD to conduct a quantitative assessment of exposures to the specific paint products.

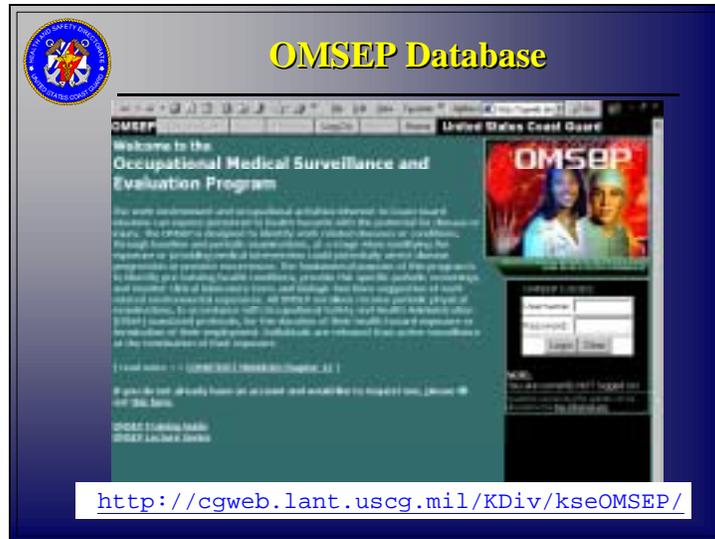
The clinic's medical officer, CDR Sawbones, and his clinic administrator, HS1 Scope, who have just completed the G-WKS web-based training course, conduct their regular review of the OMSEP database for the AOR, noting MK3 Smith's approval. They contact QM2 Wheelman and coordinate the next physical exam for MK3 Smith. MK3 Smith receives his exam several weeks later.



LT Tankdiver at MSO Bloomington reviews his perceived exposures with the Unit OMSEP Coordinator, LT Inspecto, noting that he is potentially exposed to noise, a multitude of petroleum products, and several chemical cargoes. Having just received OMSEP coordinator training from the cognizant SEHO, LT Sniffer, LT Inspecto logs onto the intranet-based OMSEP database and enrolls LT Tankdiver, noting the various exposures

LT Sniffer, during his routine weekly review of the OMSEP database, sees LT Tankdiver is in the SEHO Pending Approval List for his AOR.. LT Sniffer uses the internet and HMIS to look up MSDS's for the chemical products noted. He also checks the IH database for any studies that have been conducted at the MSO regarding the perceived exposures but finds none. He calls the MSO and discusses LT Tankdiver's activities with him, determining that for all but a handful of the petroleum products the potential exposures occur less than 30 days each year and that the noise exposure would not be above the MCAL. However, since LT Tankdiver is a marine inspector, LT Sniffer approves him under the MSO Vessel Inspector criteria, enrolling him in the unspecified protocol. He then schedules a visit to the MSO to conduct a quantitative assessment of exposures to several of the petroleum products.

The clinic's medical officer, CDR Sawbones, and his clinic administrator, HS1 Scope, who have just completed the G-WKS web-based training course, conduct their regular review of the OMSEP database for the AOR, noting LT Tankdiver's approval. They contact LT Inspecto and coordinate the next physical exam for LT Tankdiver. LT Tankdiver receives his exam several weeks later.



The OMSEP database can be found at the above URL. Clinic level access can be obtained by clicking on the hyperlink [this form](#), and then completing the information. A training guide is also available online via the hyperlink at the bottom of the OMSEP database webpage.

OMSEP Questions Go To:

- Mario Fajardo - G-WKS-3
– mfajardp@comdt.uscg.mil, 202-267-0692
- Tommey H. Meyers - G-WKS-2
– thmeyers@comdt.uscg.mil, 202-267-1368
- Wade McConnell - MLCA (kse)
– wmccconnell@mlca.uscg.mil, 757-628-4403
- Joselito Ignacio - MLCP (kse)
– jignacio@d11.uscg.mil, 510-437-3487

Any policy questions regarding the overall structure and outline of OMSEP, including the exam protocols should be directed to Capt Mario Fajardo; industrial hygiene, exposure assessment, and enrollment policy issues should be directed to LCDR Meyers. Questions or problems with enrollment, the enrollment database, or exposure assessments should be directed to Wade McConnell in Lant and Joselito Ignacio in Pac.



Objectives

- Upon successful completion of this lecture, a participant will be able to:
 - Define the CG medical surveillance action level (MSAL), the OSHA permissible exposure limit (PEL), and the American Conference of Governmental Hygienists (ACGIH) Threshold Limit Value (TLV) and explain their relationship to OMSEP enrollment.
 - Describe requirements for exposure assessment / work-site sampling within the context of OMSEP..
 - Discuss USCG roles and responsibilities for the enrollment process.

This completes the lecture portion of this module. Let's review the objective and ensure that they've been met. If you're unsure about any of them, please go back to those sections and review them before taking the post-test.

Post-Test

Please complete the post test and e-mail your results to Captain Fajardo (mfajardo@comdt.uscg.mil)