AN OVERVIEW OF THE SPECIAL OPERATIONS INTERACTIVE MEDICAL TRAINING PROGRAM (SOIMTP)

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An Overview of the Special Operations Interactive Medical Training Program (SOIMTP)

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SUMMARY

The Special Operations Interactive Medical Training Program (SOIMTP) was developed to assess the feasibility of using a computer-based system to provide medical training for corpsmen and medics attached to Special Operations (SpecOps) units of the Army, Navy, Marine Corps, and Air Force. SOIMTP is a modular medical training system that runs on a personal computer (PC). Corpsmen and medics can use SOIMTP almost anytime, anywhere, and an instructor need not be present. All that is required is a PC (i.e., portable laptops and notebooks) and the SOIMTP software. The present version of SOIMTP has training modules in 21 different subject areas. Each of the individual modules was developed to provide training in specific areas that are relevant to SpecOps forces and the unique environments in which they must operate. The question-and-answer items in each of the modules were designed to cover major components of these subject areas and to reflect the special knowledge required of corpsmen and medics attached to SpecOps units. SOIMTP has been approved for Independent Duty Corpsman Continuing Education Credits by the Naval Health Sciences Education and Training Command. This report describes system development and operation and it provides a brief overview of each of the modules.
BACKGROUND

Health-care providers in the military are required to maintain their skills in a wide variety of areas. This normally is accomplished through the use of group-training classes. Providing group-training classes for corpsmen and medics attached to SpecOps forces, however, poses a special problem. Typically, one or two corpsmen or medics are attached to each SpecOps unit or platoon. These platoons are frequently required to be away from their home bases, often in distant and remote locations around the globe, for extended periods. Their missions are often in areas where there are no hospitals or other support facilities to provide training. Since the units usually operate independently, it is a rare occurrence when all the corpsmen or medics from a particular command are available for group-training classes at the same time and location.

The Naval Special Warfare Command, San Diego, California, recognized that a systematic procedure to provide ongoing medical training classes for its SEAL (SEa Air Land) team corpsmen, on an individual basis, and without the scheduling restraints of a classroom setting was needed. The United States Special Operations Command Biomedical Research and Development Program Steering Committee then tasked the Naval Health Research Center (NHRC) in San Diego, California, to develop and test the feasibility of using a computer-based, self-taught medical training system to fulfill this requirement. The system would have to be portable, easy to use, and easy to modify or upgrade. The content of this training program would have to specifically address the unique training needs of corpsmen attached to Naval Special Warfare units.

In 1993, NHRC researchers began developing the Special Operations Interactive Medical Training Program (SOIMTP). Subject matter experts (primarily physicians attached to Naval Special Warfare units) familiar with SpecOps environments and the types of diseases and injuries (battle and non-battle) most likely to be encountered in these environments were recruited to write question-and-answer items for the program. The first prototype of SOIMTP was completed in 1994 and distributed to Naval Special Warfare units for field-testing. In 1995 SOIMTP was approved for Independent Duty Corpsman Continuing Education Credits by the Naval Health Sciences Education and Training Command (HSETC). ^

SOIMTP DESIGN

SOIMTP is a specialized interactive medical training system that contains more than 2000 multiple-choice question-and-answer items in various subject areas, or modules, that address medical issues relevant to SpecOps medical personnel. Each module contains approximately 100 multiple-choice questions relating to the designated subject area. Questions for each of the modules were developed by medical officers (physicians) and senior hospital corpsmen with special knowledge of the subject areas and the unique environments in which SpecOps forces must operate. Once the question-and-answer items were composed, they were transcribed and put into proper format for use.

^ HSETC Program Number 0695-02
in SOIMTP. After a final review by the respective authors, the items were integrated into the program. Each of the items in SOIMTP is referenced so the user can verify a question or get more information about a specific topic. The first prototype system was specifically developed for use by hospital corpsmen attached to Navy SEAL teams. It contained three training modules (Diving Medicine, Exercise Injuries, and Combat Casualty Care).

After successful testing of the prototype system in the field, a second version with 15 additional modules was developed. The Second Edition, released in March 1995, was distributed to Naval Special Warfare units and, also, to corpsmen and medics attached to Marine Corps, Air Force, and Army Special Operations forces. The Third Edition, with 20 modules, was distributed in October 1996 and the Fourth Edition, with 21 modules, was distributed in December 1997. Medical personnel from all services under the United States Special Operations Command are presently using SOIMTP.

SOIMTP is supplied on a 3.5-inch floppy disk and it can be installed on any computer that has at least 2 megabytes of storage remaining on the hard drive and a 286 megahertz or higher processor. The disk comes in a specially designed folder with a quick reference user's guide printed on the inside. The guide provides information about installation, conventions, and use of the program. The folder was designed so it would fit into a shirt pocket, thus alleviating the need to carry around the floppy disk and a separate user's guide. In addition to the quick reference user's guide in the disk storage folder, SOIMTP has on-line "help" prompts throughout the program.

SOIMTP OPERATION

It takes approximately two minutes to install the program on a computer. Once the program is installed on the computer's hard drive, the floppy disk can be stored elsewhere. The same floppy disk can be used to install SOIMTP on more than one computer. When a new version of SOIMTP is installed on a computer that already has an earlier version on it, the program will automatically overwrite the files of the older version as it is being installed.

The first screen that is displayed when the program is started is the title screen with the United States Special Operations Command logo. The user moves on to the next screen by pressing any key. The next screen provides phone numbers to call for technical support or to discuss any other problems that may be encountered while installing or using the program. The next screen is for user registration. Once the user's social security number, name, and rank have been entered, that person will be able to use the system by just clicking on his or her name on the user menu. The registration information is used for keeping track of an individual's progress in a particular subject area and for storing individual test scores. The next screen provides a list of all of the subject areas included in SOIMTP. The user may select a subject area from this menu by moving the cursor to highlight that subject and then pressing the Enter key. Finally, the user may choose either the "practice" or "test" mode for the session. The "practice" mode is used for learning about a particular subject and the "test" mode is used for testing how much the user has learned about the subject.
In the “practice” mode, the user is presented one multiple-choice question at a time. The user selects from a set of choices and is not allowed to continue on to the next question until the correct answer has been selected. When the correct answer has been selected, the program notifies the user and provides a reference so the user can verify the correct choice or gain more information about a particular question. If the user needs to quit at anytime during a session, the program allows the user to start the next training session at the point where the user left off, thereby avoiding having to work through questions already answered.

In the “test” mode, the questions from the selected module are “shuffled” randomly during each session and presented to the user one at a time. The user is allowed only one chance to answer each question before the next question is presented. The program keeps score and, at the end of the session, the scores are presented along with the user’s response to each item and whether the response was correct or incorrect. These scores, along with user-identifying information, can be printed and saved as a permanent record. They can also be saved to disk if a printer is not available.

SUBJECT AREAS

The present version of SOMTP provides medical training in 21 different subject areas. Each subject area is independent of the others and is called a module. Each module contains question-and-answer items dealing with the designated subject area. The titles of the modules are listed as follows along with the authors’ names and a brief description of the topics covered within each.


This module provides information about the primary survey, secondary survey, administration of IVs, airway intubation, shock, tachycardia, blood transfusions, pneumothorax, concussions, burns, post-trauma diagnoses, and other related topics.¹


This module provides information about the use of oxygen at high altitudes, G-tolerances, hearing, vision, motion sickness, flying waivers, decompression sickness, and other related topics.²⁻⁵

Basic Cardiac Life Support by LCDR Dave Combest, U.S. Navy (1994)

This module provides information about the respiratory system, angina pectoris, myocardial infarction, cardiac arrest, ventricular fibrillation, CPR, the Heimlich maneuver, electrical shock, and other related topics.⁶
Dental by COL Gerald Beatty, U.S. Army (1997)

This module provides information about local anesthesia, dental emergencies, dental extractions, maxillofacial trauma, and other related topics. 


This module provides information about decompression sickness, diving tables, central nervous system oxygen toxicity, otitis externa, hypothermia, hyperthermia, arterial gas embolism, recompression chambers, jellyfish stings, sea snake bites, stingrays, poisonous fish, and other related topics. 

Emergency Medical Technician/Paramedic Review by HMC Josh Friedman, U.S. Navy (1994)

This module provides information about the side effects of prescription drugs, drug interactions, emergency communications, respiratory system, circulatory system, nervous system, burns, poisonings, and other related topics.


This module provides information about myocardial infarctions, hemorrhagic shock, septic shock, cardiogenic shock, syncope, causes of abdominal pain, gastrointestinal hemorrhaging, comas, bacterial pneumonia, viral pneumonia, pneumothorax, asthma, peptic ulcers, meningitis, epistaxis, anaphylaxis, diabetes, migraines, and other related topics.

Exercise Injuries by LCDR Scott Flinn, U.S. Navy (1993)

This module provides information about overuse injuries, stress fractures, diet, blister treatment, hydration, carbohydrates, tendonitis, amino acids, human anatomy, sprains, strains, dislocations, and other related topics.

Medical Administration by LCDR Clifton Woodford, U.S. Navy (1994)

This module provides information about health records, physical exam requirements, medical supplies and equipment inventories, supply requisitions, controlled drug records, medical waivers, competence for duty exams, Independent Duty Corpsman certification, standard medical forms, submarine duty requirements, diving duty requirements, and other related topics.
Medical Management of Biological and Chemical Casualties by LT Duane Caneva, U.S. Navy (1994)

This module provides information about biological and chemical weapons, means of exposure, treatment of patients exposed to nerve agents, atropine, diazepam, phosgene, mustard agents, cyanide, anthrax, botulism, ricin, and other related topics.\textsuperscript{24,25}


This module provides information about the Romberg sign, the Glasgow Coma Score, corneal reflex, brain death, meningitis, deafness, oxygen toxicity, amnesia, seizures, miosis, carbon monoxide poisoning, high altitude cerebral edema, nerves and their associations with specific reflexes and senses, and other related topics.\textsuperscript{26}


This module provides information about determining pregnancy, prenatal care, ectopic pregnancies, vaginal bleeding, abortions, labor, fetal heart rate, preeclampsia, placenta previa, irregular menses, amenorrhea, trichomonas, pelvic inflammatory disease, vaginitis, endometriosis, urinary tract infections, and other related topics.\textsuperscript{27,28}


This module provides information about some of the most commonly used prescription and non-prescription drugs. These include fluorescein, doxycycline, diphenhydramine hydrochloride, Ringer’s lactate solution, morphine, penicillin \textit{v} potassium, hydroxyzine, hydrocortisone, meclizine hydrochloride, tolnaftate, acetaminophen, amoxicillin, clotrimazole cream, dicloxacillin sodium, loperamide hydrochloride, erythromycin, calamine, naloxone hydrochloride, metronidazole, ibuprofen, ciprofloxacin, and numerous others.\textsuperscript{29}


This module provides information about heat stress, heat stroke, heat exhaustion, entamoeba histolytica, amebiasis, cholera, tetanus, leptospirosis, coccidioidomycosis, rabies, HIV, botulism, Lyme disease, hepatitis, measles, whooping cough, typhoid fever, giardiasis, bubonic plague, malaria, trichinosis, syphilis, radiation exposure, smoking, mumps, and other related topics.\textsuperscript{30-33}
Radiation Health by LT Vincent DeInnocentiis, U.S. Navy (1994)

This module provides information about the U.S. Navy’s Radiation Protection Program, ionizing radiation, measurements of exposure, stochastic effects, dose equivalents, radiation medical examinations, medical record-keeping, dosimeters, radiation definitions and standards, radiation health audits, and other related topics.  

Sexually Transmitted Diseases by LCDR Bill Feyh, U.S. Navy (1994)

This module provides information about syphilis, gonococcal infections, non-gonococcal urethritis, chlamydia trachomatis, chancroid, and other related topics.  

Updated by CDR Dennis Rowe, U.S. Navy (1997)

This module provides information about cellulitis, urinary infections, herpes simplex, upper respiratory infections, immersion (trench) foot, otitis externa, ringworm, spontaneous pneumothorax, molluscum contagiosum, appendicitis, knee injuries, sexually transmitted diseases, lice, scrub typhus, dengue fever, cutaneous leishmaniasis, exercise injuries, conjunctivitis, inguinal hernias, and other related topics.  

Tactical Combat Casualty Care by LCDR Lach Noyes, U.S. Navy (1993)
Updated by CAPT Frank Butler, U.S. Navy (1997)

This module provides information about tactical factors in patient treatment, care under fire, CPR, tube thoracostomy, fluid resuscitation, crystalloid fluids, colloids, IVs, Hespan, morphine, medevacs, antibiotics, shock, airway maintenance, pressure points, bacterial infections, neurological exams, eye injuries, facial and neck wounds, tension pneumothorax, chest tubes, fractures, and other related topics.  

Tropical Medicine by LCDR Scott Flinn, U.S. Navy (1994)

This module provides information about traveler’s diarrhea, cholera, ciguatera poisoning, shellfish poisoning, stingray injuries, jellyfish stings, sunburn, snakebites, filariasis, worm infections, leprosy, tuberculosis, hemorrhagic fever, malaria, leptospirosis, gonococcal infections, chlamydia, Lyme disease, typhoid fever, yellow fever, schistosomiasis, dengue fever, HIV, hepatitis A and B, rabies, and other related topics.  

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Veterinary Medicine by LTCOL Otis Stanley, U.S. Army (1996)

This module provides information about restraining domestic animals, both chemically and physically, physical examinations, normal temperatures, normal heart rates, normal respiratory rates, injection sites, stomach tubes, roundworms, liver flukes, nematodes, mites, laminitis, strangles, parvovirus, dystocia, calf delivery, colt delivery, deworming, immunizations, horse colic, equine infectious anemia, heartworm disease, and other related topics. 54

Wilderness Medicine by LT Rob Stambaugh, U.S. Navy (1994)

This module provides information about hypothermia, cold water immersion, frostbite, heat cramps, heat stroke, heat exhaustion, lightning strikes, and other related topics. 55

SUMMARY

SOIMTP provides corpsmen and medics with a working background and practical knowledge in a wide variety of specialty medical subject areas. It is not intended to replace the formal training for SpecOps medical personnel that is provided in schools and classrooms, but rather to enhance it by providing refresher training that might not otherwise be available. It also provides information specifically related to unique situations and environments that are more likely to be encountered during special operations than in a standard health care facility. SOIMTP requires no classroom or instructor and there are no scheduling restraints. It is portable (the disk and folder fit into a shirt pocket), easily installed on any standard PC and is very easy to use.

SOIMTP is a dynamic system and is constantly being upgraded to reflect the latest developments in medical practices and technology. Additional modules addressing new subject areas are planned for future editions and existing modules are being updated regularly to reflect the latest developments in medical practices and technology, especially as they apply to SpecOps environments. SOIMTP is available on floppy disk from the Naval Health Research Center, P.O. Box 85122, San Diego, CA 92186 (Attn: Larry Hermansen, Code 22).
ACKNOWLEDGMENTS

The Special Operations Interactive Medical Training Program could not have been developed without the expertise and help of numerous people. These include the active-duty military doctors and corpsmen who researched and wrote the question-and-answer items that are the core of this program. Each and every one of them volunteered his or her own time to work on this project. Their names are listed here, alphabetically. The author wishes to convey his personnel appreciation for their contributions to SOIMTP.

COL Gerald Beatty, U.S. Army
CAPT Frank K. Butler, U.S. Navy
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LCDR Dave Combest, U.S. Navy
LT Vincent DeInnocentiis, U.S. Navy
LTCOL James Dougherty, U.S. Air Force
LCDR Bill Feyh, U.S. Navy
LCDR Scott Flinn, U.S. Navy
HMC Josh Friedman, U.S. Navy
CDR Steve Giebner, U.S. Navy
LT Gary Gluck, U.S. Navy
LT Dick Guinand, U.S. Navy
LT Kim Longmire, U.S. Navy
LCDR Lach Noyes, U.S. Navy
CDR Dennis Rowe, U.S. Navy
CAPT John Savoia-McHugh, U.S. Navy
LCDR Bob Sawyer, U.S. Navy
LT Rob Stambaugh, U.S. Navy
LTCOL Otis Stanley, U.S. Army
LCDR Clifton Woodford, U.S. Navy

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The following citations are provided for background and further reading about the various topics that are addressed in SOIMTP.


6. Basic Cardiac Life Support Instructor Manual, Department of the Navy.

7. 18 D Medical Sustainment Training Manual, U.S. Army.


16. U.S. Navy Correspondence Manual, Department of the Navy.
17. NAVMED P-117, U.S. Navy Manual of the Medical Department, Department of the Navy.
18. OPNAVINST 5510.1, Department of the Navy Information and Personnel Security Program Regulations.
23. OPNAVINST 6400.1, Certification, Training, and Use of Independent Duty Hospital Corpsmen.
28. Mishell and Brenner, Management of Common Problems in Obstetrics and Gynecology (2nd ed.).

34. OPNAVINST 6470.2A, U.S. Navy Occupational Radiation Protection Program.

35. Branch, WT, MD, (1994). Office Practice of Medicine, (3rd ed.).


43. NAVEDTRA 82081, U.S. Navy Standard First Aid Training Course.


54. 18 D Non-Trauma Sustainment Training Manual, U.S. Army.

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