

# McMurdo Station Medical Standard Operating Procedures & Protocols

---

***ME-M-311***

***Revision 1***

***Approved by***



***Approval Date 3/30/06***

***Active Divisions/Departments  
Medical***

***Area Directorate***



## Table of Contents

Purpose .....	1
Scope/Applicability .....	1
Terms and Definitions .....	1
Discussion .....	6
Part 1: Administration .....	6
SECTION 1: ORGANIZATION .....	6
Organization of the United States Antarctic Program .....	6
Medical Department Organization .....	7
Contacts .....	7
SECTION 2: DEPLOYMENT SCREENING .....	9
Pre-deployment Requirements .....	9
SECTION 3: PERSONNEL .....	9
MEDICAL PERSONNEL .....	9
SECTION 4: MEDICAL RECORDS AND FORMS .....	11
MEDICAL RECORDS .....	11
Part 2: McMurdo Medical Operations .....	14
SECTION 5: CLINIC OPERATIONS .....	14
Physician responsibilities .....	14
SECTION 6: MEDICAL SERVICES .....	20
SECTION 7: EMERGENCY PROTOCOLS .....	34
References .....	43
Records .....	44
Attachments, Appendices .....	45

## **Purpose**

This document provides information on the McMurdo Station Physician's medical procedures, protocols and tasks.

## **Scope/Applicability**

The procedures and protocols apply to the Physician at McMurdo Station. This manual also contains information of value to other individuals, such as the Medical Director, Health Services Manager, Station Manager, SAR Teams, and Mass Casualty Team, regarding any work they may do in the clinic or in the field with the McMurdo Physician.

## **Terms and Definitions**

### **24-7**

24 hours-per-day, seven-days-per-week

### **ABG**

Arterial Blood Gases

### **ACLS**

Advanced Cardiac Life Support

### **AED**

Automatic External Defibrillator

### **APG**

Antarctic Policy Group

### **ATLS**

Advanced Trauma Life Support

### **CBC**

Complete Blood Count

**CDC**

Center for Disease Control

**Crash Bag**

A soft-pack-style container containing specialized medical equipment and supplies, for immediate response to a cardio-pulmonary emergency within and away from the medical facility.

**CT**

Computed Tomography – radiological procedure that uses a computer to assemble multiple x-ray images into a two-dimensional composite image.

**DAN**

Diver Alert Network

**DEA**

United States Drug Enforcement Administration

**Divrad**

Diversified Radiology of Colorado - a radiological consultation service.

**Dosimeter**

A device for measuring cumulative radiation exposure.

**EHS**

Environment, Health and Safety

**EKG**

Electro-Cardiogram

**Ektachem**

Manufacturer's brand name for a laboratory analyzer produced by the Kodak Corporation.

**EMT**

Emergency Medical Technician

**EOS**

End-Of-Season

**Gram Stain**

Method of staining bacteria using a violet stain. Used to identify infectious bacteria.

**GSAR**

Glacier Search and Rescue

**Hematocrit**

Measurement of the percentage of red blood cells, by volume, in a sample of blood.

**HQ**

Abbreviation for Headquarters, Denver RPSC office

**HWIS**

Hazardous Waste Identification Sheet

**I-Stat**

Manufacturer's Brand name of a portable clinical analyzer

**IV**

Intravenous – within or into a vein

**KOH**

Chemical symbol for Potassium Hydroxide

**kVp**

Kilovolt Peak – a unit of measure used in radiology

**MAS**

Medical Advisory System – a medical consultation service available 24/7

**mAs**

MiliAmpere Seconds – a unit of measure used in radiology

**Medevac**

Medical Evacuation

**Milvan**

A standardized, modular, shipping container such as those used on container ships.  
Sometimes referred to as a “Conex box”.

**MIRF**

Medical Injury Report Form, reference Procedure ME-A-210

**MPC**

Marine Projects Coordinator

**MSDS**

Material Safety Data Sheet

**Nebulizer**

A device, pressurized by an oxygen tank, for the purpose of converting a liquid medication into a fine mist that can be inhaled.

**NSF**

National Science Foundation

**O<sub>2</sub>**

Oxygen

**OPP**

Office of Polar Programs (a division of the NSF)

**ORT**

Online Requisition and Tracking – an electronic ordering system

**OSAR**

Ocean Search and Rescue

**OTC**

Over the Counter

**PO**

”Per Os” - medical shorthand for administration of medication “by mouth”

**PQ**

Abbreviation for “Physically Qualified” to work in Antarctica.

**PT/PTT**

Tests used to evaluate blood clotting

**Pulse Oximetry**

Non-invasive oxygen monitoring by electrodes attached to some translucent part of the body such as a finger, earlobe, or skin fold.

**PRB**

Polar Research Board

**QA**

Quality Assurance

**QBC**

Manufacturer’s Brand name of a Centrifugal Hematology system for performing complete blood counts (CBC).

**QC**

Quality Control

**Retrograde**

Obsolete material awaiting shipment from Antarctica (also the act of shipping obsolete material from Antarctica.)

**RPSC HQ**

Raytheon Polar Services Company Headquarters

**RV**

Research Vessel

**RVIB**

Research Vessel Ice Breaker

**SAR**

Search and Rescue

**SCAR**

International Scientific Committee on Antarctic Research

**SITREP**

Situation Report, written weekly by each department on station

**SOAP**

Standard medical progress note format: Subjective, Objective, Assessment and Plan

**SOP**

Standard Operating Procedure

**Troponin**

Complex of three proteins associated with muscle function, used as a marker for heart attacks.

**Tyvek**

A strong, lightweight, vapor-permeable, yet water-, chemical-, puncture-, tear- and abrasion-resistant material made from very fine, high-density polyethylene fibers.

**UA**

Urinalysis

**USAP**

United States Antarctic Program

**UTMB**

University of Texas Medical Branch

**WEMT**

Wilderness Emergency Medical Technician

**WFR**

Wilderness First Responder

**Wright's Stain**

Staining mixture of eosinates of polychromed methylene blue used to stain blood smears.

**Ziplock**

Tradename for a variety of plastic storage bag with a "press-to-lock" sealing system.

## **Discussion**

### **Part 1: Administration**

#### **SECTION 1: ORGANIZATION**

##### **Organization of the United States Antarctic Program**

Antarctica currently has about 50-60 summer bases managed by 30+ countries. McMurdo Station is the largest of the three US stations. The bulk of the science operations at McMurdo occur during the Austral summer. McMurdo is the largest Antarctic station, with a population of about 200 during the winter and up to 1,200 during the summer. South Pole population is 50 to 240 personnel depending on the season and the volume of construction and science underway. Palmer Station is the smallest of the three US stations, with a population that varies between 20 and 45 personnel.

Internationally, the Scientific Committee on Antarctic Research (SCAR) overviews all research. The U.S. sends a delegate to SCAR from the Polar Research Board (PRB). The PRB is an advisory board to the National Science Foundation (NSF) and it is funded by the NSF.

The Antarctic Policy Group is composed of the Secretary of State, the Secretary of Defense, and the Director of the NSF. The APG sets the goals of the United States Antarctic Program (USAP). The USAP is managed and funded by the National Science Foundation Office of Polar Programs (NSF-OPP). USAP refers to the program in its entirety, including all agencies and contractors. The USAP is roughly



divided into research and logistics components. NSF-OPP is responsible for both funding scientific research and coordinating the operation of the stations.

Logistics for both science and support operations are managed through a series of coordinated contracts. Raytheon Polar Services Company (RPSC) is the primary contractor supplying support personnel, engineering, construction, supplies, maintenance, and management for all of the US Antarctic stations. The *American Tern* is contracted to maintain and operate McMurdo's main resupply effort. Additionally, personnel transport and emergent items are transported via military aircraft. Research vessel, the RV Laurence M. Gould, as well as the larger USAP research vessel and icebreaker the RVIB Nathaniel B. McMurdo, may coordinate further transport of personnel. The Christchurch office provides support services to the program for personnel and supply operations within New Zealand.

## Medical Department Organization

The Medical Department of RPSC provides support for the USAP Health Services on the ice and also coordinates pre-deployment medical screening for science and support personnel. The Medical Director at RPSC has the responsibility for approving and reviewing the credentials of medical providers at the stations and in the field. The McMurdo Station Medical team provides medical care at the station, and is also responsible for maintaining all clinic operations, as well as providing support for the Emergency Medical Technicians aboard the research and resupply vessels, field sites, and tourist/other Antarctic Stations as requested.

## Contacts

### RPSC Contact Numbers and Consultants

Outgoing Numbers				
Contact	Position	Location	Number	E-Mail/Notes
[REDACTED]	Medical Processing Director (Acting)	RPSC	[REDACTED]	[REDACTED]
		Cell phone	[REDACTED]	
[REDACTED]	Medical Admin Director (Acting)	RPSC	[REDACTED]	[REDACTED]
		Cell Phone	[REDACTED]	
[REDACTED]	Health Svcs. Mgr.	RPSC	[REDACTED]	[REDACTED]
General DHQ office support	Records, Admin, Processing, etc.	RPSC	[REDACTED]	[REDACTED]
RPSC Medical Fax		RPSC	[REDACTED]	

[REDACTED]	[REDACTED]	Private Office	303.699.1504	[REDACTED]
		[REDACTED]	[REDACTED]	
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED] [REDACTED]
		[REDACTED]	[REDACTED]	
		[REDACTED]	[REDACTED]	
[REDACTED]		[REDACTED]	[REDACTED]	[REDACTED]
		[REDACTED]	[REDACTED]	
		[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]		[REDACTED]	[REDACTED]	[REDACTED]
		[REDACTED]	[REDACTED]	
		[REDACTED]	[REDACTED]	
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED] [REDACTED]
		[REDACTED]	[REDACTED]	
		[REDACTED]	[REDACTED]	
[REDACTED]		[REDACTED]	[REDACTED]	

**CONTACTS FOR MEDICAL CARE IN CHRISTCHURCH**

Christchurch personnel can assist with labs, x-rays, physicals, etc.

[REDACTED] [REDACTED]  
[REDACTED]

## SECTION 2: DEPLOYMENT SCREENING

### Pre-deployment Requirements

#### GENERAL

All participants and visitors to the USAP require medical screening and must be found physically qualified (PQ) to travel and participate in work activities on the Antarctic continent. This requirement is due to the extreme and isolated Antarctic environment, the limited medical facilities available in Antarctica and the cost and disruption of medical evacuations. The NSF physician advisor sets the criteria for the medical screening. The screening is implemented by the RPSC Medical Department and the Medical Director and Advisor reviews the screening and makes recommendations as needed. See SOP ME-A-122, *Medical Screening*, for details.

## SECTION 3: PERSONNEL

### MEDICAL PERSONNEL

#### 3-1 PHYSICIAN

- A. GENERAL – The Medical Department will be staffed 365 days a year by a licensed physician. The physician shall have training or experience to allow him or her to handle a wide range of clinical conditions. There are usually two physicians at McMurdo Station for the summer season, and a different physician during the winter. Turnover is based upon station schedule and employment contract. This is generally in October and February.
- B. CREDENTIALS – Upon receipt of a physician's application for employment, and prior to a contract offer, RPSC Medical will establish a folder of credentials to include the following items:
  - Copy of Certificate of Board Certification
  - Copy of Certificate of Completion of Medical Residency Program
  - Copy of Certificates for ACLS and ATLS
  - Copy of current license from State Board of Medical Examiners
  - Copy of DEA certificate
  - Documentation of record searches from the American Medical Association, and from the National Practitioner's Data Bank
  - Documentation that professional references have been contacted.
- C. MEDICAL SUPPORT – See Annual Program Plan for McMurdo Station staffing numbers.
- D. DUTIES – are as follows:

- Medical duties are assigned by the Medical Director. See the various Position Descriptions on the Human Resources Directory, I:\Perm\Human Resources\Position Descriptions/. Use the two-letter code spreadsheet to identify the correct document.
- The medical staff is responsible for adherence to USAP policies, Medical protocol, and procedures. Violation or negligence of these items constitutes grounds for reprimand. The staff is required to respond immediately to ALL medical pages and should carry a radio at all times when not within earshot of the station all-call system.
- The staff will also perform safety and general station duties as assigned.

### 3-2 MASS CASUALTY TEAM

- A. Each season, the physician will train volunteers for a Mass Casualty Team to assist the station in the event of emergency. This group will need to respond to medical all-calls unless other emergency duties supersede.
- B. Community members with prior medical training (such as EMT, nursing, or Wilderness First Responder) can be encouraged to become members of the Mass Casualty Team, but no prior training is required.
- C. It is recommended that volunteer members of the Mass Casualty Team be trained in the following areas, as appropriate to skills and as training permits follow topic areas for proficiency in the Clinic. The first priority of this team is to appropriately "package", transport, and address patients with the basic life saving maneuvers. The latter especially focused upon the basic A-airway, B-breathing, C-circulation, D-(neurologic) disability, and E-exposure.
  - **X-ray** – techniques of chest and extremities and transmission of images to the appropriate sites for reading and consultation
  - **Laboratory** - strep screen, peripheral smear and differential, hematocrit and QBC machine, I-stat tests, Ektachem processing, glucometer, UA
  - **Phlebotomy** – drawing blood into appropriate tubes and processing specimens
  - **Emergency** – defibrillator, EKG, pulse oximeter, nebulizer, AED, O<sub>2</sub> administration
  - **Equipment** – sterilizer usage, ultrasound set-up, hospital gurney operation, hazardous waste handling, trauma and emergency equipment locations and emergency medical cache storage. The Communications Technician and Network Administrator on station should be familiar with the operation of the telemedicine equipment.
- D. All procedures are listed on a check-off sheet for each of the Mass Casualty team members. The physician will verify aptitude in these areas.

### 3-3 BIOMEDICAL EQUIPMENT TECHNICIAN

Each year a Biomedical Technician will visit the station to inspect and perform maintenance and any needed repairs on medical equipment. Refer to the Biomedical Equipment Technician Position Description in the Human Resources Directory (I:\Perm\Human Resources\Position Descriptions).

## **SECTION 4: MEDICAL RECORDS AND FORMS**

### **MEDICAL RECORDS**

Medical records coordination and control are detailed within SOP ME-A-122, Medical Screening. In regards to on-Station use:

#### **4-1.1 MEDICAL RECORD FORMAT**

- The patient's blood type will be clearly and prominently displayed.
- The patient's allergies will be noted in red on the chart jacket.
- All entries into the Medical record will be legibly signed and dated.
- In cases where the note is transmitted to the medical record via e-mail, a typed signature will be accepted. Orders written in the chart will be signed off when executed.
- Oral orders must be documented in the chart when executed.
- Notes and other documents will be placed in the chart in chronological order with the most recent entry on top.

#### **4-1.2 MEDICAL RECORD CONTENT**

- PQ medical and dental physicals and notes on PQ decisions, including any monitoring required during deployment.
- Progress note for each patient encounter, including a brief medical history and vital signs (MIRF follow-up visits do not require vitals unless indicated).
- Daily progress note when patient stays overnight at the clinic or is under medical care and staying in their berthing room.
- Medevac and SAR team notes, telemedicine, e-mail and phone consultation notes and consultations provided for ship personnel.
- All laboratory results and x-ray reports.
- Death Certificates must be copied and placed in the chart.

#### **4-1.3 MEDICAL RECORD CUSTODY**

- USAP medical records are the property of the National Science Foundation. RPSC is custodian to generate, maintain and protect the privacy of all USAP medical records.
- The Physician at McMurdo will maintain records for only those individuals expected to be on the station, on vessels, or in Continental field camps during a season.
- Records are returned to RPSC after redeployment of the individual. The Population Spreadsheet (I:\Perm\McMurdo Population) can be checked for the movement of field camp and ship personnel, and the Station Manager or Administrative Assistant can provide a list of personnel departing from and arriving to station.

- All medical records will be maintained in the HQ Medical Department in accordance with SOP ME-A-122, Medical Processing.

#### **4-1.4 MEDICAL RECORD TRANSPORT**

##### **Incoming Medical Records**

- Receipt of incoming charts from Denver is confirmed by checking them off on the included list of sent charts.
- Verify that the chart is at the correct station by checking the first page of the PQ form.
- Review the blood type, hepatitis screen and HIV results and update the blood donor list.
- File the chart alphabetically by last name.
- Personnel and their charts should arrive on the station timely. Upon redeployment or close of station for winter over, their chart is returned to HQ.

##### **Outgoing Medical Records**

- As personnel leave the station heading north, the physician collects the medical records of field camp and station personnel. The records are packaged in boxes provided by the Medical Department. The boxes are labeled as Medical - Confidential.
- A list is made of all outgoing charts. The records are packaged together with two copies of this list. The package is labeled confidential and sent back to RPSC Medical. A copy of the list of charts will be retained at McMurdo Station.
- An inventory of the charts will be done upon receipt of the charts at the HQ Medical Department.
- When a patient is evacuated for medical reasons, send them with their chart and all pertinent x-rays, medical records and lab findings and a summary letter for the receiving physician.
- If a medical record needs to be opened during transit, such as for patient care in Christchurch, a chart note must be completed to verify the reason the seal has been broken. The RPSC Medical Director will investigate any discrepancies or suspected breaches of confidentiality.

#### **4-1.5 MEDICAL RECORD CONFIDENTIALITY**

- The medical record, and any other report or record containing identifying patient information, is a confidential document.
- As the record custodian, RPSC has the responsibility of insuring that the confidential nature of these documents is maintained.
- When not being used, the charts will be returned to the locked filing cabinet. All records should be filed before the physician leaves the clinic in the evening.
- The front desk area is to be kept clean and secure of other patients' records and information during patient encounters or meetings in the clinic.
- The medical record is available to the patient, who may release a copy of it with a signed consent to anyone he or she so chooses. A release form will be filed in the chart. See ME-D-114, *Medical Record Request Form*.

- The record may be reviewed by NSF-designated reviewers for quality assurance purposes, and by appropriate organizations designated by the patient or his or her contract agreement with RPSC for billing purposes and determination of disability claims. This release is made with the expressed understanding that this is confidential material that may not be released to other sources without the written consent of the patient.
- If the Antarctic support contract is awarded to another contractor, the NSF will transfer custodianship to the new organization.

#### 4-2 NOTICE OF MEDICAL INJURY REPORT FORMS (MIRF)

- A. The Medical Injury Report Form (MIRF) ME-A-210a, is used to assure proper recording and notification of injury and illnesses. Forms can be found in I:\perm\Procedures\Masterlist under Medical. They are password protected; the outgoing physician will inform the incoming physician of the password. See SOP ME-A-210, *Documentation of Medical Injury Report Forms (MIRF)*.
- B. MIRF forms are to be completed for any injury or accident occurring on the ice regardless of whether or not the accident is work-related, and also for any condition in which the patient states that their work caused or worsened their condition.
- C. The form is named in accordance with SOP ME-A-210, *Documentation of Medical Injury Report Forms (MIRF)*, with a unique identification number for each case.
- D. The original form remains in the chart. An electronic copy of the completed MIRF form should be e-mailed in accordance with SOP ME-A-210, *Documentation of Medical Injury Report Forms (MIRF)*. This form must be e-mailed from the e-mail program by attaching the MIRF form, otherwise password protection is lost. Do not e-mail the form from Microsoft Word, and mail only one MIRF at a time, within 8 hours of the clinic visit.
- E. If limitations or restrictions are indicated on the form, the Physician will phone the patient's supervisor and notify the supervisor of such limitations or restrictions.
- F. For any work related injury, the patient's supervisor will complete an accident investigation. In the case of an injury that occurs off-hours, the Station Manager will complete the investigation.
- G. In the Patient Database and in the Patient Log, "MIRF" is checked for all MIRF forms generated.
- H. The patient needs to be followed until the problem has resolved, and a record of this follow-up is attached to the initial MIRF. For follow-up reports, copy the initial report and add the current history and physical with current limitations (if any) and prognosis. Add a letter designator to the original case number (MIRF 2143A Jones, MIRF 2143B Jones, etc.)
- I. For any instances where alcohol/drug use is suspected, adherence to SOP HR-A-005, *Alcohol/Drug Use and Abuse* will be followed.
  - The results of any testing are saved in the MIRF report file.
- J. The information contained in the MIRF is confidential and the recipients have the responsibility to assure that it is handled appropriately.

**A MIRF FORM NEEDS TO BE COMPLETED FOR ANY PATIENT WHO COMES INTO CLINIC COMPLAINING OF INJURY AS A RESULT OF A WORK-RELATED OR NON-WORK-RELATED INCIDENT.**

## **Part 2: McMurdo Medical Operations**

### **SECTION 5: CLINIC OPERATIONS**

#### **Physician responsibilities**

##### **5-1 GENERAL DUTIES**

- A. General equipment inspection and testing includes materials on the Equipment Report and includes, but is not limited to diagnostic equipment and teleradiology equipment, including the defibrillator, respiratory equipment, EKG, laboratory equipment, telemedicine set-up and radiology equipment.
- B. Maintenance of emergency medical supplies and medications such as the crash bags and medications, oxygen delivery systems, and the medical cache.
- C. Maintenance appropriate supplies (see SECTION 6: MEDICAL SERVICES, SUPPLY AND EQUIPMENT).
- D. Cleaning and organization of the treatment area (see SECTION 5: CLINIC OPERATIONS, HOUSEKEEPING).
- E. Any assigned safety inspections, science duties or general station duties.

##### **5-2 PATIENT CARE**

- A. When a patient arrives in clinic, the date, time, and name are recorded in the patient logbook. After the appointment, the diagnosis and type of services provided are recorded in the logbook and the visit is entered into the Patient Database.
- B. The physician is responsible for performing all available diagnostic equipment and therapeutic procedures.
- C. The physician can request consultation and telemedicine services when the need arises. See [SECTION 6-7: MEDICAL SERVICES, CONSULTATION](#).



### 5-3 ADMINISTRATIVE DUTIES

- A. Updating documents on the medical hard drive (“medbiz”) and updating and creating SOP’s as needed. All business-related files must be kept on the departmental “J” drive, named “medbiz”, to ensure that the files will be backed up regularly and not deleted upon your departure from station.
- B. Backing up archived files onto CD-ROM before removing them from the “J” drive and labeling them by last date of entry and storing them in the pharmacy. See the Records section at the end of this document for guidelines.
- C. Performing alcohol breathalyzer tests when requested by Human Resources/Station Manager.
- D. Creating and updating his or her individual Patient Database Program. At the end of a physician’s tour, their database information is sent to the RPSC Medical Department. The patient information database is used to track clinic activity. It identifies patient name, date, age, complexity of the appointment, category, organization, physician’s name, primary and secondary diagnoses, procedures performed and comments.
- E. WEEKLY SITREP Each week, a report must be submitted by e-mail to the Medical Department with a copy to the Administrative Assistant. The template is found in I:/reports/sitrep/sitrep form.doc.
  - Fill out the form (or change the preceding week’s form to reflect the current week’s data) and save it in the convention provided, with the date as yy/mm/dd so the reports stay in chronologic order.
  - The report will include the safety and medical duties performed including numbers of the following:
    - 1. Clinic visits
    - 2. Prescriptions dispensed
    - 3. Laboratory studies
    - 4. X-rays or ultrasound studies
    - 5. Medical and surgical procedures
    - 6. Injuries and accidents
    - 7. Medevacs
    - 8. Consults provided and ship calls
    - 9. Dental exams or procedures
- F. MONTHLY REPORTS

The following reports are sent monthly to the Medical Director and Health Services Manager:

- 1. Equipment Report
- 2. Lab Instrument Calibration and Controls
- 3. Laboratory / Diagnostic Supply Inventory

4. Radiology Report (names and studies completed)
5. Dosimeter Reading
6. Pharmacy Report
7. Water Inspection Report
8. Food Services Inspection Report
9. Fire Drill Report
10. Eyewash Station Report

#### G. BIENNIAL INSPECTIONS

The following inspections need to be performed every six months:

1. Oxygen cylinder inspection (J:\inspections\oxygencylinders\O2 cylinder log.xls).
2. First aid kit inspection and resupply (J:\Inspections\First Aid Kits)

#### H. END OF SEASON REPORTS

At the end of the season of employment, you will prepare a report that summarizes accomplishments, challenges encountered, and recommendations for the future. See J:\Reports\End of Season Reports for examples of previous reports and the EOS Report Template.

### 5-4 CLINIC HOURS OF OPERATION

- A. The physician work schedule follows other RPSC station personnel. The physician should be accessible by all-call or radio AT ALL TIMES, and is on call for emergencies 24 hours per day, every day.
- B. Routine appointments and drop-ins are usually seen between 7:30 am to 5:30 pm Monday through Friday, and 7:30 am to 2:00 pm Saturday. The physician takes breaks and lunch with the rest of the station personnel at the scheduled times.
- C. Patient care duties always take precedence over non-medical tasking.
- D. Science personnel may be in the field all day, and personnel may have odd shifts, so flexibility is needed in order to see people off-hours when necessary.

### 5-5 QUALITY ASSURANCE

#### 5-5.1 QUALITY OF CARE AND CHART REVIEW

The provision of medical care requires multiple systems to function together. The QA process looks at these different systems, to evaluate problems and to suggest solutions. Data from clinical areas is combined with input from the patients, to complete the process. The areas to be evaluated are the following:

1. Patient Input – Confidentiality and Satisfaction.
2. Clinical Management.
3. Clinical Department Studies – Radiology, Pharmacy, Laboratory.

4. Patient Chart review for vital signs, SOAP format (Subjective, Objective, Assessment and Plan), and clinician signature. The NSF also conducts an independent review of a sample of charts from the station.
5. Equipment maintenance, testing and availability.
6. Administrative reports
7. Medevacs are reviewed by the Medical Director.

#### **5-5.2 RADIOLOGY QA**

- a. The physician maintains a log of all x-rays and ultrasounds taken and transmitted and includes exposures and settings to use for future reference.
- b. A radiologist receives the transmitted studies, interprets them and e-mails the reports back to the clinic. The physician compares the results with the original reading, and any significant clinical discrepancy is reviewed by the Medical Director and recorded in the patient's chart and on any computerized records of the study results.
- c. The functioning of the x-ray machine and processor are included in the monthly equipment report.
- d. The dosimeter is worn whenever taking medical or dental x-rays. The monthly reading is taken and included in the monthly Lab QA Report.

#### **5-5.3 PHARMACY QA**

- a. All prescriptions filled must be listed in the patient chart. The pharmacy database prints out an extra label which can be placed on the patient encounter form to meet this requirement.
- b. A pharmacy inventory will occur twice per year for QC on the pharmacy database and to correct any discrepancies.
- c. The monthly Pharmacy Report is sent to the Medical Director and it is reviewed for expired meds and zero balances.
- d. Audits of the Controlled Substances Log occur at the time of physician changeover and as needed. [See SECTION 6: MEDICAL SERVICES, PHARMACY, CONTROLLED MEDICATION STORAGE AND INVENTORY.](#) The Medical Director receives a report of all audits.

#### **5-5.4 LABORATORY QA**

- a. The physician keeps a log of all tests performed.
- b. Servicing of the lab instruments occurs yearly. This is documented in the inventory repair list that is completed each year by the Biomedical Technician and recorded in the quality control manual.
- c. Controls of lab equipment are performed monthly and sent to the Medical Director in the Laboratory QC Report. Equipment is calibrated as required by the manufacturer or based upon QC results.

#### **5-5.5 PATIENT CHART REVIEW**

- a. The NSF will conduct an independent review of a sample of charts from the station.
- b. All medevacs are reviewed by the Medical Director.

### **5-6 HOUSEKEEPING AT MCMURDO CLINIC**

#### **5-6.1 CLEANING**

Cleaning the clinic can be performed during the hour between lunch and general station cleanup ("House Mouse") on Saturdays.

- Empty all garbage and hazardous waste as needed
- Clean the clinic sink and the bathroom
- Wipe down all counters and equipment, including the gurney
- Sweep and mop the clinic floor
- Straighten up, dust and vacuum the office
- Wipe down the phones and doors and clean out the refrigerator monthly

#### **5-6.2 CLEANING SUPPLIES**

Cleaning supplies are located in the bathroom cabinet and under the clinic sink.

### **5-7 FIRE SAFETY AND ELECTRIC**

#### **5-7.1 FIRE**

- a. The clinic is connected to the central fire alarm system. Fire extinguishers are located in the clinic. Egress routes and extinguisher locations are marked on the clinic plan posted on the wall by the medical vestibule. The fire extinguishers are inspected monthly by the Fire Team.
- b. The physician is responsible for implementing the monthly fire drill.
- c. Flammable chemicals are stored in the Haz building. Small amounts of necessary lab chemicals are available in the lab cabinet.

#### **5-7.2 ELECTRIC POWER AND EMERGENCY GENERATOR**

- a. The electrical system is 110 volts and grounded. All new equipment should be connected to an electrical supply by a qualified electrician.
- b. Malfunctioning equipment is unplugged, tagged, and reported on the weekly safety report for repair/replacement.
- c. If there is a power failure, computers should be turned off to prevent power surge damage. The Station Mechanic is responsible for restoring power after a power outage.
- d. Should the station need to run on emergency power, the clinic will be a considered a priority. However, any non-essential equipment should be unplugged.

## 5-8 HAZARDOUS WASTE MATERIALS

### 5-8.1 GENERAL

- a. The clinic utilizes hazardous materials for cleaning purposes and for medical procedures. The physician must read the handling instructions prior to using any hazardous materials. Numerous hazardous chemicals are also used by science groups and station personnel. In case of contamination, appropriate steps will be taken to clean the exposed individual. The Waste Management Specialist has decontamination clothing for use in these circumstances.
- b. A full table of available MSDS information for chemicals used on station is on the common drive at Common/Perm/Safety/MSDS/MSDSspreadsheet.xls. Each department has a separate section that can be accessed through the tabs at the bottom of the sheet. The chemicals listed are linked to their spreadsheets for easy access.
- c. A sharps container is available in the clinic. All sharps including glass tubes are to be placed in the sharps container. Putting hands or fingers inside the sharps container is very hazardous and not allowed.
- d. All bio-waste is to be placed in biohazard bags for disposal. Bags can be turned over to the Waste Management Specialist when full.

### 5-8.2 TYPICAL HAZ WASTE FOR MEDICAL

(Please call the Waste Specialist with questions for items not on this list)

- a. **Aerosol Cans:** Remove plastic tops. Flammable aerosols may be disposed of together without segregation (i.e.: WD-40, paint, hairspray may all go on one HWIS). Dispose of small gas cylinders separately.
- b. **Batteries:** Dispose of in the battery box.
- c. **Bio-waste:** Call the Waste Management Specialist to pick up sharps containers and bags of bio-debris.
- d. **Water testing containers and culture medium:** Ask the waste specialist for details regarding the disposal following the testing procedure.
- e. **Lighters, butane:** Dispose of separately from aerosol cans.
- f. **Medical chemicals:** Each type of chemical solution needs its own HWIS with its individual constituents listed. For commercial chemicals that do not list constituents on the label, try to provide original packaging information (e.g. certain culture stain solutions from medical have information listed with the accompanying instruction sheets).
- g. **Autoclave cleaner:** When cleaning the autoclave with chamber-brite, the drainage from the cleaning cycle and the rinse cycle can be drained into the appropriately labeled plastic drum. When the drum is full, call the waste specialist for pick-up.
- h. **Medicines, non-regulated:** Different expired/bad medicines may be disposed of under one HWIS. Enter all disposed medications into the Pharmacy Database.
- i. **Medicines, regulated:** See the Controlled Medication Disposal Procedure.

- j. **X-ray photochemicals:** Do not dispose of liquids other than x-ray chemicals in the photochemical container. Indicate on the HWIS the estimated percentage of developer, fixer, water, etc. that is put into the container.

### 5-8.3 HAZARDOUS WASTE PROTOCOL

- Each waste item receives its own unique waste number, corresponding to the number on the Hazardous Waste Identification Sheet (HWIS). Multiple *identical* items (i.e.: 4 jugs of disinfectant, or 4 cans latex paint) may be indicated on one HWIS, but mark each item with the HWIS number and clearly indicate on the HWIS how many items are associated with that sheet. On the back of each HWIS there are detailed instructions for filling out the form.
- For pickups: Call the Waste Specialist in his/her office or by radio for hazardous waste pickups. Please ensure items and paperwork are ready prior to calling for a pickup. The Waste Specialist will reject unacceptable waste, so please call ahead of time with questions.

## SECTION 6: MEDICAL SERVICES

### 6-1 LABORATORY SERVICE

#### 6-1.1 GENERAL

- a. The lab functions to provide the clinician with the necessary laboratory testing to appropriately treat patients at McMurdo Station. A clinical lab is available in Christchurch.
- b. Universal Precautions are exercised as routine practice. The countertop near the sink is the dirty area and is the place that urine and microbiology testing is performed.
- c. The lab manuals and reference manuals are kept in the lab to assist clinicians in preparing the specimen and performing the available tests.
- d. Every test performed in the lab is documented in the lab log. The log is the permanent record of the performance of the test and the results. The log has columns for date, patient name, test results, and initials of the person performing the test. The laboratory log is part of the QA process.
- e. The Biomedical Technician services all laboratory equipment on a yearly basis. The results of this servicing are incorporated into the inventory list submitted to the Medical Director. The Biomedical Technician assists the HQ Medical Department on new purchases of equipment. The manufacturers' documentation for specific equipment remains in the laboratory for troubleshooting and for routine maintenance.
- f. Dispose of all waste contaminated by body fluids in the red bag hazardous waste bins or the sharps container, as appropriate. See [SECTION 5: CLINIC OPERATIONS, HAZARDOUS WASTE MATERIALS](#) for information on disposing of lab chemicals.

#### **6-1.2 LAB CAPABILITIES**

- a. Peripheral blood smear, manual differential and manual hematocrit
- b. Automated CBC (QBC analyzer)
- c. PT & INR Coagucheck S analyzer
- d. Basic chemistry panels (Ektachem analyzers)
- e. ABG (I-Stat analyzer)
- f. Troponin (I-Stat analyzer)
- g. Blood typing and crossmatch
- h. Gram stain and Wright's stain
- i. KOH and Saline preps
- j. Urinalysis with microscopy
- k. Urine pregnancy test
- l. Strep Screen
- m. Drug Screen
- n. Breathalyzer for alcohol
- o. Digital microscope (located in the science laboratories; there is a video on how to use this microscope; ask the Instrument Technician for help. Digital images can be taken and sent to consultants via e-mail if needed).

#### **6-1.3 LABORATORY REFERENCES**

- a. The Laboratory Reference Binders are kept on the laboratory shelves. They contain information on how to process specimens and perform available studies.
- b. Electronic versions of the SOP's for lab tests are also kept on the computer in the folder: J:\Laboratory.

#### **6-1.4 LABORATORY QUALITY CONTROL**

- a. The Laboratory QC Report is submitted monthly to the Medical Director and Health Services Manager and includes the necessary interval calibration and monthly control values for all laboratory equipment. Control results are analyzed to detect any developing trends or problems with technique or equipment.
- b. Normal and abnormal controls are run concomitantly with patient samples where indicated and results are recorded.
- c. Where applicable, duplicate controls are performed to test the consistency of technique and precision of the operator and the equipment. These duplicate results are recorded in the Laboratory QC Report mentioned above.
- d. During turnover, the incoming physician is trained by the outgoing physician on how to perform the available laboratory tests.

### **6-1.5 LABORATORY EQUIPMENT MAINTENANCE**

- a. Laboratory equipment is serviced by the Biomedical Technician annually. The results of this servicing are incorporated into the Equipment Report submitted to the Medical Director. A current laboratory inventory is to be submitted annually.
- b. The manufacturers' technical manuals are kept on the laboratory shelves.
- c. The Health Services Manager will make any arrangements with manufacturers to perform required repairs within the United States, and then return the equipment to the station.

### **6-1.6 LABORATORY REFERRAL SERVICE, CHRISTCHURCH, NEW ZEALAND**

- a. Comprehensive clinical and histologic laboratory services are available in Christchurch.
- b. Before sending out labs, Christchurch should be contacted via e-mail so they are expecting the specimens. They can also ask the lab how the specimen should be processed and stored (i.e., frozen serum or refrigerated whole blood, etc.) if there are any questions.
- c. Always notify the Logistics Coordinator when you are transporting a specimen.
- d. Process and preserve samples as appropriate. Ensure the sample container is securely fastened. Label the container with patient name, type of test, date, time of draw and "McMurdo Station." Wrap the sample in bubble wrap and place in a bubble ziplock. Record the test in the laboratory log.
- e. Specimens can be transported in a cooler with the request letter. Be sure to label the specimens as "To Christchurch Medical – from McMurdo Medical - Confidential – Bio specimen" and "Refrigerated" or "Frozen". The specimens will be stored appropriately aboard the airplane and transfer them to Christchurch upon arrival.
- f. The results will be e-mailed by Christchurch with a written copy to follow. The results will be signed, filed in the patient's chart and recorded in the laboratory log.

## **6-2 BLOOD BANK**

### **6-2.1 GENERAL**

- a. The recall and rapid identification of potential donors for emergency transfusion is needed in any mass casualty or incident of massive trauma. The Walking Blood Bank serves as a mechanism to provide blood through rapid donation from station personnel.
- b. All participants in the USAP are tested for blood type and hepatitis C and B during the qualifying process. All winter-over and many summer participants are tested for HIV prior to deployment. The results of these tests are in the Medical Record. Salivary HIV tests are available on station to confirm HIV status.
- c. Every time there is a change in station personnel, the physician will review charts as they arrive and keep an updated list of the station population including blood types. Any participants who would not be acceptable candidates for blood donation are identified, and acceptable donors who are type "O" can be pre-screened to confirm blood type.
- d. The list of potential donors is kept in the front of the station medical record file drawer in a file called "Blood Donor List."



### **6-2.2 ACTIVATING THE WALKING BLOOD BANK**

- a. When there is a need for blood the physician will refer to the Blood Donor List to identify volunteer type O donors as well as donors of type specific blood.
- b. In the event of a Mass Casualty Incident, a site such as the bar or galley may be utilized as the blood collection site, depending on space availability in the clinic.
- c. All equipment and supplies listed on the Blood Bank Supply List shall be transported to the blood collection site. The Station Manager is contacted and asked to have the chosen donors report to the site.

### **6-2.3 BLOOD COLLECTION AND TRANSFUSION PROCEDURE**

Refer to the *Blood Bank* SOP for instructions. Necessary forms for blood collection and transfusion and instructions for type and crossmatch are located on the computer in the transfusion folder: J:\lab info and instructions\transfusion.

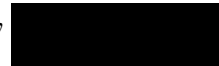
## **6-3 PHARMACY**

### **6-3.1 PHARMACY FUNCTIONS**

- a. The formulary is maintained by HQ Medical with input from all Stations.
- b. Inpatient, outpatient, medevac kits, the crash bag, field camps, and periodically to the vessels.

### **6-3.2 PHARMACEUTICAL PROCUREMENT**

- a. Pharmaceuticals are purchased through the Medical Department in Denver.
- b. The Medical Director for RPSC prepares the initial order for the summer and winter seasons. The quantity and type of medication requested is based on the utilization of these medications during the preceding year.
  - The physician on station will also perform an inventory twice per year with entry into the Pharmacy Database
  - The inventory will be reflected in the routine transmission of the Pharmacy Database to HQ
  - Expired medications are removed during the inventory
- c. The Medical Director sends order lists to the McMurdo Physician for review and input. The Medical Director will then submit the order.
- d. The pharmaceuticals may be delivered to HQ Medical. The Health Services Manager and Medical Director verify the accuracy of the delivered order. The order is packaged and sent via USAP Cargo to the station physician. Special orders or medications needed promptly may also be issued via Christchurch. If not sent to HQ Medical, they may be shipped directly via USAP Cargo, as the discretion of HQ Medical.
- e. Upon receipt of the order, the station physician verifies the procurement and records each medication as a new shipment in the pharmacy database.
- f. Missing medications or discrepancies in quantities of medications are reported to the RPSC Health Services Manager and the Medical Director, who then notify the pharmacy of the discrepancy.



- g. More details on pharmacy procurement can be found in the SOP ME-DLMNPS-200, *Pharmaceutical Procurement Process*.

### **6-3.3 STORAGE OF PHARMACEUTICALS**

- a. Each medication received is counted and recorded as a new shipment in the pharmacy database.
- b. The medication is then put in the appropriate place on the pharmacy shelf, behind any similar unexpired bottles of medication on the shelf.
- c. Shelf arrangement of any particular medication, from front to back, is as follows:
  - 1. The unexpired medications with the nearest expiration date.
  - 2. The most recently received stock of medication.
- d. The medications are categorized and grouped on the pharmacy shelves as follows: Antibiotics PO, Antibiotics IV, General Medications IV, General Medications PO, Ophthalmologics, Ear Nose and Throat, Topicals and Gynecologicals.

### **6-3.4 EXPIRED MEDICATIONS**

- a. Expired medications should not be dispensed unless the medication is absolutely necessary and there is no equivalent unexpired medication in the pharmacy. It is of utmost importance that medications be ordered in time to replace expiring stock, in order to avoid dispensing expired medication.
- b. Expired medications that have been or substituted by a new agent are boxed and an inventory of the medications (including name, dosage, quantity and expiration date) will be taped to the outside of the box. The box will be placed on a separate shelf or added to the medical cache as appropriate for the specific medication (see Medical Cache, below).
- c. Medications (**NOT including controlled substances**) more than three years expired, which have plenty of unexpired equivalent on the shelves and in the cache, can be disposed of as hazardous waste. For disposal of expired controlled substances, refer to the Controlled Medications Section of this procedure.
- d. If it becomes necessary to prescribe expired medications, it has been shown that they do retain potency well after the expiration date. Reliable reports, posted in the pharmacy, provide details that oral medications may be used with greater than 90% potency for 12 months after the expiration date, and safely for at least 3 years after expiration. Intravenous solutions should be replaced at time of expiration date, and utilized at a time no greater than 1 year after expiration.
  - If an expired medication is used, the date of expiration is recorded on the patient chart.
  - The RSPC Medical Director is notified if expired medication is issued or if the use of such medication is imminent.

### **6-3.5 MEDICAL CACHE**

- a. The medical cache is a cache of emergency supplies and expired medications. In the case of destruction of the clinic, these supplies and medications are available for use.

- b. The medications include ACLS medications, respiratory medications, antibiotics, pain relievers, topicals and many general use medications. Large amounts of bulky medications should not be added to the cache due to space constraints.

#### **6-3.6 DISPENSING PHARMACEUTICALS**

- a. Orders written in the chart or a label from the pharmacy database that is placed in the chart constitutes a prescription for dispensing of medication. No other prescription is required.
- b. Chart orders or labels must designate clearly the medication, the dosage, the frequency, and the duration and total amount to be dispensed.
- c. Prescriptions released to outpatients will be properly labeled to include the following: patient name, date, medication name and dosage, directions for taking, number or amount of medication dispensed, expiration date, name of provider, and appropriate warning instructions.
- d. The pharmacy database is used to record all medication dispensed from the pharmacy. Fields entered include date, name and dosage of medication, quantity dispensed, and patient name and directions for taking the medication

#### **6-3.7 PHARMACY TRACKING**

- a. All medications dispensed from the pharmacy must be accounted for. Medications are tracked through the Pharmacy Database.
- b. The station physician enters all newly arrived medications into the pharmacy database as “shipments”.
- c. Transfers of medications to field camps or the crash kits or to another location are recorded as “prescriptions” from the pharmacy. The name of the new location is entered into the “patient’s name” field in the database.
- d. Transfers of medication (such as to the resupply vessel infirmary or vice versa) are recorded as “shipments” by the receiving facility and “prescriptions” by the donating facility.
- e. Medications returned from the field camps are stored in individual boxes or bags dedicated to the camp and are not re-entered into the pharmacy database.
- f. Medications moving from the pharmacy shelves to boxes are subtracted as “prescriptions” from the general pharmacy database and the new location is entered into the “patient’s name” field.
- g. In addition to standard tracking procedures, controlled medications are hand-entered into a logbook.
- h. The station physician sends the Pharmacy Usage Report, created from the pharmacy database program, to the Medical Director each month:
  - Open the J drive (medbiz), then open the pharmacy folder.
  - Click on pharmacy 2000 database

- If there is a zip file named McMurdo 2000, right click on it and delete it. If no, proceed to next step.
- Right click on McMurdo 2000 Access icon, click on “add to zip McMurdo 2000.”
- E-mail the new McMurdo 2000 zip file to the Medical Director and Health Services Manager as an attachment. Right click, click on “send to” and type in their addresses and send.
- i. The Medical Director and/or Health Services Manager review the usage reports monthly and use the data to order any needed medications.
- j. See the Pharmacy Database User’s Manual for complete instructions on using the database (J/pharmacy/pharmacy database 2000/pharm db manual.doc).

#### **6-3.8 PHARMACY INVENTORY**

- a. Pharmacy inventory is conducted twice yearly, at the beginning of each season.
- b. Controlled substances are inventoried by the incoming and outgoing physicians during turnover or more frequently as deemed necessary by the Station Physician or the Medical Director.
- c. Expired medications should be organized and stored (or disposed of) at this time. See the Expired Medications instructions above.

#### **6-3.9 “OVER THE COUNTER” PHARMACY**

- a. A number of over-the-counter medications and supplies (ibuprofen 200mg, acetaminophen, condoms, chewable antacids, band-aids, vitamins, condoms, and cough drops) are available at the clinic and at various locations throughout the station.
- b. Items should be checked monthly and re-stocked as needed. Operations staff will assist as needed.

#### **6-3.10 FIELD CAMP MEDICATIONS**

- a. For field camps, the McMurdo physician often organizes the medication kits, adds some medications from the station pharmacy, and includes appropriate paperwork and instructions. At that time, any special needs should be ascertained, based on the following:
  - number of people at the camp and their medical histories
  - remoteness of the camp
  - length of the season
  - level of medical training of the camp member in charge of the medications (medical designee)
- b. All medications and supplies dispensed should be reviewed with the medical designee.
- c. Copies of the medication inventory and instructions for use of the medications are given, and chain of custody forms are filled out and handed over with the medications.
- d. The responsibilities of the Medical Designee are as follows:

- Keep a log of all medications dispensed.
  - Call or radio McMurdo Station Clinic or a neighboring station's clinic before using any prescription medications or whenever help beyond the designee's level of training is needed.
  - All unused medications must be returned to medical at the end of the season for inventory and storage.
  - Follow chain of custody procedure for all controlled medications.
- e. Medical supplies (i.e., backcountry first aid kits, cervical collars and backboards) are provided to the camps through the clinic and these supplies are stored in the clinic when they are not being used.

#### **6-3.11 FIELD CAMP MEDICATION FORMS**

- a. These forms can be found in the McMurdo computer network under J:\Field Camps
- b. There are individualized formulary lists of medications for the different Continental field camps. Any other medications should be added to the sheet. A copy of the Medication Formulary is given with the medications.
- c. The Medication Information Sheet is a reference for the medical designee regarding the use of the field pharmaceuticals. Any medications added to a field camp formulary should be added to the information sheet.
- d. Chain of Custody forms must be filled out and carried with controlled medications and the usual Chain of Custody Procedure must be followed.

#### **6-3.12 FIELD CAMP MEDICATION DISPENSING**

- a. All medications should be clearly labeled with the medication name, dose, and instructions on the label. The person in charge of the medications keeps a list of medications dispensed, including the name of the patient, date, dosage, quantity and indication.
- b. The station physician is notified of all prescription medication used in a field camp and records such information in the patient chart.

#### **6-3.13 FIELD CAMP MEDICATION AND SUPPLY STORAGE**

- a. All medications and supplies dispensed to the field camps are not returned to stock. This includes controlled medications, which are stored in the safe but are not returned to inventory. These medicines are often exposed to moisture and cold temperatures and are only for use in field camps.
- b. All medications are stored separately in the pharmacy when they are returned to the clinic and are reissued to the field camps at the beginning of the next season. All medications should be replaced according to expired medication parameters (see Expired Medications, above).

#### **6-3.14 CONTROLLED MEDICATION**

For the purposes of these guidelines, a controlled substance refers to a DEA class II-III medication, one that may be legally prescribed only with a valid license from the DEA. These include narcotic agents such as morphine and oxycodone, and sedative/anxiolytics such as benzodiazepines.

#### **6-3.15 CONTROLLED MEDICATION PROCUREMENT**

- a. The Station Physician contacts the Medical Director of the need for controlled substances or the Medical Director advises the Station Physician that controlled substances are to be procured for the station.
- b. An order is written up by the Medical Director and it is sent to the Station Physician for input.
- c. The final order is procured through the DEA license of the Medical Director, UTMB, or the station physician. The local DEA authorities are notified of the relationship of the DEA license holder to the USAP.

#### **6-3.16 CONTROLLED MEDICATION TRANSPORTATION**

- a. The Medical Director purchases the medication from a pharmaceutical supplier.
- b. The medications are delivered to the Medical Director where they are inventoried, or shipped directly, as deemed appropriate by the DEA license holder.
- c. The pharmaceuticals are signed over to an incoming Station Physician, with a Chain of Custody form and letter to New Zealand authorities.
- d. The incoming physician hand carries the medications to the station.
- e. The outgoing physician verifies receipt of the order and notifies the Medical Director of the quantity and type of medication that was received.
- f. Chain of Custody procedures must be followed for all controlled medication. See SOP ME-LMNPS-311a, *Narcotic and Controlled Drug Account Record*, for the Chain of Custody procedure and necessary paperwork for controlled medication.

#### **6-3.17 CONTROLLED MEDICATION STORAGE AND INVENTORY**

- a. Controlled medications are held in the combination-locked safe, and the Narcotics Log is kept locked in the pharmacy. The physician and the station manager have access to the safe combination.
- b. Controlled substances will be inventoried twice per year during the physician turnover, when responsibility for the medications is transferred from the outgoing to the incoming physician. The transfer and counts are documented in the narcotics log and a report is forwarded to the Medical Director.
- c. Audits or inventories may also be performed as needed or upon request of the Medical Director. These counts are to be performed by the station physician and an appropriate NSF or RPSC representative such as the Station Manager. The Medical Director receives the reports of these audits.
- d. Theft or loss of medications will prompt an investigation by the Medical Director or his designee.

#### **6-3.18 CONTROLLED MEDICATION DISPENSING**

- a. Controlled medications are to be dispensed only by the physician.
- b. Any prescriptions must be recorded in the chart, in the Pharmacy Database, and in the Narcotics Log. The lot number, expiration date, and amount of medication dispensed must be accurately recorded in all three of these records.

### **6-3.19 CONTROLLED MEDICATION DISPOSAL**

The DEA has authorized the destruction of controlled substances on station. Refer to the Disposal of Controlled Substances Procedure for the proper procedure.

## **6-4 SURGICAL CAPABILITIES**

### **6-4.1 GENERAL**

- a. Antarctica's isolation may require that operations be performed at McMurdo on an urgent or emergent basis. Therefore, the operating instruments and supplies should be maintained and available for use on short notice. Instrument packs are to be kept sterile and current.
- b. Because of the risks of performing surgery in such a remote environment, with limited trained personnel and equipment, surgery should only be performed when absolutely necessary. If the patient can safely be stabilized for a medevac, evacuation is the preferred course of action.
- c. The nearest hospital with full operating services is in Christchurch. Under optimal conditions of flight availability, assuming it was available for a medevac, is approximately a 6 hour flight.
- d. The clinic maintains a reference library of books on surgical and anesthetic technique. The physician should consult with the Medical Director or UTMB before making a decision to operate. The Director can assist with setting up telemedicine support as well.

### **6-4.2 SURGERY PREPARATION AND STERILIZATION PROCEDURES:**

- a. The "Manuals and SOP's" folder on the medical hard drive contains a "Surgery" folder, which contains specific instruction on cleaning, sterilization, instrument packs and clothing. Consult the manual for further details. Large surgical packs need to be autoclaved in the large sterilizer in the science laboratories.
- b. The "Surgery" folder also contains surgical and anesthesia guidelines and training exercises for the Mass Casualty Team and physician. Training should begin early in the season.
- c. The TELEMED computer may be required and should be cleaned and covered with a sterile drape.
- d. A preoperative history and physical examination should be on the patient's chart prior to surgery. A full anesthesia and surgical record should be kept for each procedure performed and comprehensive anesthesia and surgical notes should be completed immediately following the procedure.

## **6-5 MCMURDO SUPPLY AND EQUIPMENT**

### **6-5.1 INVENTORY LOCATION**

- a. Main storage areas are as follows:
  - Clinic cabinets
  - Clinic rolling shelf unit (general supplies, teaching supplies and emergency medical bags)
  - Pharmacy closet (medications, general supplies, orthopedic equipment and splints and backup/less frequently used equipment)
  - -70 Freezer in the laboratories (cards and test solutions for the chemistry analyzer)

- Emergency Medical Cache
- b. The pharmacy inventory is listed by generic nomenclature in the Pharmacy Database. Supplies with expiration dates are listed in the supply program in the Pharmacy Database. These materials can be issued out of the USAP inventory program upon their arrival as their quantities are tracked in the Database. The Database is to be updated upon receipt, usage, and expiration of medications and consumables and after an inventory.
- c. The chemistry analyzer slides and test solutions are inventoried on the Ektachem Supply spreadsheet (J:/Reports/Ektachem/Ektasupply/Ektainvent.xls).
- d. An inventory of all items should be performed during each winter season. The general supply inventory is listed in the USAP inventory program. A current supply inventory list by location can be generated through the inventory program. See the Logistics Department for assistance.

#### **6-5.2 RETROGRADING SUPPLIES AND EQUIPMENT**

- a. Retrograding of consumables and equipment is covered in the Waste Management Procedures. Consult with Denver HQ for options and direction,
- b. Non-controlled medications are placed in the hazardous waste and documented. Consult the Medical Director if any donation program is currently in effect.
- c. Equipment is divided between what can be reused and land fill. The latter is shipped to the States as construction material or other appropriate classification. The Waste Specialist can assist with this process.
- d. Any materials or equipment shipped from station requires a RETROGRADE cargo form. These can be printed from the computer at J:/Forms/retro/generic retro form.doc. The same form is used to send any personal luggage home. Fill out the form, print 3 copies, place one copy inside the shipping box, and give two copies to Logistics. Bring the cargo to the GWR garage or, if the cargo is too heavy to safely transport yourself, inform Logistics where to pick it up.

#### **6-5.3 ORDERING SUPPLIES**

- a. All orders are coordinated with HQ Medical.
- b. All clinic supplies, except medications, must be ordered using the official Online Requisition Tracking (ORT) order form. Directions for ordering can be found in the ORT SOP. Personnel in logistics can provide training for using the system.
- c. The ORT form should be submitted electronically and also sent via e-mail to the Health Services Manager and to the Medical Director. They can help expedite an order if supplies are needed promptly. All deliveries ultimately depend upon the flight schedule and NSF concurrence.
- d. The USAP inventory program has NSF-projected minimum stocking requirements. These should be periodically reviewed and updated.
- e. The prior requisitions are filed in the "orders" file in the Physician's desk or in the clinic file cabinet. Check this file prior to placing an order to make sure orders are not duplicated.



- f. A list of online medical supply catalogs can be found in J:/ordering/medical supply catalogs on web. Hard copies of catalogs are stored in the file cabinet. The “ordering” folder on the J drive also contains useful information regarding our supplier contacts and charge codes.

#### **6-5.4 REPAIR AND MAINTENANCE**

- a. The Biomedical Technician services and calibrates equipment during an annual visit. Repairs during other parts of the year will be the responsibility of the physician and others with expertise.
- b. The technical manuals for all laboratory equipment are kept in the file cabinet above the lab area.
- c. All equipment is inspected monthly by the physician, and findings are recorded on the Equipment Report sent to the Medical Director and Health Services Manager. The report can be found in J:\Reports\Equipment Report.
- d. Major repairs will have to be sent to the manufacturer’s repair facility if repair cannot be accomplished at the station. Coordinate any send-out repairs with the Health Services Manager.
- e. Spare parts recommendations are a responsibility of the Biomedical Technician.

### **6-6 FIELD MEDICINE**

#### **6-6.1 PRE-DEPLOYMENT PREPARATIONS**

- a. Each deploying field group will have a medical designee (see below).
- b. Forethought should be given to any unusual or unique conditions the field party may encounter. Need for immunizations, additional medical training, and physical examination beyond the “PQ” requirements should be identified prior to deployment.

#### **6-6.2 FIELD MEDICAL KIT ISSUE**

- a. Medical issues first aid kits and emergency supplies to field teams. In addition, the RPSC Medical Department and the McMurdo Clinic will provide medications and medical supplies upon request.
- b. The field team’s medical designee can augment the medical kit according to field camp needs and designee’s skill level.

#### **6-6.3 FIELD MEDICAL DESIGNEE**

- a. The medical designee is the person in the group with the most extensive medical training, usually a WFR or WEMT. A copy of the designee’s current medical certificate is held in the Denver office.
- b. The designee is responsible for the issue and return of the field medical kit, logging dispensed medications, consulting with the physician, documenting patient encounters and MIRF forms, and keeping the physician apprised of patient care.

#### **6-6.4 FIELD MEDICAL CONSULTS**

- a. The medical designee is required to consult a physician prior to administering any prescription medications, and any medical issues beyond the designee’s certification need to be discussed with McMurdo Medical as per the *Emergency Medical Services Plan*.

- b. Any transfer of persons in the field for medical reasons constitutes a Medevac and needs to be authorized by the McMurdo physician. If the physician consulted requests an update from the field, every effort should be made to provide this even if the patient's condition is improved or unchanged.

#### **6-6.5 FIELD RADIO AND PHONE PROTOCOL**

- a. Medical consults over the radio should avoid stating the patient's name to ensure confidentiality. If the patient cannot speak, the name can be provided so critical information can be identified from his or her medical record.
- b. The physician should write up a consult note regarding the call for the patient's chart. In the event that poor HF communications prevent the field team from reaching McMurdo via radio, all teams are now equipped with iridium phones.
- c. In the rare case where McMurdo cannot be contacted, repeated attempts to establish communication need to be documented. In this situation, if the need for medical consultation is urgent or emergent, a neighboring station's medical services can be utilized if available.

#### **6-6.6 FIELD MEDICAL FOLLOW-UP**

- a. The medical designee is expected to complete a *Patient Encounter* form for each patient encounter and send it with the patient's name in an envelope labeled "confidential" to Medical at the next available opportunity.
- b. In the event of an injury or a work-related illness, the designee is also asked to complete a MIRF form to be included in the same envelope. McMurdo Medical will review the medical reports and sign-off on them as appropriate. The Physician will also send the MIRF reports to the appropriate parties.

#### **6-6.7 FIELD MEDICAL KIT RETURN**

- a. The medical designee will return the medications to McMurdo Medical. The list of dispensed medications is to be reviewed at that time. Medications provided to the field camps are kept separate from the McMurdo pharmacy since storage conditions of medications in the field can considerably shorten their shelf life.
- b. The contents of any medical kit are to be reviewed for expired contents or equipment damage prior to reissue.

### **6-7 CONSULTATION**

#### **6-7.1 OVERVIEW**

- a. The McMurdo Station Physician acts as a consultant for the EMTs and WFRs aboard the ships. During the summer, physicians on cruise ships may also ask the McMurdo Physician for assistance or for a second opinion for a patient they have on board. Many expeditions in the area are traveling on small vessels and do not have physicians, and they will sometimes come to the station for medical care. It has been station policy to help in any way reasonable and possible, thus fostering good relations with the tour companies who frequent the area. However, it is also important that any help you provide does not expose you, the NSF or RPSC to any unnecessary liability or expense. Be careful with supplies and medications; be sure there is an adequate reserve for McMurdo personnel.

- b. If the USAP research and resupply vessels cannot reach a USAP physician for consultation, they call MAS (Medical Advisory Systems), a contractor that provides emergency medical consultation services.
- c. A wide variety of consultation resources are also available to the McMurdo Station Physician, and they should be used whenever necessary. These include the following:
  - Other Antarctic physicians (particularly useful for non-emergent, unique Antarctic conditions)
  - The Medical Director and Medical Advisor
  - University of Texas Medical Branch (UTMB) telemedicine services (they provide consultation with all specialties, 24 hours per day seven days per week)
  - Dr. John Nicoletti (psychiatry)
  - Dr. Roger Anderson and his associates (dentistry)
  - Dr. John Gerhold and his associates at Diversified Radiology (Divrad)
  - Diver's Alert Network (in case of a dive accident – see [SECTION 7: EMERGENCY PROTOCOLS, DIVE ACCIDENT MANAGEMENT](#))
  - UTMB, other Antarctic physicians, the RPSC Medical Director and Advisor and Dr. John Nicoletti can all be accessed by phone, e-mail and video. See the phone list for pertinent phone numbers and e-mail addresses.

#### **6-7.2 TELEMEDICINE**

- a. Consultations may be obtained by phone, e-mail or video, depending on the assistance needed.
- b. Digital x-ray and ultrasound images can be sent to Divrad via the imaging program, or to consultants by e-mail. See the *Imaging Telecommunications Procedure*.
- c. Dental x-rays need to be digitally photographed and e-mailed to Dr. Anderson and carbon copied (cc) to the Medical Director.
- d. When sending digital radiographs or images, be sure that the consultant is expecting to receive them, particularly in urgent situations.
- e. When video teleconferencing is necessary, contact the Medical Director to assist in the set-up. See the Consulting with UTMB SOP for instructions on contacting UTMB and for setting up and using the Polycom unit. The Communications Technician and Network Administrator on station are also trained to use the unit and can be of assistance.
- f. Videoconferencing can also be used for “face to face” counseling sessions with the psychiatric consultant for station personnel in need of this service. This can be set up through the Medical Director as well.

#### **6-8 RADIOLOGY**

##### **6-8.1 GENERAL**

- a. Radiology studies performed at McMurdo Station, Antarctica, may be sent electronically to Divrad, in Denver, Colorado, for routine and stat readings, as required.

- b. All images transmitted should be logged into the book maintained in x-ray. Requisite information shall include the date, patient's name, type of procedure and views, kVp and mAs, and quality of the films.
- c. The e-mail portion of this procedure should include a completed radiology requisition form (J:\consultations&x-rays\x-ray request form.doc).
- d. The x-ray reading should arrive by e-mail with 24 hours. When stat readings are needed, call Divrad directly with the request.

#### **6-8.2 X-RAY MACHINE OPERATION AND X-RAY TRANSMISSION**

See the *Imaging and Telecommunications SOP*.

## **SECTION 7: EMERGENCY PROTOCOLS**

### **7-1 MEDICAL EVACUATION PROCEDURES**

#### **7-1.1 OVERVIEW**

- a. These procedures have been developed to ensure that the following goals are met:
  - Medical personnel understand the purpose and need of medical evacuations and use the medevac system appropriately
  - Resources are efficiently coordinated to facilitate a medevac
  - All affected agencies and groups are appropriately contacted and kept informed
- b. A medical evacuation is appropriate when McMurdo Station Clinic medical capabilities cannot provide the care, treatment, or diagnosis that a patient may need to sustain his or her life or health. A medical evacuation should not be used to facilitate elective or non-essential medical care, treatment, or diagnosis.
- c. The term medical evacuation is applied to three categories of conditions: urgent, priority and routine medical transport. The classification is driven by the immediacy in which the patient needs to be transported to more comprehensive medical care, which is determined by the nature of the patient's condition.
- d. Although routine medical transport patients do not truly represent an "evacuation", a single "medevac" procedure and system has been developed for ease of administration. It is important to understand that each category carries with it varying degrees of response and resource commitment. For that reason it is essential that the term "medevac" NOT be used without the categorical qualifier.
- e. The Physician should also be familiar with the following documents:
  - *Medical Operations SOP (OP-M-209)*– contains additional logistical information regarding medical evacuations.
  - *The Emergency Medical Services Plan (ME-A-301)*– gives administrative details for the RPSC Medical Department
  - *Patient Transport and Medical Evacuation Procedure SOP ME-CDMS-302*- identifies the definitions of patient transport



### **7-1.2 SCOPE**

- a. These procedures address the transportation and medical care that arise in the following situations:
  - Patients from remote field camps are evacuated to McMurdo Station for initial medical evaluation or treatment and may require transportation to Christchurch or the United States for extended care.

### **7-1.3 COORDINATION**

In the process of a medevac there are three levels of coordination that need to take place:

- The first level of coordination is to identify and mobilize transportation commensurate with the category of medevac. The Station Manager is responsible for this level of coordination.
- The second level of coordination is to transport and care for the patient. The station physician performs this level of coordination with the help of the trauma team and SAR team personnel as needed.
- The third level of coordination is intended to ensure that all appropriate administrative procedures pertaining to patient employment status, insurance and workers compensation, Christchurch housing, ticketing for return to US, etc., are activated. The Christchurch and/or HQ staff performs this coordination.

### **7-1.4 DETERMINATION OF THE NEED FOR A MEDEVAC**

#### **From McMurdo Station:**

- a. The McMurdo Physician will immediately notify the Medical Director and Station Manager of a serious illness or injury that may require a medevac. The Medical Director (or delegate) will notify the NSF of the situation. With the information from the McMurdo Physician and input from consultants, the Medical Director/UTMB and the NSF will make a decision regarding the necessity of a medevac.
- b. If the necessity of a medevac is initially unclear, the McMurdo physician will provide updates on the patient's condition to the Medical Director. The Director will distribute updates to the proper parties. The physician must also keep the Station Manager and Area Directorate updated regarding the patient's disposition and let them know immediately if a medevac is officially authorized.
- c. RPSC employees have medical evacuation insurance through the worker's compensation policy. The insurance provider will likely be involved in a medical evacuation of Urgent or Priority status. After being contacted by the Medical Director, the provider will call the McMurdo physician for details regarding the patient's medical and transportation needs. Some details of the evacuation may still be coordinated with Christchurch.
- d. *Patient Transport and Medical Evacuation Procedure* SOP ME-CDMS-302 should be referenced for details.

#### **From Remote Locations:**

- a. The medical designee of the vessel or camp will radio the McMurdo physician to provide details of the situation and the potential need for a medevac. Those people involved in the

communication are authorized to discuss otherwise confidential patient information as is required to facilitate appropriate measures of care.

- b. The physician will then notify the Medical Director and Station Manager and the same process will be followed as with a potential medevac from McMurdo Station. If possible and appropriate, the patient may first be transported to McMurdo or another station for further evaluation before a final decision is made whether or not to evacuate them to Christchurch.

**NOTE:** Transportation to McMurdo for routine but unplanned medical or dental care does not constitute a medevac. A call to the McMurdo Clinic may be appropriate to establish a plan for care. Sometimes there will be a station closer to the camp where the patient may be seen if needed.

#### 7-1.5 MEDEVAC INITIAL NOTIFICATION

Once it has been determined that a medevac is needed, the physician or medical provider will telephone the Station Manager and provide the following information:

1. **Patient Name**
2. **Patient Organization**
3. **Category of Patient** - Urgent, Priority or Patient Transport, see definitions below
4. **Name of Escort** (if established)
5. **Time the patient can be ready for transport** (e.g. Patient is ready for transport pending aircraft or vessel availability; patient will be ready for transport in XX hours.)

#### 7-1.6 MEDEVAC SECONDARY NOTIFICATION

The Station Manager will contact the following personnel:

1. **NSF Representative** - if urgent, the NSF Representative will authorize diversion of aircraft or other USAP assets.
2. **Christchurch** – to coordinate care and logistics once the patient has arrived in Christchurch.
3. **Program Manager**
4. **McMurdo Area Director**

#### 7-1.7 MEDEVAC ELECTRONIC NOTIFICATION

At some point into the medevac evolution the McMurdo physician will send out a standard format electronic message to the “Medevac – Who to Notify” e-mail list in the J:\medevac folder. This list comprises those individuals and organizations that have a role in the preparation, transportation, care, and management of the patient:

- NSF Operations and Logistics System Manager
- NSF On Site Representative, if any
- NSF Health and Safety Officer
- NSF Safety and Health Associate Program Manager

- McMurdo Station Manager
- McMurdo Area Director
- Continental Logistics Supervisor
- Christchurch
- RPSC Program Manager
- RPSC Medical Director
- RPSC Health Services Manager
- RPSC Medical Screening Supervisor
- RPSC EH&S Director
- RPSC Health and Safety Manager
- RPSC Human Resources Representative for Workers Compensation

**NOTE:** This mailing list should be established by the Station Manager, Medical Director and physician at the beginning of each austral summer. This message has been designed to exclude any information that would normally be considered medically confidential. For that reason any additional people that have a reasonable need to know can be added to the "Medevac List" address at the discretion of the Station Manager.

The electronic medevac message will be formatted in the following standard format:

NOTIFICATION OF MEDEVAC		[date]
Patient name		
Organization:	[RPSC, NSF, etc.]	
Category:	[urgent or priority]	
Condition:		
Status:	(ambulatory, wheelchair bound, ambulates with crutches, litter bound, etc.)	
Attendant:		
From:		
To:		
Disposition:		
Punta Arenas Ambulance:		

The message will contain this information using the following conventions:

- a. **Patient Name:** Last name, First name and Middle Initial of Patient

- b. **Organization:** The organization (see listings in the Patient Tracking Database) or science number to which the patient is assigned. Similarly, indicate national Antarctic program affiliations where appropriate (e.g. Ukrainian Antarctic Program). Indicate “Civilian” for Non-national program personnel such as tourists.
- c. **Category:** Patient is classified in one of the following three categories, which prompts the corresponding actions:

**Urgent:** Patient condition requires diversion of appropriate assets – including aircraft – to provide appropriate care. Urgent medevacs will typically require attending medical care during transportation. Transportation to Christchurch is required **as soon as possible**. Transportation of *Urgent* medevacs to Christchurch will require an ambulance in Christchurch.

**Priority:** Specific arrangements will be made on a case-by-case basis, as determined by physician in coordination with other responders, depending on the specific incident. The patient may be transported by ship or by air, depending on the availability and transportation times of either craft. *Priority* medevacs may require attending medical care during transportation. Transportation of *Priority* medevacs to Christchurch may require ambulance services in Christchurch.

**Patient Transport:** The patient condition does not warrant any special transportation arrangements from McMurdo. Transportation will be arranged when it is available. Generally, these patients are being sent to Christchurch or to the United States for non-emergency diagnostic testing or treatment that exceeds medical capabilities at McMurdo. Patient Transports will not require attending medical care during transportation to Christchurch. **Ambulance service is not required** to transport the patient to medical care in Christchurch.

- d. **Condition:** Patient is classified as to his or her relative medical status varying from “stable” to “critical.”
- e. **Status:** The patient is classified relative to his or her ability to be transported varying from “ambulatory” (i.e. able to walk under his/her own power, with or without assistance) to “litter” – indicating patient will be transported in a litter.
- f. **Attendant:** This indicates the level of attendance that the patient will require during the medevac varying from “none” to specification of medical team members in attendance described by position and name if known at the time of message generation.
- g. **From:** Indicates the location of the patient at the time of the medevac.
- h. **To:** Describes the initial destination of the patient (e.g. if the patient were being sent to Christchurch for additional diagnosis and treatment, Christchurch would be the initial destination although eventual transport to the United States may be required).
- i. **Disposition:** Describes the desired or anticipated course of action to be taken with regards to patient care (e.g. evaluation at Christchurch; follow up with orthopedist in Denver, etc.).
- j. **Christchurch Ambulance Requirements:** This will notify Christchurch to have an ambulance ready for patient transportation.



#### **7-1.8 MEDEVAC CHRISTCHURCH NOTIFICATION**

- a. The McMurdo physician will call or notify the receiving physician in Christchurch. Decisions regarding patient disposition will be made with consultation with the Medical Director who in turn will consult with the NSF.

#### **7-1.9 MEDEVAC RPSC ADMINISTRATION NOTIFICATION**

- a. The Station Manager will ensure that all appropriate information has been communicated to the RPSC Human Resources point of contact at Denver headquarters. This information is essential for change in employment status, activation of insurance benefits, notification of family members, etc.
- b. Outside requests for information pertaining to a particular Medevac should be directed to the RPSC Denver HQ. Immediate family members should be referred to the Medical Director. Inquiries from the media and other interested parties should be directed to the RPSC Communications Manager. More information is available in SOP CC-A-794, *Media Guidelines*.

#### **7-1.10 OTHER COORDINATION FOR MEDEVACS**

- a. The coordination of the transport and medical care of a patient from Christchurch to the United States will be made through the worker's compensation insurance for RPSC employees and/or through Christchurch and RPSC.
- b. If the Attendant from station can not accompany the patient once in the United States, the RPSC Health Services Manager will insure that an appropriate Medical Escort service is in place from the United States point of entry to the place of patient care.

#### **7-1.11 MEDEVAC EQUIPMENT RECOVERY**

The Medical Attendant or Escort will ensure that all medical equipment is promptly returned to McMurdo Station. Once equipment is no longer required for patient care, the equipment will be turned over to the RPSC Medical Department or back to the McMurdo Station Clinic.

#### **7-1.12 MEDEVAC DOCUMENTATION**

RPSC Medical will document the medevac event in the Patient Database and in the patient's chart.

### **7-2 DISASTER PREPAREDNESS**

#### **7-2.1 PURPOSE:**

To prepare the McMurdo community to respond to a disaster including mass casualties which could conceivably occur on or near McMurdo Station.

#### **7-2.2 ORGANIZATION**

- a. Preparing for a Mass Casualty Disaster is a multi-stepped task involving: planning, training, and drills. At McMurdo Station, there is much overlap between the Fire Team, OSAR Team and the GSAR team because disaster presents special challenges in terms of coordination and utilization of resources.
- b. The Physician will meet with the Station Manager and GSAR and OSAR leaders to create a useful scenario for the drill and to plan the response.

- c. A good scenario for a drill involves 1) an accident that is actually possible; 2) multiple victims; 3) multiple injuries with varying degrees of severity. After an initial simple drill, a more challenging drill can be administered, with additional problems to troubleshoot, such as key SAR personnel among the injured, or an injured manager or EMT, or a destroyed clinic. For example:
  - A mass casualty drill could be part of a monthly fire drill where a fuel explosion results in multiple victims with varying injuries from burns to trauma and inhalation injuries.
  - Another possible scenario is a crevasse rescue gone wrong, with injured, hypothermic and dehydrated victims and rescuers.
- d. Scenarios involving the SAR teams can take place during SAR training hours and be incorporated into the SAR training curricula.

### **7-2.3 PHYSICIAN PREPARATION**

- a. Attend administrative planning meeting with the Station Manager and OSAR and GSAR Coordinators.
- b. Conduct at least one tabletop drill and one walk-through drill at the beginning of each summer season.
- c. Educate the Mass Casualty Team in the overall Medical Emergency Plan for McMurdo and the specific role of medical.

### **7-2.4 DISASTER DRILL SETUP AND EXECUTION**

- a. Immediately upon notification, all available Mass Casualty Team members should report to the clinic and set-up to receive casualties. If the drill is part of a fire drill, all medical helpers and the physician will initially muster at the muster station and then go to the clinic.
- b. Tables can be set up and topped with exercise mats for makeshift beds.
- c. If the clinic is not secure or if it is damaged, primary Medical can be set up in the galley. Equipment from the medical cache can be brought to the Medical site.
- d. The physician will prepare to lead the medical team and the triage efforts and assign Mass Casualty Team members and others, if needed, to cover the following areas:
  - Triage
  - Patient Care/Nursing
  - Laboratory
  - X-ray
  - Communications/radio
  - Blood Bank
- e. The Physician has overall responsibility to direct the treatment of casualties, to initiate evacuation protocols if required, and to notify the Incident Commander (usually the Station Manager) when the medical situation is stabilized.

### **7-2.5 MORGUE**

- a. Primary morgue options are identified during drill exercises.

## **7-3 DECEDENT AFFAIRS**

### **7-3.1 STATEMENT OF PURPOSE:**

To assure the appropriate recording of deaths and the transfer of the remains.

### **7-3.2 DEATH CERTIFICATE AND AUTOPSY**

When the physician has declared a death, a Certificate of Death is prepared and signed by the physician. The physician should decide if an autopsy is necessary, and if so complete any necessary referrals.

### **7-3.3 NOTIFICATION OF DEATH**

Notify the Station Manager and the Medical Director of the death.

### **7-3.4 HANDLING, STORAGE AND TRANSPORT OF THE BODY**

- a. The physician will be responsible for cleaning and preparing the remains, with the help of the Mass Casualty Team. Care should be taken to prevent leakage of fluids from the remains by wrapping the affected areas in gauze and plastic. Tag and identify the body.
- b. Casualty pouches (body bags) are available.
- c. Consult with the FEMC department about building a transfer case for the remains.
- d. Consult with the Station Manager on where to store remains. To minimize cellular deterioration, remains should be refrigerated above freezing, 36 to 40 degrees Fahrenheit. A freezer milvan may be utilized.
- e. All personal valuables, not contaminated by body fluids, should be labeled and placed in a marked bag and stored in the manager's safe or in the gun cabinet. The Station Manager should be consulted regarding where to store clothing. Contaminated clothing should be red bagged prior to storage. Once the transfer case is completed, the contaminated clothing can be stored in the transfer case.
- f. The physician will tell the station manager if he or she believes there is a need for outside help for counseling for station personnel.

### **7-3.5 TRANSFER OF THE BODY OFF THE ICE**

- a. Before the remains are transferred off the ice, check the remains and casualty pouch for leakage.
- b. Hand-carry all personal valuables, the Death Certificate, the Medical Record and any autopsy requests to the aircraft. The Medical record will be forwarded to HQ. All paperwork should be placed in zip lock plastic bags within sealed confidential envelopes.
- c. *Patient confidentiality does not end at death.*

## **7-4 DIVE ACCIDENT MANAGEMENT**

### **7-4.1 GENERAL**

- a. A decompression injury at McMurdo Station can be treated with rest, observation and oxygen. There is no hyperbaric chamber at McMurdo Station, so decompression illness requiring hyperbaric treatment will require a medevac to a hyperbaric chamber.
- b. See the *Dive Accident Management Plan* for details. This plan should be reviewed by the physician, boating coordinator and all divers prior to the commencement of diving during the season.

### **7-4.2 STATION PREPARATION**

- a. Diver's Alert Network (DAN) kits are available, and a certified WEMT is present during all dive operations and is also trained in the use of DAN kits.
- b. Station personnel (dive coordinators) volunteer to assist divers. Responsibilities include helping divers suit up, assisting divers with equipment at the beginning and end of the dive, and supporting the divers in case of an emergency.
- c. The physician meets with the divers and dive coordinators at the start of the season to review the scientists' dive logs, dive plans, proposed diving sites, the Dive Accident Management Plan, and station capabilities in the event of an emergency.
- d. The physician should verify when hyperbaric chamber availability and functionality during the dive season. If at any time the chamber is not functioning, the availability of a backup chamber needs to be verified.
- e. The physician, diving coordinator, and one or more of the divers hold a Dive Tending Course for all personnel who will be working. A course outline is available at J:\lectures\dive tending\dive tending course.doc. Topics covered include:
  - Decompression illness
  - Wildlife issues (including initial treatment of seal bites)
  - Use of the DAN kits to deliver oxygen
  - CPR review and practice
  - Dive Accident Management Plan

### **7-4.3 IN CASE OF A DIVE ACCIDENT**

- a. In the case of a dive accident, the Diver's Alert Network (DAN) must be called immediately. Their phone number is in the *Dive Accident Management Plan* and in all of the DAN kits. Their doctor on call can offer expertise and will follow the patient's course.
- b. If there is any chance of decompression illness, the diver must be treated with 100% oxygen. Ideally, this is started in the field. However, signs of decompression illness may not appear until well after the dive.
- c. When an incident arises that may require the therapeutic use of a hyperbaric chamber, the appropriate consultation must be immediately obtained in order to call a medevac. While treating the patient, call the Medical Director to get this process started, and inform the Station Manager of the likelihood of a medevac.

- d. See the *Dive Accident Management Plan* for details regarding hyperbaric chambers in the region.

#### **7-4.4 NOTIFICATION**

- a. In the case of a medevac, the physician will notify interested parties by sending the Medevac Notice by e-mail.
- b. The e-mail list for the Dive Accident Medevac Notice includes all of the people on the medevac list as well as the Supervisor of Dive Services and the RPSC Science Support contact.

#### **7-4.5 INVESTIGATION AND FOLLOWUP**

The Supervisor of Dive Services is required to do a formal incident investigation of all decompression incidents at McMurdo Station. The attending physician will provide the Supervisor all relevant details, such as presenting symptoms, treatment(s) and outcomes, plus any known evidence relating to the cause of injury.

## **References**

*Emergency Medical Services Plan* ME-MS-301

*Palmer Station Medical Standard Operating Procedures and Protocols* ME-P-100

*Narcotic and Controlled Drug Account Record* ME-LMNPS-311a

*Antarctic Scientific Diving Manual* SC-D-010

*Dive Accident Management Plan* SC-M-102

*Pharmaceutical Procurement Process* ME-DLMNPS-200

*Medical Screening* ME-A-122

*Media Guidelines* CC-A-794

*Imaging Telecommunications Procedure*

*Documentation of Medical Injury Report Forms (MIRF)* ME-A-210

*Medical Injury Report Forms (MIRF)* ME-A-210a

## Records

<b>Record Identification, Format, &amp; Owner</b>	<b>Active Location Storage, Protection, &amp; Retrieval</b>		<b>Retention Time (Active and/or Facilities Storage_</b>	<b>Ultimate Disposition</b>
Weekly SITREP, Electronic, Area Directorate	J:\Reports\Sitreps		Refer to Area Directorate storage procedures	Refer to Area Directorate storage procedures
Monthly Equipment Inspection and Report, Electronic, Physician	J:\Reports\Equipment Reports		Active, 1 year Facilities, 7 years	Destroy
Pharmacy Database, Electronic, Physician	J:\Pharmacy\Pharmac y Database 2000		Living document updated as needed	Living document updated as needed
Monthly Ektachem Controls Report, Electronic, Physician	J:\Reports\Ektachem Reports\EktaControls		Active, 1 year Facilities, 7 years	Destroy
Monthly Ektachem Supply Count Report, Electronic, Physician	J:\Reports\Ektachem Reports\EktaSupply		Active, 1 year Facilities, 7 years	Destroy
Seasonal Oxygen Cylinder Inspection, Electronic, Physician	J:\Inspections\Oxyge n cylinders\O2 Cylinder Log.xls		Active, 1 year Facilities, 7 years	Destroy
Seasonal First Aid Kit Inspection, Electronic, Physician	J:\Inspections\First Aid Kits\First Aid Kit Log.xls		Active, 1 year Facilities, 7 years	Destroy
Ongoing Laboratory Log, Electronic, Physician	Lab shelves		Active, Until log is filled. Facilities, 7 years	Destroy

			after last entry	
Ongoing Narcotics Log, Hard Copy, (Individual sheet for each lot of each substance, filed in binder) Physician	Locked in pharmacy		Active File, until substance expiration date, Expired File, until substance is destroyed, Facilities, 7 years	
Ongoing Radiology Log, Hard Copy, Physician	Top of file cabinet near x-ray machine		Active, until log is filled. Facilities, 7 years after last entry	Destroy
Ongoing Patient Visit Log, Hard Copy, Physician	Physician's desk		Active, until log is filled. Facilities, 7 years after last entry	Destroy
Ongoing Sterilizer Log, Electronic, Physician	J:\Equipment\Sterilizer		Active, 1 year Facilities, 6 years	Destroy
Ongoing Patient Database, Electronic, Physician	J:\Patient DB		Active, 1 year Facilities, 6 years	Destroy
End of Season Reports, Electronic, Physician	J:\Reports\End of Season Reports		Active, 1 year Facilities, Indefinitely	

## Attachments, Appendices

None.