



# UC San Diego

# Medical Toxicology Fellowship Program

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## **INTRODUCTION**

Our two-year fellowship in Medical Toxicology is available to physicians who have completed residency training in occupational medicine, pediatrics, or emergency medicine, and are board certified or board eligible in their respective specialties. Because fellow and attending toxicologists act as primary physicians for poisoned patients, competence in critical care is required.

The American Board of Medical Specialties (ABMS) has recently approved Medical Toxicology as an official subspecialty of the above primary specialties. The first ABMS approved board examination in Medical Toxicology was administered in November 1994, and will now be offered every other year. Our fellowship was first accredited by the ACGME in July 2000, and our latest site visit resulted in accreditation until 2009.

## **FELLOWSHIP GOALS**

The goals of the fellowship are the following:

1. To develop expertise in the diagnosis and treatment of acutely and chronically poisoned patients. This encompasses intentional and accidental poisoning from pharmaceutical agents, plants and venomous animals, household products and from industrial exposures.
2. To become familiar with industrial hygiene procedures for environmental monitoring, OSHA regulations, NIOSH criteria documents, NIOSH proposed standards, documentation used by ACGIH for determining TLVs, and general industrial toxicology.
3. To become familiar with the medical effects of hazardous materials, and to become competent in managing the medical complications seen after hazardous material incidents.
4. To actively engage in both animal and human research that produces relevant information which can be used in the treatment of poisoned patients.
5. To actively disseminate information gathered in research by publishing results in medical journals and by making presentations at national and local medical meetings.
6. To participate in the training of medical personnel ranging from paramedics to physicians in training.
7. To become knowledgeable in basic pharmacology, drug interactions and pharmacokinetics, and to provide these services to physicians in the clinical setting.
8. To spend time in the toxicology laboratory and become familiar with analytical

methodologies.

9. To promote expertise in the operation of a regional poison center and in the public services provided by such a center.
10. To become competent in the prevention of poisonings in the home and work place through public education programs and through direct involvement with industry.
11. To become knowledgeable in the practice of hyperbaric medicine as it pertains to toxicology.
12. To prepare physicians for certification by *The American College of Medical Toxicology*, and the certifying primary boards of Emergency Medicine, Pediatrics, and Preventive Medicine.

## **FACILITIES AND PATIENT POPULATION**



UCSD Medical Center (UCSDMC) is an urban teaching hospital in San Diego, California, comprising 450 medical, surgical, and pediatric beds. Medical, coronary, surgical, trauma, burn, and neonatal intensive care units operate within the facility. An on-site multiplace hyperbaric chamber is available for treatment of carbon monoxide poisoned patients and others needing this therapy. This chamber is capable of accommodating 12 victims or two ventilated victims at one time. The Emergency Department sees over 40,000 patients annually. The Medical Toxicology Service is based at this institution and has both admitting and consultation privileges on pediatric and adult poisoned patients. The Thornton Hospital in La Jolla is a community extension of UCSDMC. It presently has a 150-bed capacity. The Medical Toxicology service admits all poisoned or envenomated patients to this facility including the ICU.

Inpatient toxicology consulting is also provided to Scripps Mercy Hospital, the San Diego VA Medical Center, Balboa Naval Medical Center and Children's Hospital all of which are major medical centers in the metropolitan San Diego area. UCSD Medical Center is the only tertiary referral center for poisoned patients in southern California, accepting patients from Los Angeles, Orange, Riverside, San Bernardino, and Imperial counties and occasionally from western Arizona.

The spectrum of poisoned patients encountered by fellows is wide and includes accidental adult and childhood drug ingestions, recreational drug abuse, suicide attempts, adverse drug effects, plant and mushroom poisoning, envenomations by venomous creatures, and industrial toxicology problems. The Medical Toxicology service also manages carbon monoxide poisonings through our hyperbaric chamber.



The California Poison Control System (CPCS) is comprised of centers from four regional areas in California. The San Diego Division of the CPCS is located at UCSD Medical Center and currently receives over 80,000 calls per year, serving San Diego, Imperial, Orange, Riverside and San Bernardino counties, the fastest growing metropolitan area of its size in the United States. Other sites are located in San Francisco, Sacramento, and the Fresno/Madera area. The Division is part of the largest integrated poison control system in the world serving over 32 million people. The CPCS is linked together by an integrated data collection and communications system. The management and medical staff work cooperatively to provide uniform treatment protocols for the entire state. Pharmacists, nurses, and specialists who have received training in the diagnosis and management of poisonings and have been certified as specialists in poison information (SPI) by the American Association of Poison Control Centers staff our Division.

## **FELLOW RESPONSIBILITIES**

### ❖ CALL

The fellow is on call for 24 hours approximately every third day. The faculty provides full-time medical backup for fellows. The responsibility of taking call under supervision of faculty includes:

1. Handling phone and patient consultations from physicians.
2. Round with the attending daily on poisoned patients at all facilities where inpatient consultation is provided
3. Acting as medical backup for the staff of the Poison Center.
4. Providing bedside consultations on poisoned patients at UCSD, Thornton Medical

Center, Children's Hospital, VA Medical Center, Scripps Mercy Hospital, and Balboa Naval Medical Center.

5. Participating in medical toxicology outpatient care, including seeing new outpatients and seeing discharged patients in follow-up, and staffing the VA outpatient toxicology clinic.
6. Acting as medical authority for hazardous material incidents in the Greater San Diego area.
7. Consulting and providing care on patients requiring hyperbaric oxygen therapy for carbon monoxide poisonings.
8. Personally consulting by telephone on inpatients with poisoning-related illnesses at other community hospitals.

❖ INDUSTRIAL AND PREVENTIVE TOXICOLOGY

Programs are established at the Department of Preventive Medicine for incorporation of medical toxicology into the services available to patients. Patients will be scheduled appointments to be seen in a medical toxicology clinic. Drs. Fred Fung and Steve Munday are specialists in the field of occupational medicine with subspecialty certifications in medical toxicology. Both are closely affiliated with our Division. Dr. Fung is the Director of Occupational Toxicology at Sharp Hospital in San Diego, and is active in teaching the residents and fellows occupational toxicology at Journal Club, occupational toxicology consultations, occupational toxicology lectures, and conducting field demonstrations.

❖ OUTPATIENT CLINICS

A Medical Toxicology clinic is presently held on an "as scheduled" basis through the Urgent Care Center at UCSDMC. Patients are scheduled by appointment through referrals in the community or directly by patients desiring to be seen by a medical toxicologist. The fellow will participate in the staffing of this clinic.

The fellow will also participate in the outpatient toxic exposure clinic at the VA Medical Center. The clinic will see patients with war-related exposures and other potential toxicological illnesses. This clinic is held every Wednesday.

❖ TOXICOLOGY JOURNAL CLUB

Every month, fellows are expected to review the table of contents of all publications received at UCSDMC library to search for articles dealing with toxicology (medical, industrial, forensic, analytical), adverse drug reactions, and pharmacology. In addition, the fellow will review selected bibliographies to search for similar articles. The references in all new and updated managements in Poisindex<sup>R</sup> will be reviewed to search for articles of interest. At the Medical Toxicology conference every Monday, two hours are devoted to journal club. It is the fellow's responsibility to organize and distribute articles to all conference attendees.

## ❖ CONFERENCES

Every Monday the Division of Medical Toxicology holds a teaching conference for toxicologists, fellows, pharmacists, house staff and students rotating on toxicology or pharmacology services. The fellow will present a 10 to 15 minute presentation on a major topic pertaining to toxicology every week, in addition to participating in case reviews and journal club.

Emergency department teaching and Morbidity and Mortality conferences are held every Tuesday morning. A toxicology related topic is presented monthly (or as interesting cases occur). Fellows may be responsible for presenting and discussing such cases. Emergency Medicine Grand Rounds are the second Tuesday of every month with Morbidity and Mortality conferences every Tuesday. Internal Medicine Grand Rounds are every Wednesday with Morbidity and Mortality conferences every Friday. Toxicology-related cases or issues are frequently presented at these gatherings and the fellow will be expected to attend and participate. Internal Medicine Morning Report is held several times a week and may be attended by the fellow and toxicology staff as time permits for discussion and teaching of pertinent toxicology cases. Medical toxicology fellows are expected to participate in presenting didactic material at these conferences.

The CPCS has a twice-monthly educational teleconference with all statewide sites participating. The format of these teleconferences is case presentation and discussion. New and ongoing system-wide studies are discussed in this setting. System policies concerning treatments are also reviewed.

The Division of Medical Toxicology at UCSDMC is frequently asked to provide speakers for conferences at the Veterans' Administration Medical Center, UCSD Medical Center, Children's Hospital, and other miscellaneous meetings. Fellows are expected to share in the responsibility of making these presentations.

The Division of Medical Toxicology and San Diego Division of the California Poison Control System provide a training program in conjunction with San Diego County Hazardous Material for selected health care providers on the medical management of hazardous material incidents. The fellows will actively participate in this training.

## **POISON CENTER**

The fellow will spend some time during the first two months of the fellowship in the Poison Center working with the nursing and pharmacist personnel. Activities will include answering phones, using poison center resources, and making follow-up telephone calls. This will allow integration into the system and facilitate communications among the staff.

Fellows will also be involved in poison center Continuous Quality Improvement (CQI) by reviewing selected cases being managed by poison center staff. These cases will serve as a springboard for educational discussion with students, residents and attendings. Treatment

recommendations will be provided to the requesting party by phone and documented into the poison center database by the fellows.

## **MEDICAL RESEARCH**

Fellows are requested to participate in at least one animal research project and one clinical research project during the medical toxicology fellowship. Seed money is available for research endeavors through the Division of Medical Toxicology research fund. The fellow will be responsible for designing the project, obtaining grants and moving the projects through various committees, including the Institutional Review Board, with the assistance of the attending physicians. In conducting the research projects, the fellow is expected to gather experience in biostatistics, medical epidemiology, and preparation of manuscripts for publication. The Division of Medical Toxicology and the VA Medical Center provide computer support, office space and supplies to the fellow.

Animal research can be conducted at UCSDMC or other affiliated laboratories. Full-time veterinarians and veterinary technicians staff these centers. Fully equipped operating rooms and facilities for invasive monitoring, general anesthesia, radiology, and long and short-term animal care are available. Many projects are currently underway by the Division of Medical Toxicology, including several large multi-center trials of new therapies for poisoned patients. Other smaller studies are ongoing as well. All the listed and unlisted projects are immediately available for fellow participation.

Formal didactic courses in medical epidemiology and biostatistics are offered at the Medical Center and on the UCSD Campus. Time will be provided for the Fellow to attend at least one of these courses during the program.

The fellow is expected to submit at least two manuscripts for publication to medical journals or as book chapters. At least one of these will deal with results obtained from research projects alluded to above. Others may include reviews, clinical series or case reports.

Expenses will be covered for fellows to travel to the annual North American Congress of Clinical Toxicology meeting. The fellows are expected to prepare abstracts for presentation at this meeting as well as attend presentations by other investigators.

## **ANALYTICAL TOXICOLOGY**

The fellow will become familiar with various extraction procedures and with various qualitative and quantitative techniques used in analytical toxicology. These will include high performance liquid chromatography (HPLC), gas chromatography (GC), thin layer chromatography (TLC), EMIT assays, and colorimetric procedures. This education experience is directed by Dr. David Bailey, Director of the Analytical Toxicology laboratory at UCSDMC. During the fellowship, fellows work closely with the toxicology laboratory in the routine care of patients.

## **PUBLIC HEALTH**

An affiliation has been established with the School of Public Health at San Diego State University (SDSU). Fellows will have the opportunity to obtain a degree in public health from SDSU while completing the Medical Toxicology fellowship at UCSD.

## **SALARIES**

Funding for the fellowship is provided by the Veteran's Administration through an educational fund. Fellow's salaries are in accordance with other physicians completing postgraduate training at UCSD. There are no requirements of the fellow to provide patient care outside of the direct responsibilities of the fellowship. Fellows may elect to supplement their incomes by moonlighting. These opportunities may be available at UCSD or other hospitals in the San Diego area. Total monthly moonlighting commitments are not to exceed 32 hours and may not conflict with any fellowship responsibilities.

## **FURTHER INFORMATION**

Information about the following items can be found on the UCSD Graduate Medical Education website at the following address: <http://ogme.ucsd.edu>

- UCSDMC Terms and Conditions of Appointment to UCSD GME Training Programs
- House Officer Policy and Procedure Document - This document contains information regarding:
  - ⇒ Institutional eligibility, selection and nondiscrimination criteria
  - ⇒ Hours and working conditions policy
  - ⇒ Supervision policy
  - ⇒ Policies regarding Evaluation, Promotion, Corrective Action, and Dismissal

The specifics of the housestaff group health, life, dental, vision and disability programs