

## CDC Job Profile: Pharmacists

The traditional image of a pharmacist is of a white-coated professional dispensing drugs and counseling patients from behind a counter at a drug store. At CDC, however, pharmacists play key roles, such as helping to determine the drugs that comprise the Strategic National Stockpile, monitoring emergency visits for the side effects of drugs, and counseling physicians on the use of drugs employed for rare diseases.

Pharmacists in a community setting can play an important role in the health of the patients under their care, for example, by looking out for harmful interactions of drugs prescribed by different physicians. CDC pharmacists play similar roles, but they look after the health of millions.

CDC hired its first pharmacist, John Becher, RPh (CAPT, USPHS Ret.), in 1986, to update and organize a program for distribution of drugs and biologicals for rare diseases. The program later became the CDC Drug Service, which now has four pharmacists on staff. Today, CDC also has an additional 19 pharmacists located across several National Centers and Coordinating Centers.

Traditionally, the Food and Drug Administration has been the destination for pharmacists interested in public health, says Lori Hall, PharmD (LCDR, USPHS). But more pharmacists have been discovering CDC through opportunities such as the Indian Health Service or the Commissioned Corps. Meanwhile, CDC's need for pharmacists has increased, thanks to emerging threats like bioterrorism or pandemic influenza that may require rapid distribution of pharmaceutical countermeasures.

About a year ago, CDC pharmacists began meeting quarterly to network and promote the role of pharmacists in public health. In their latest meeting, occurring in January, they collaborated on suggestions to the American Association of Colleges of Pharmacy on the public health-related competencies that should be included in the pharmacy school curriculum. They also discussed a plan to formalize the application process for pharmacy students interested in rotations or fellowships at CDC.



### **Anita Patel, PharmD., MS, Health Scientist, Division of the Strategic National Stockpile, COTPER**

What are the most effective drugs for a given bioterror threat? Are there better alternatives, newer drugs in research, better delivery systems? What are the appropriate conditions for storage of the drugs, and how quickly must they be administered?

These are the kind of questions that the stockpile's science team grapples with every day. Headed by Associate Director for Science, Susan Gorman, PharmD, MS, DABAT, the team of clinical pharmacists and nurses provides scientific oversight of the formulary of pharmaceutical and medical supplies for the stockpile, which may be deployed for large scale public health disasters such as biological or chemical terror events. As the scientific knowledge base for stockpile products, the team reviews the clinical applicability of stockpiled countermeasures. In particular, Patel is the liaison between her division and the FDA, and manages regulatory concerns surrounding the stockpile, including product shelf life, labeling, and drug approval. She also specializes in pandemic flu issues.

### **Paul Weidle, PharmD., MPH, Research Support Officer, Epidemiology Branch, Division of HIV/AIDS Prevention, NCHSTP**

When Weidle joined CDC in 1997 as an Epidemic Intelligence Officer, he was one of just a handful of pharmacists at the agency. As a research epidemiologist, his work focuses on HIV/AIDS in both domestic and international settings. For example, he has studied the effectiveness of strategies for improving people's adherence to their HIV drug treatment regimens. He has also conducted research on whether women who are given a common therapy for preventing mother-child transmission of HIV in Asia and Africa develop resistance to the drug, compromising future treatment options.



Currently, Weidle is excited about a project that increases direct access to HIV testing through pharmacies in New York City. The city has implemented a syringe exchange program that allows intravenous drug users to visit pharmacies for a needle exchange with no questions asked. The New York Academy of Medicine has designed a protocol that allows pharmacists in East Harlem who encounter these clients to administer a rapid HIV test.

The program is supported by the Minority AIDS Research Initiative, which is funded through Weidle's division. Weidle hopes the program can be expanded to many more pharmacies located in areas at high risk for HIV. "Using pharmacies as HIV testing sites is a novel idea, and one that could dramatically increase the number of testing sites if it spreads to pharmacies in general."



**Christopher Allen, RPh, MPH (CDR, USPHS), Deputy Chief, CDC Drug Service, NCPDCID**

The unassuming row of blue boxes on a shelf adorning Chris Allen's office look just like the blue boxes you'd see holding prescriptions at any local pharmacy. But these boxes hold drugs that are extremely rare in the United States. The Drug Service is the conduit for drugs treating the rarest conditions, including tropical diseases and potential bioterror agents.

The CDC Drug Service maintains a formulary of 12 drugs and biological products. The biologics are used in labs throughout CCID and across the country for research on bioterror agents or to treat rare diseases. The CDC Drug Service also provides special vaccines to protect lab workers working with these agents.

The drugs are also made available to doctors throughout the country who encounter rare tropical parasitic infections such as African sleeping sickness. "Many US physicians have little expertise in how to treat these rare diseases. We connect them with CDC subject matter experts who can help provide clinical consultation." At the same time, the Drug Service also records reports of such diseases, providing a feedback loop that assists in surveillance activities.

For Allen, one of the favorite parts of his job is fielding calls from medical professionals and even patients who are searching for the drugs that may finally help cure them of a puzzling condition. "At the end of the day, we're still treating an individual patient. The individual may be frustrated because the physician doesn't know how to treat or diagnose them, or the physician has a patient and doesn't know how to work them up."

Several of these drugs long ago disappeared off the market in the United States after the diseases were mostly eradicated here. So the Drug Service imports the drugs from areas of the world where these rare diseases are still prevalent. In addition, "we put pressure on these manufacturers to keep these drugs available, not just to us but throughout the world."



**Hye-Joo Kim, PharmD, Chief, Regulatory Affairs, Strategic Science and Program Unit, CCID**

CDC became more involved in emergency response in the wake of 9/11, notes Kim. It quickly became clear that unapproved drugs and biologics stockpiled in the Strategic National Stockpile, which would be critical for treatment and prevention of dangerous high-priority agents such as anthrax and smallpox, would need to be deployed and utilized rapidly under the regulatory mechanisms mandated by the Food and Drug Administration (FDA). CDC established Regulatory Affairs to ensure compliance with FDA regulations for the utilization of these unapproved drugs and biologics. Regulatory also

supports non-bioterrorism-related drugs and biologics such as botulism antitoxins and parasitic drugs dispensed by the CDC Drug Service.

Kim spent seven years with the Indian Health Service and three years at FDA before joining CDC as a bioterrorism (pharmacist) specialist. She says she appreciates the collaborative approach taken at CDC. Her pharmacist background helps her predict how clinicians might respond to a drug use protocol drafted by Regulatory Affairs. "The essential criterion for a protocol that's to be used in an emergency is: 'Is this user friendly for clinicians?'"

**Nadine Shehab, PharmD., Senior Service Fellow, Division of Healthcare Quality Promotion, NCPDCID**

Shehab is part of a small team that surveys adverse drug events (also known as side effects) in outpatient or ambulatory care settings that result in visits to emergency departments. Headed by Daniel Budnitz, MD, MPH, the team takes advantage of a surveillance system originally established by the US Consumer Product Safety Commission for spotting visits to emergency room related to consumer products. The project, known as NEISS-CADES, has become a useful supplement to the FDA's voluntary adverse event reporting system.



In one well-publicized recent accomplishment, the project discovered that two-thirds of children less than 12 years old taken to an emergency room for a side effect related to a cough or cold medication had taken the drug unsupervised. Budnitz has rallied a multidisciplinary, multi-agency team to review issues around non-prescription drug packaging and children, Shehab said.

Shehab says her pharmacy background is useful in helping determine the direction of the project, both in terms of which drugs to study and what questions to ask about those drugs. "There are a lot of drugs we can look at, and a lot of adverse events, but at the end of the day, how will the work affect public health?"