

## FUTURE PLANS

CTAC's niche in supporting the instrumentation and infrastructure needs of neuroimaging will be extended through new brain imaging centers in Baltimore, Maryland; Grand Forks, North Dakota; and Long Island, New York. On the law enforcement front, CTAC will continue to improve the communications interoperability capabilities of state and local law enforcement agencies, passing many of these improvements directly to these agencies through the TTP.

### **Demand Reduction**

CTAC's demand reduction R&D program is now organizing several working groups to channel the development and integration of the technology and subsystems that are limiting further advancement of substance abuse researchers.

CTAC demand reduction initiatives will complement those of NIDA by improving the investigative tools and instruments available for substance abuse, dependence, and addiction research. ONDCP/CTAC's Demand Reduction Technology Symposium in July 2002 helped substance abuse researchers document the capabilities and limitations imposed by current technology. Subsequently, CTAC, in coordination with NIDA, is establishing a team of working groups to define a development program to advance the tools needed for improving substance abuse research. Each working group will focus on a particular aspect of technology identified as limiting research progress. An oversight committee composed of group leaders and other government officials will direct the working groups. Initial focus will be on infrastructure development plans, access strategies to novel ligands, and data-sharing approaches.

By understanding the limitations that current equipment and instrumentation impose on substance abuse research, CTAC can direct technology development efforts towards those areas with the highest impact potential and need across the field. As technical challenges are identified, CTAC will evaluate the imaging modalities that are most appropriate and will provide the resources for suitable infrastructure and validation studies. Nuclear imaging capabilities, such as PET or SPECT for example, allow for the measurement of neurotransmission, and the examination of the pharmacological properties of drugs in the brain. Strategies requiring insight into the functional changes of the brain may require other tools, such as fMRI. Several other emerging modalities may provide key advantages in showing millisecond temporal resolution, physically unachievable by either PET or fMRI.

CTAC plans to continue expanding the national infrastructure through the installation of advanced neuroimaging facilities across the country. Research using these facilities will focus on collaborative efforts between existing ONDCP/CTAC centers, studying patterns of different drugs of abuse across several at-risk populations. CTAC plans to develop an information exchange backbone to link research teams together in functional units. The data-sharing network will provide larger sample sizes, making findings more significant across the entire population. Deriving a common set of projects and creating an expanded subject base will allow for specific protocols to be implemented over many at-risk populations, increasing the pace of scientific advancements in the drug abuse research community.

## Supply Reduction

The direction of CTAC's supply reduction R&D program is established according to the following criteria:

- Address broad-based, multi-agency needs that transcend the requirements of any single agency.
- Concentrate on those applications that are potential candidates for the Technology Transfer Program.

The most significant near-term opportunities for improving operational capabilities are believed to lie in knowledge management and communications interoperability technology.

Plans for fiscal year 2003 include potential projects for:

- Development of a digital narrowband audio surveillance transmitter that is compatible with Project 25 digital standards.
- Development of a remote capability for Title III cellular intercept capabilities.
- Development of an Internet webpage analysis product.
- Improvements to the capability to intercept and exploit cellular communications.
- Development of an architecture using commercial technologies for real-time wireless data transfer between field units, command centers, and other parties.

## Testbeds

A technology testbed will continue at the SPAWAR Systems Center in San Diego where scientists and engineers are working with law enforcement officers to develop interfaces to accommodate dissimilar software capabilities under one user-friendly information management architecture. The resultant architecture will provide the

capability to integrate components for case management with real-time access to tracking and surveillance data including authorized wire intercepts.

In 2003, scientists and engineers will make recommendations on the integration of communication interoperability systems into a robust national architecture capable of supporting emergency response to hostile events or natural disasters. The study will look at scenarios that include both regional and distributed crises that require coordinated response from federal, state, and local agencies.

An architecture using commercial technologies is being configured for real-time wireless data transfer between field units, command centers, and other parties. The exchange of real-time data or even video provides capabilities useful in joint, coordinated operations. This capability allows surveillance and other data to be transferred in real-time to investigators and personnel not present at the site of the operation.

## Technology Transfer Program

In five years, the TTP has provided support to more than 20 percent of the state and local police departments and sheriffs' offices in the United States. The strategy for the TTP is to maximize the delivery of hand-held devices with training to the state and local agencies serving the smaller population sizes (less than 500,000) and to provide case building investigative tools to the agencies and task forces serving the larger population sizes (500,000 and greater). The approach includes the following:

- *Support the officer on the street by providing high technology equipment to increase effectiveness of personnel resources and improve officer safety by continuing the deployment of items*

such as thermal imagers and mini-busters.

- *Support specialized regional drug crime task forces and major city police departments* that will benefit from the successful deployment of more complex, larger-scale systems for communications interoperability and data mining applications in support of longer-term drug trafficking conspiracy investigations. CTAC will refine outreach efforts and increase the training provided to recipient agencies to accomplish this goal.
- *Ensure the proper set of technologies is being offered.* This effort will include the introduction of new technologies to the program, improvements to existing systems, and elimination of technologies that no longer meet the operational requirements of law enforcement agencies or that can be replaced with next-generation technology.

Over the next year, two broad TTP initiatives will be pursued: (1) Develop advanced wireless communications interoperability capabilities, and (2) Develop a centerpiece architecture for case management tools.

### **Oversight and Coordination**

CTAC is planning the 2003 ONDCP International Technology Symposium in San Diego, California, from July 8-11, 2003. The theme for this symposium is *Counterdrug C4I System Research and Development*. Our eighth international technology symposium will feature presentations and technical papers on new counterdrug technology concepts, developments, and applications, particularly in the areas of command, control, communications, computers and intelligence (C4I) and nonintrusive inspection technologies to counter narcoterrorism. Continued support is planned for DEA and the SWGDRUG in gaining international acceptance of SWGDRUG standards and the international drug profiling conference.