

## New portable DNA screener to debut this summer

By [William Matthews](#) 02/24/11

The Homeland Security Department this summer plans to begin testing a DNA analyzer that's small enough to be easily portable and fast enough to return results in less than an hour.

The analyzer, about the size of a laser printer, initially will be used to determine kinship among refugees and asylum seekers. It also could help establish whether foreigners giving children up for adoption are their parents or other relatives, and help combat child smuggling and human trafficking, said Christopher Miles, biometrics program manager in the DHS Office of Science and Technology.

Only DNA can positively determine family relationships, Miles said Wednesday during a conference on biometrics and national security.

Eventually, the analyzer also could be used to positively identify criminals, illegal immigrants, missing persons and mass casualty victims, he said.

The machine, known as a rapid DNA screener, is expected to cut days or weeks and hundreds of dollars off the per-use cost of DNA analysis.

Using a process called digital microfluidics, the analyzer processes a DNA sample and provides results in less than an hour for under \$100 per sample, Miles said. By comparison, it takes days or weeks and about \$500 per sample to get results when DNA is tested in a laboratory, he said.

"We're not about advancing the technology so much as integrating and automating it into a fieldable device," he said.

Boston-based NetBio, which developed the rapid DNA analyzer for DHS, described it as a "game-changing technology" platform that "consists of instruments, biochips and analytical software." It eliminates the need for a trained technician and special operating site.

The analyzer was designed for Homeland Security, the military, intelligence and police agencies, the company says on its website.

As with other DNA tests, the process begins with a sample collected on a swab, typically from inside the mouth. The sample is placed in a disposable cartridge, and the analyzer does the rest of the work.

"It's the same process that occurs in the lab today," Miles said. But "it will drastically make the system more efficient."

DHS' Citizen and Immigration Services bureau is first in line to begin testing the new equipment this summer. A likely priority is testing people who claim to be family members in refugee camps overseas, Miles said.

That's important because when a refugee is allowed to come to the United States, parents, children and some siblings also could be eligible to enter. Citizen and Immigration Services wants to make sure those who claim to be relatives actually are, he said.

Similarly, the agency wants to make sure children are who their guardians claim them to be. Usually, that sort of identity check might be done with fingerprints, but fingerprints of small children can be unreliable, Miles said.

On an average day, 400 refugees apply to enter the United States, 40 persons are granted asylum and 100 foreign-born children are adopted, according to DHS.

Although DNA analysis speeds identification of people, it raises concerns about privacy and civil liberties, Miles conceded. "We have privacy officers and civil rights and civil liberties officers who are working through all of those questions."

As a precaution to protect privacy, the analyzer avoids sampling DNA that could identify genetic problems, Miles said. For years, privacy advocates have worried that DNA test results could be used to deny people employment, insurance or entry to the country.

But even the analysis DHS officials want to do could be problematic. DNA test results might reveal that a child is not related to the man thought to be his father. "Is it our role to tell them that?" Miles asked. In some societies, revealing such information could be dangerous to the child and its mother, he said.

Policy hasn't developed as fast as technology when it comes to DNA analysis, Jim Harper, director of information studies at the libertarian Cato Institute, told *Nextgov*. "There are still a lot of unknowns. I'm not certain we know what all is being gathered when we examine DNA." So far, there has been no comprehensive public discussion of what is being gathered, and how it should or shouldn't be used has not occurred, he said.

The machines are expected to cost about \$275,000 apiece, Miles said. "That sounds like a lot of money, but compare that to a laboratory full of equipment that would cost millions of dollars and a building that would cost tens of millions of dollars."

After the rapid analyzers are in production, he added, the cost is likely to come down.