



Brain Fingerprinting A New Crime-Fighting Technology

By: Taryn M. Kirbo, Senior Policy Analyst

What is Brain Fingerprinting? Five Georgia Senators have joined the Study Committee on Brain Fingerprinting Technology, established by Senate Resolution 593, to discover the answer to this question. Chairman John Douglas, alongside Senators Cecil Staton, Jeff Chapman, Nancy Schaefer, and Doug Stoner, gathered in Henry County last month for the first of five study committee meetings. There, Mr. Ernie Robson, President of Brain Fingerprinting Laboratories and Brainwave Science, presented his company's patented technology to the committee.



Essentially, brain fingerprinting is a new technology that helps law enforcement do its job a little better. Using brainwaves rather than physical cues such as sweat and heart rate, this system is infinitely more effective than a polygraph machine. Every criminal case turns up specific details that only the investigators and the guilty party would recognize; brain fingerprinting uses these details to identify the presence of guilty knowledge, and therefore identify the correct suspect. When the brain recognizes a word, picture, or other type of cue, the brain gives an automatic recognition response, called a P300 response. This response is almost instantaneous, and there is no known way to alter one's brainwaves. According to neuroscientist Dr. Lawrence Farwell, the inventor, the P300 response is similar to an involuntary reflex.



Dr. Larry Farwell

(Continued on Page 2)

Stroke Care in Georgia

By: Rachel L. Moore
Senior Policy Analyst

As the third most common cause of death in the United States, behind only heart disease and cancer, a stroke kills someone approximately every three minutes. A stroke is a cardiovascular condition that occurs when a blood vessel that supplies blood and nutrients to the brain bursts or becomes excessively clogged. Besides being a top killer, strokes are also a leading cause of adult disability. Of the more than 700,000 American stroke victims each year, about a quarter of them die and between 15 to 30 percent become permanently disabled, resulting in direct and indirect stroke care costs exceeding \$51 billion annually.

Unfortunately, Georgians are disproportionately affected by this public health menace. As part of the "stroke belt," Georgia and other southeastern states experience significantly higher rates of stroke and stroke mortality than the rest of the nation. No one knows for certain what accounts for the higher rates of

(Continued on Page 3)

Brain Fingerprinting (Continued from Page 1)

Brain fingerprinting has already been used successfully in a criminal case. An Iowa judge allowed the admission of the results of a brain fingerprinting test that resulted in the release of Mr. Terry Harrington, a man wrongly imprisoned for murder. This is a remarkable vote of confidence in this technology, considering that polygraph test results are not admissible in any court of law. However, Iowa is the only state thus far to have allowed the usage of brain fingerprinting in the disposition of a criminal case.



Brain fingerprinting also has an advantage over DNA testing, which is highly accurate but takes weeks to complete. Brain fingerprinting results can be completed on the same day that the test is performed, with comparable accuracy so far.

A brain fingerprinting test is simple to administer, in addition to being non-intrusive. The subject wears a headband designed to record his reaction to stimuli, and sits in front of a computer screen that flashes information. The testing process involves taking a baseline reading by asking questions to which the answers are “known,” such as name, address, etc. Then the test administrator asks questions about details of a crime to see whether the brain produces the telltale recognition response.

The test is the result of more than fifteen years of research; in fact, brain fingerprinting is proving useful in the medical field. There is some evidence that the test can be used as an early warning system for degenerative brain diseases, such as Alzheimer’s. Thus far, the test has proven successful even when the subject is under the influence of drugs or alcohol at the time of testing.

There are several known limitations on the technology. Most importantly, brain fingerprinting is not an open-ended process; the administrator must test for specific details and facts in order for the system to work. In other words, the test is useful in determining the presence or absence of certain information, but it cannot read minds.

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Additionally, the test subject must cooperate with the administrator, because the process requires the subject to sit before a computer screen and actively pay attention

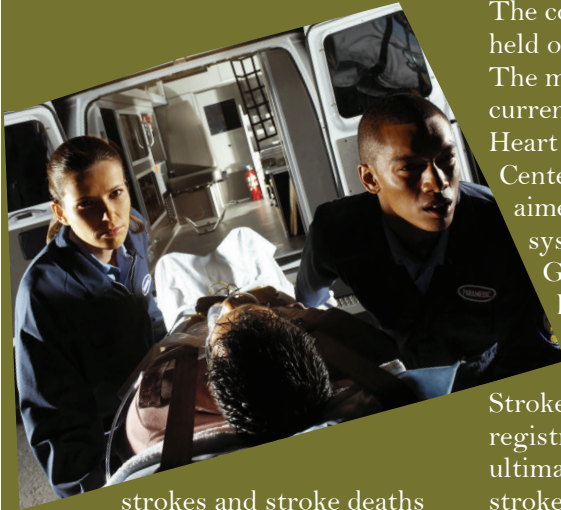


to the information displayed. Therefore, an extremely tired test subject will not be able to successfully complete the testing process.

From a courtroom perspective, another issue with the admission of brain fingerprinting evidence is constitutional: every criminal defendant has the 5th Amendment right not to be compelled to testify against himself, also known as the right to avoid self-incrimination. It is crucial that a defendant’s constitutional rights be respected at every point in a criminal trial process in order to avoid a later challenge to the trial court decision, in the form of a lengthy and expensive appeals process. Unfortunately, the brain fingerprinting technology is so new that the courts have not established a uniform procedure for the admissibility of such evidence. However, it is important to note that the testing is completely voluntary, and an uncooperative test subject will nullify the results.

There are also cost and training issues associated with this technology. The test administrator must be extensively
(Continued on Page 4)

Stroke Care in Georgia (Continued from Page 1)



strokes and stroke deaths among these states. Possible explanations include disparities in access to medical care and higher incidences of behaviors associated with a higher stroke risk. According to the American Heart Association, controllable risk factors for stroke include high blood pressure, tobacco use, high cholesterol, obesity, and physical inactivity. Demographic differences may also contribute to higher stroke rates for this region. African-Americans are especially at risk for stroke, experiencing rates for first-time strokes and stroke mortality rates that are nearly twice as high as those for Caucasians.

In light of the tremendous toll strokes take on the citizens of this state, the Joint Study Committee on State Stroke System of Care was formed this year to examine ways to most effectively combat stroke. The committee is co-chaired by Senator Don Thomas and Representative Don Parsons, and members of the committee include Senators Gail Davenport, Lee Hawkins, Horacena Tate, and Renee Unterman, and Representatives Ed Rynders, Gene Maddox, Nikki Randall, and Cecily Hill. The committee has held two hearings so far, with a third currently planned to be held in Albany in October.

The committee's first meeting was held on August 15th at the Capitol. The members heard testimony about current initiatives of the American Heart Association (AHA) and the Centers for Disease Control (CDC) aimed at creating a more effective system of stroke care for our state.

Georgia is one of four states to have received funding from the CDC since 2001 for the Paul Coverdell National Acute Stroke Registry. The purpose of this registry is to gather data that may ultimately be used to improve acute stroke care by helping to close the gap between clinical guidelines and practice. The Coverdell Registry is implemented by the Georgia Department of Human Resources (DHR), Division of Public Health, and involves close to 50 hospitals throughout the state. Participating hospitals receive training for their staff on emergency assessment and management of acute stroke, as well as ongoing feedback related to how well the hospital is meeting quality of care indicators.

Dr. Michael Frankel, chief of Neurology for Grady Health System and the lead neurologist for the Georgia Coverdell Stroke Registry, spoke before the committee on the AHA's *Recommendations for the Establishment of Stroke Systems of Care* and of efforts to implement these provisions in Georgia. The recommendations call for stroke care system coordination in each state to meet certain goals in areas such as Primary Prevention, EMS, Acute Stroke Treatment, and Rehabilitation. In our state, a task force that includes DHR, the Georgia Hospital Association, and the Georgia Emergency Management Association, among others, is currently working to promote these goals through a variety of initiatives. Accomplishments of the Georgia Task Force so far include

Acute Stroke Life Support Training for three EMS regions and for Coverdell associated hospitals, enhancements in access to 911 throughout the state, and public education efforts such as the Signs and Symptoms Campaign.

At its second meeting on September 20th, held at the Medical College of Georgia (MCG) in Augusta, the committee heard from that institution's faculty about their innovations in providing quality stroke care to rural patients. One complication in the treatment of stroke patients is the dearth of neurologists and stroke specialists in rural areas. According to Dr. David Hess, one of the MCG neurologists who testified before the committee, it is critical for stroke victims to be seen by a neurologist within the first three hours of the onset of symptoms. It is during this time that the decision must be made whether to administer Tissue Plasminogen Activator (tPA), the only drug approved by the FDA for the treatment of strokes. Attempts to either have a neurologist transported to a remote hospital or to transfer a rural patient to a facility with a neurologist on call frequently fail to meet this three hour deadline. As a result, only about two percent of Georgia stroke patients receive tPA.

To better serve rural patients, Dr. Hess and other MCG neurologists designed REACH, a hub and spoke network that allows neurologists to remotely evaluate stroke patients that otherwise would not receive timely treatment. With REACH, when a stroke patient arrives at a spoke hospital, the facility calls to alert an on-call neurologist affiliated with the hub hospital. Using a web browser and webcam, the neurologist can then diagnose and recommend treatment with a two-way consultation. Spoke

(Continued on Page 4)

Stroke Care in Georgia (Continued from Page 3)

hospitals are equipped with portable stations that allow the attending physicians and patient to see and interact with the remote neurologist. Because REACH is a web-based centralized service, on-call neurologists can perform evaluations anywhere in the world using any broadband internet connection.

Since its inception in 2003, REACH has been used in nine rural hospitals in East Georgia to communicate with MCG neurologists for treatment of stroke

patients. As a result, approximately 100 patients at these facilities have been treated with tPA, and the average “onset to treatment” time has been significantly reduced. Prior to 2003, about two-thirds of stroke victims who had been transferred to MCG from a rural emergency room arrived after the three hour interval in which tPA can be safely administered. Thanks to REACH, stroke patients at the nine spoke hospitals in Georgia are now evaluated and treated within an average time of 129 minutes.

REACH has proven to be such a successful model that health systems in other states have sought to utilize this technology. In 2006, an initiative of the New York Health Department implemented REACH throughout the state, connecting 50 rural hospitals all across New York to neurologists at hub facilities. REACH is also currently used in Pensacola, Florida,

and the surrounding area, and there are plans to implement the system in parts of South Carolina soon.

Innovations in telemedicine such as the REACH program certainly hold promise for more effective treatment



of stroke patients in Georgia. However, a common theme throughout the testimony of medical experts at both of the committee's hearings has been the urgent need for patients and their loved ones to recognize the

signs of stroke and to quickly seek medical attention. Stroke symptoms include sudden numbness or weakness of the face, arm, or leg (often on one side of the body); sudden confusion, trouble speaking, or understanding speech; sudden trouble seeing in one or both eyes; sudden trouble walking, dizziness, loss of balance or coordination; and sudden severe headaches with no known cause. According to the CDC, only about 17 percent of Americans recognize the major warning signs of a stroke and know to call 911 immediately. Sadly, even a short delay in seeking medical treatment can result in death or in severe long-term disability.

Clearly, an emphasis on prevention and greater public awareness are critical in the fight against strokes. Also critical is collaboration among health care systems to provide consistent quality treatment to all

afflicted patients. While strokes may not be eradicated anytime soon, the continued commitment of the medical community and greater public understanding can do much to lessen the devastation wrought by this killer.

Information for this article was obtained from the Centers for Disease Control, the American Heart Association, the Department of Human Resources- Division of Public Health, and the National Stroke Association.

Brain Fingerprinting

(Continued from Page 2)

trained in order to correctly interpret the results of the procedure, which consist of brainwaves displayed on a graph. The testing is expensive because it is a newly patented technology that only one company, Brain Fingerprinting Laboratories, has the legal right to administer. The states that choose to implement brain fingerprinting must use the services of, and pay the costs associated with, this one company.

In the words of Mr. Robson, president of Brain Fingerprinting Laboratories, the purpose of using this technology within the legal system can be summed up easily: convict the guilty, exonerate the innocent. So far, brain fingerprinting has correctly identified the guilty knowledge in every test performed, but the question remains as to whether Georgia should consent to volunteering our judicial system to act as an experimental subject for this brand new technology.

October Meetings of the Senate

State Lien Law Study Committee

Tuesday, October 2, 1:00 p.m./450 State Capitol

Healthcare Transformation Senate Study Committee Meeting

Wednesday, October 3, 1:30 p.m./Savannah

Cigarette Tax Evasion Study Committee

Thursday, October 4, 10:00 a.m./450 State Capitol

Shortage of Doctors and Nurses Senate Study Committee

Thursday, October 4, 9:00 a.m.-12:00 p.m./Georgia Southern University

Thursday, October 25, 9:00 a.m.-12:00 p.m./Morehouse College of Medicine

Diabetes and Childhood Obesity Study Committee

Thursday, October 11, 8:00 a.m./450 State Capitol

Subcommittees of the Joint Fulton County Study Committee

Sheriff's Office Subcommittee

Monday, October 15, 12:00 p.m.-2:00 p.m./403 State Capitol

Court System Subcommittee

Thursday, October 18, 10:00 a.m.-1:00 p.m./230 State Capitol

County Commission Structure Subcommittee

Monday, October 22, 9:30 a.m.-12:00 p.m./403 State Capitol

State Stroke System of Care Joint Study Committee

Thursday, October 18 (Time TBA)/Albany

Senate Study Committee on EMS Recruitment, Retention and Training

Monday, October 22 (Time TBA)/Covington

Joint House and Senate Retirement Committees

Tuesday, October 23, 11:00 a.m./450 State Capitol

Use of Brain Fingerprinting Study Committee

Friday, October 26/The Historic Glynn County Courthouse

Increasing the Cargo Capacity at Georgia Ports Study Committee

Tuesday, October 30, 10:00 a.m./Lake Blackshear Resort

Rights Related to Reproductive & Genetic Technology Study Committee

Anticipated Meeting – TBA

*All meetings are tentative