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## Health & Safety Sleuths

Georgia Tech Research Institute helps Georgia companies improve workplace safety and lower costs.

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by T.J. Becker

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**I**T'S NO SURPRISE that a construction site can be hazardous for workers, but how dangerous can a funeral home be?

Plenty, says Daniel Ortiz, manager of Georgia Tech's Safety & Health Consultation Program, which is housed within Georgia Tech Research Institute's (GTRI) Electronic Systems Laboratory (ELSYS). Embalmers are exposed to a number of pathogenic microorganisms and chemicals, Ortiz explains. In fact, preliminary data from a GTRI occupational health study indicates that up to 20 percent of embalmers in Georgia funeral homes may be exposed to formaldehyde levels above regulatory limits.

Some other unusual occupational hazards:

- Formaldehyde exposure can be a problem for workers who cut and sew wrinkle-resistant fabric.
- Jewelers who make and repair gold chains may be exposed to cadmium—a toxic metal.
- Nurses face a high risk of contracting blood-borne diseases from needles and other sharp instruments.

Although workplace safety has come a long way since the Industrial Revolution, reducing occupational hazards remains a challenge for U.S. employers, especially for smaller companies with fewer resources. In response, Georgia Tech's consultation program ([www.oshainfo.gatech.edu](http://www.oshainfo.gatech.edu)) provides technical expertise and training to help Georgia companies create cleaner, safer environments for their workers.

photo by Gary Meek



Georgia Tech's Safety & Health Consultation Program helps Georgia companies improve workplace safety by identifying potential hazards and recommending solutions. [Download 300 dpi version.](#)

In 2005, consultants visited more than 350 companies and identified 3,838 serious hazards, saving employers about \$3.8 million in potential penalties from the U.S. Occupational Safety and Health Administration (OSHA). “Yet that’s just the tip of the iceberg,” Ortiz says. “It’s hard to put a number on costs because any accident has far-reaching effects that go beyond workers’ compensation and lost time.”

For example, when an injured worker leaves a production line, it interrupts workflow, Ortiz explains. A replacement may need to be trained, causing further delays, and colleagues may need time to adjust to the new worker. Another performance factor is worker morale, which can be negatively affected by the accident.

### **No whistle blowing**

Funded by the OSHA, Georgia Tech’s consultation program is free to companies with fewer than 250 workers. What’s more, the program is confidential. “Our only requirement is that companies must agree to correct all hazards and provide written verification of their actions within a reasonable time frame,” says Art Wickman, a GTRI research scientist who supervises the consultation program’s industrial hygienists.

Georgia Tech’s consultation program serves a diverse clientele, ranging from food processors to construction companies to nursing homes. Companies can ask for help with a specific issue already known to be a problem or they can request a broader inspection.

When consultants arrive on the scene, they focus on three key areas:

- Safety issues, such as fire protection, emergency response, electrical safety and machine guarding, fall protection and machine hazards.
- Health hazards, which includes exposure to chemicals, noise and blood-borne pathogens.
- Ergonomic problems that can cause musculoskeletal disorders.

Consultants will also evaluate safety programs that may already be in place and help strengthen them.

Too often, employers may regard safety as an extraneous cost that doesn’t contribute to their business. Yet reducing injuries can make a huge difference to rates for worker’s compensation insurance, which is a significant expense for smaller companies.

OSHA supports more than 50 safety-and-health consultation programs throughout the United States, but most are housed within state agencies. “Having the program based at Georgia Tech is a real advantage,” Ortiz says. “We’re able to collaborate with experts in other areas and leverage cutting-edge knowledge and research.”

### **Addressing new challenges**

That’s important since workplace safety is constantly changing due to new technologies and regulations.

For example, a new OSHA regulation lowers the permissible exposure limit for hexavalent chromium, which is linked with a higher risk of lung cancer, asthma and skin damage. Metalworkers come in contact with hexavalent chromium through airborne particles emitted through sanding and grinding on painted surfaces, welding and other tasks associated with

metalworking, such as chrome plating.

Nanotechnology is also becoming a hot issue. Although no regulatory standards exist yet, experts are studying the issue to determine what hazards might be associated with nano manufacturing and assess the toxicity levels of nanoparticles.

“There are also diseases and exposures that we’ve known about for a long time but many employers think are no longer an issue,” Wickman notes. “Silicosis used to be big threat in mining and although things have improved there, exposure to silica exists in other industries.” He points to workers who cut concrete or stone, such as granite countertops for kitchens.

Demographic shifts have also introduced new challenges for employers. Wickman points to the increasing number of Spanish-speaking immigrants in Georgia’s labor force. “These are primarily Mexican workers and though many have previously worked in construction, Mexico’s regulatory framework isn’t comparable to OSHA in the United States,” he says. “So the concept of safety standards is new for them and requires a lot of education.”

To help increase awareness, Georgia Tech’s consultation staff has been translating many of its training materials into Spanish and offering free seminars in Spanish.

“Partnerships and alliances have become an important tool for reaching more workers through the sharing of resources and collaboration among participants,” says Paul Schlumper, a GTRI research engineer who supervises the program’s safety consultants.

For example, Georgia Tech’s safety and health program teamed with Brasfield & Gorrie, the general contractor for the Georgia Aquarium, a \$200 million project that required several hundred workers. The partnership began in May 2004 and when completed in late 2005, there were no fatalities. During the period Georgia Tech consultants worked on the project, total number of injuries dropped from 7.5 to 2 per 100 workers – with average cost per injury falling from \$11,000 to \$3,000.

Among its current partnerships and alliances, Georgia Tech has been working with Atlantic Skanska, a large Atlanta-based construction firm that is building a new pollution-control plant in Rome, Ga. “This marks our second partnership where we’re offering on-site safety training for workers,” says Thomas Dean, a senior technical leader with the safety program.

Partnerships not only help with outreach, but increase chances for successfully reducing injuries and illness. “Partnerships involve repeat visits to a site, which helps our consultants build trust with the workers,” Dean explains. “Also, we’re not overwhelming employers with a lot of issues they have to tackle right away.”

#### **CONTACTS:**

Dan Ortiz at 404-407-8276 or [daniel.ortiz@gtri.gatech.edu](mailto:daniel.ortiz@gtri.gatech.edu)  
Art Wickman at 404-407-8088 or [art.wickman@gtri.gatech.edu](mailto:art.wickman@gtri.gatech.edu)

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