

## T JOURNAL

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# Did Emory Monkey-Research Lab Do Enough to Protect a Worker?

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Staff Reporters of THE WALL STREET JOURNAL

ATLANTA—When a 22-year-old research assistant at an Emory University animal-research lab died in December, the lab quickly portrayed it as a freak accident that could not have been foreseen.

"Precautions have never been greater," the Yerkes Regional Primate Research Center said in a statement after Elizabeth R. Griffin died from the herpes B virus, which she had contracted 42 days earlier when a caged monkey she was carrying splashed her in the eye with a bodily fluid. A Yerkes spokeswoman said in an interview at the time that it was "never known" such a splash was a route of infection. "Just like in the early '80s, nobody knew how this weird disease called AIDS got around," she said. "Now we know."

Now, three months later, documents and interviews with people familiar with the situation have raised questions about Yerkes's initial explanation. The evidence, for instance, suggests the following:

- Herpes B exposure from a splash to the eye, while rare, was identified as a clear risk in federal lab-safety recommendations two years before the virus killed Ms. Griffin.

- Unlike at the nation's other six regional primate research centers, the training documents Yerkes wrote for its researchers such as Ms. Griffin did not warn that such eye splashes or "mucous membrane exposures" were herpes B risks that should be promptly reported and cleansed. Instead, Yerkes relied on externally produced material; it distributed and posted copies of the federal recommendations and showed a research organization's video.

- A closer look at Yerkes's comments at the time of the accident suggests that the lab's own position hasn't been consistent. While Yerkes officials said Ms. Griffin had disregarded their safety rules by not reporting the incident and immediately seeking treatment, they also said the scientific community hadn't previously considered eye splashes to be much of a herpes B risk.

- Once Ms. Griffin belatedly reported the incident to Yerkes officials, it took between two and five days for her to be referred to doctors with experience in treating herpes B, according to interviews with several people knowledgeable about the sequence of events. Says William Griffin, her father and a dermatologist in Kingsport,

## Three Views of Risk

A Yerkes Regional Primate Research Center general training manual didn't include the federally recommended treatment for employees who had been splashed in the eye by a monkey's bodily fluids

**'APPROPRIATE CLEANSING** should be begun within 5 minutes after exposure. The eye... should be continuously irrigated with sterile saline or water for at least 15 minutes....'

— Expert panel of the Centers for Disease Control and Prevention

**'RINSE WITH COPIOUS AMOUNTS OF WATER** or eye wash solution (15-20) minutes. Transport to physician/emergency room immediately after flushing if there is a possibility of exposure to the herpes B virus.

— Training document at Harvard University's New England Regional Primate Research Center

**OTHER THAN TREATMENT FOR INJURIES** that break the skin, there 'are no current, widely accepted guidelines regarding further' ways to prevent the spread of the virus

— Training manual for all Yerkes employees

Tenn.: "I think that was very critical in the fact that she died."

In a written response yesterday to questions faxed by The Wall Street Journal, Yerkes vigorously defended its training program, although it declined to answer questions about the treatment Ms. Griffin received, citing patient-confidentiality concerns.

Noting that Ms. Griffin's case marked the first herpes B infection at Yerkes in the lab's nearly 70-year history, the statement said, "In her brief time at Yerkes, Ms. Griffin [had] four separate training sessions in biosafety (all documented by her signature) plus on-the-job training in her own laboratory." That training, it said, mentioned the risks of "mucous membrane exposure, to any infectious material." In addition, some sessions "included specific training about Herpes B and the actions to take following possible exposures," and at some of them the federal recommendations regarding the risk of eye splashes were "distributed to employees," the statement said.

Still, the training—and the treatment—of Ms. Griffin are being scrutinized.

Yerkes's training program is "an area of concern," says R. Davis Layne, regional administrator in Atlanta of the U.S. Occupational Safety and Health Administration, which is investigating her death. He declines to elaborate on the probe, which OSHA expects to finish by next month.

Julia K. Hilliard, a leading authority on primate-borne herpes B who was brought in to perform the autopsy on Ms. Griffin, says "there are some real areas that I would recommend [Yerkes officials] look at seriously" in the wake of Ms. Griffin's death.

To be sure, the death of Ms. Griffin, who started working at Yerkes in May 1996 and graduated the following year from Agnes Scott College, near Atlanta, shocked primate researchers nationwide. Of the approximately 40 people known to have contracted herpes B from macaque monkeys since the first recorded case in 1932, Ms. Griffin, who planned to become a doctor like her father, was the first person known to have caught the virus through a splash to the eye. Virtually all the other victims were infected through bites or scratches

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# Worker's Death Raises Questions About

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from macaques, which are widely used in research. While herpes B is largely benign in the macaques, it is considered fatal 70% of the time in humans who aren't promptly treated.

When announcing Ms. Griffin's death on Dec. 11, Yerkes officials said she hadn't reported the splash to her supervisors because she considered it a minor event.

Indeed, a splash of a macaque's bodily fluid to a worker's eye "wasn't an issue as far as most of us were aware," said Brent Swenson, Yerkes's senior veterinarian and leader of a training-program overhaul at the time of Ms. Griffin's death, in an interview earlier this month. "I don't think she would have thought of this as a B-virus exposure," he said, adding: "Had it been me, I would not have reported it because I would not have considered it to be significant."

Dr. Swenson left Yerkes last month after working there for 24 years; he says he was fired after a disagreement with Yerkes director Thomas Insel. Although Dr. Swenson says the disagreement wasn't specifically over the Griffin case, he says Dr. Insel was "less than thrilled" with an electronic-mail message Dr. Swenson wrote to a national network of animal researchers four days after Ms. Griffin's death.

The e-mail said Yerkes hadn't "typically emphasized" eye splashes as herpes B exposure risks. Dr. Swenson says he didn't see his comment as criticism; in fact, he agreed with Yerkes's training program.

Yerkes confirmed in its statement yesterday that its training placed "an emphasis" on bites, scratches and needle sticks, which it described as "the known routes of infection." It declined to address Dr. Swenson's dismissal directly, but said: "Several members of the Yerkes faculty and staff have left or been terminated since a major restructuring" of Yerkes that began in 1995 with the appointment of Dr. Insel. It added that "none of these separations was related to Elizabeth Griffin's death and none involved concerns with biosafety."

Yerkes is the oldest of seven federally funded primate-research labs around the country. Before Ms. Griffin's death, the labs differed widely in how far they went to protect their workers from splashes of monkeys' bodily fluids, such as saliva, urine or feces.

Yerkes required eye protection only in certain situations, such as when workers were spraying cages to clean them. "We understand these requirements were identical to those used by the six other [regional] primate centers," Yerkes said in its statement yesterday.

## Warnings in 1987

In fact, the labs differed in the toughness of their rules on eye protection. Some, unlike Yerkes, required that workers wear goggles anytime they were in a room with monkeys.

National warnings about the danger of eye splashes emerged as early as 1987, when, following a herpes B outbreak that infected four people associated with a lab in Pensacola, Fla., the Atlanta-based federal Centers for Disease Control convened a group of experts that included Drs. Hilliard and Swenson. The panel, in a report widely circulated among primate researchers, cited the danger of exposing "eyes and mucous membranes to macaque secretions."

In 1990, the CDC convened a second expert panel on herpes B. It met at Emory's Robert W. Woodruff Health Sciences Center, not far from the main Yerkes center. Among the panelists: three Emory representatives, including a top Yerkes administrator.

The group's 19-page report was published in 1995. It included a half-page diagram identifying a "splash" or "droplet" of a monkey's bodily fluid that hit a lab worker's eye as a "moderate risk" unless it was cleaned starting "within 5 minutes after exposure. The eye or mucosal sites should be continuously irrigated with sterile saline or water for at least 15 minutes," the report said, and thorough cleaning was "the only means of preventing B-virus contamination."

Six of the regional primate-research centers incorporated those recommendations into the training documents they say they provided all of their workers who came into contact with macaques. Those labs' training materials tell employees to thoroughly wash and then report all eye or other "mucous membrane" exposures, including splashes.

Yerkes, however, makes no mention in its general employee manual—issued in 1995, the year the CDC published its recommendations—of what to do in the event of a splash. The manual, which was in use at the time of the Griffin incident, does tell workers that a few of the herpes B cases reported over the decades "may have been due to aerosol exposure." But the only herpes B exposure it instructs workers to report is "any injury that breaks the skin," and it goes on to tell workers that there "are no current, widely accepted guidelines regarding further" ways to prevent the spread of the virus.

Yerkes did cite the risk of splashes in a separate 1993 training manual specifically for primate-care workers—employees who feed monkeys, clean their cages and otherwise take care of them. "Splashes to mucous membranes (i.e. eyes, mouth, etc.) should be flushed for 15 minutes," the manual says. It adds: "Then report the injury to your supervisor and the nurse."

## A Deadly Splash

Events surrounding 22-year-old research assistant Elizabeth R. Griffin's death from monkey-borne herpes B:

**Oct. 29, 1997:** Right eye is splashed with unidentified bodily fluid from monkey. Ms. Griffin wipes her eye and an hour later douses it briefly with water.

**Nov. 8:** Visits emergency room; diagnosed with pinkeye and given eye drops

**Nov. 8-11:** Reports splash to Yerkes officials (accounts differ as to exact day; Yerkes says it was Nov. 11)

**Nov. 11:** With worsening eye pain and fever, visits an eye doctor, who prescribes antibiotics

**Nov. 13:** Admitted to Emory University Hospital with worsened symptoms. Antiviral drugs are started.

**Nov. 24:** Sent home, "Feeling good," with antiviral drugs

**Nov. 25:** Readmitted to hospital, unable to breathe on own and partially paralyzed

**Dec. 10:** Dies at 3 p.m.

**Dec. 11:** Yerkes announces death in press conference

Sources: Chronology prepared by Emory research fellow Mitchell A. Blass; interviews with various sources

But, says Sylvia Wrobel, an Emory spokeswoman, Ms. Griffin didn't receive that manual, because although she handled macaques in the course of her work, she wasn't hired specifically to care for the monkeys. She says Yerkes officials didn't incorporate the CDC guidelines into their general training manual because they "felt it gave more impact if they just gave the guidelines themselves."

Some experts, however, say the fact that Yerkes didn't mention splashes in its own general training manual raises questions about its training program.

"If management doesn't buy into the guidelines for implementation, you can't expect employees to go the extra mile and say, 'Oh sure, we'll do this for ourselves,'" says Joe Bielitzki, associate director for animal resources at Yerkes until 1995 and now chief veterinary officer at a federal facility near San Francisco. "There has to be more than handing them a piece of paper. A lot of things that are posted, people never see or read."

But Dr. Swenson, who says that safety suggestions issued by government bodies often are "overkill," believes the 1995 Yerkes manual's warnings were sufficient. "It's easy to say after the fact, 'See, we told you,'" he said in the interview two weeks ago. "You won't let your friend drive drunk, but you're not going to make him wear a helmet or a full-body suit every time he gets behind the wheel. The disagreement here is an honest difference of opinion about what constitutes reasonable protection rather than paranoia."

The splash to Ms. Griffin's eye occurred on Oct. 29 at Yerkes's field station, a collection of buildings and about 25 primate

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houses and outdoor corrals on 117 acres in Lawrenceville, Ga., an Atlanta suburb about 30 miles from the main Yerkes center on the Emory campus. Helping round up monkeys for their annual physical examinations, Ms. Griffin, who was not wearing goggles, peered at a caged macaque she was carrying from an outside pen to a monkey-treatment building and was splashed in the eye.

Ms. Griffin "wiped it off" and "splashed it with water or something later," the Yerkes spokeswoman, Kate Egan, said shortly after the death. She added that Ms. Griffin "didn't tell her supervisor" or report the splash.

Ten days later, Ms. Griffin went to an emergency room, according to an account of her case that Emory medical-school research fellow Mitchell A. Blass, a doctor who participated in her treatment, prepared for a Jan. 7 case-study seminar focusing on her case. (Dr. Blass declined to comment for this article, citing patient-confidentiality issues.) Doctors diagnosed Ms. Griffin with pinkeye and sent her home with eye drops, the chronology says.

Ms. Griffin reported the splash to Yerkes officials sometime between Nov. 8 and Nov. 11, according to several people familiar with her case. Yerkes said in its statement that her report was made on Nov. 11.

By Nov. 10, Ms. Griffin's eye pain had worsened and she was suffering from a headache and a low-grade fever, according to Dr. Blass's chronology. On Nov. 11, she went to a private eye doctor, who sent a culture from her eye to the lab contracted by the managed-care company that insured Ms. Griffin. The doctor prescribed antibiotics and sent her home, according to the chronology.

"My daughter was told to go see her doctor, who is somebody who is not informed about herpes," Dr. Griffin said in an interview this month.

The 1995 CDC guidelines advise labs before a crisis to identify doctors with knowledge about herpes B who would be "available for urgent consultation regarding injured or potentially exposed employees."

But it wasn't until Nov. 13—at least two days after she reported the splash—that Ms. Griffin was referred to infectious-disease doctors at Emory's hospital, who admitted her with a "red and painful right eye," a headache, fever, stiff neck and vomiting, according to the case history.

At that point, people involved in Ms. Griffin's care took the CDC-recommended step of notifying Dr. Hilliard at the South-

west Foundation for Biomedical Research in San Antonio, Texas, which tests cultures from lab workers for evidence of exposure to herpes B. (Dr. Hilliard declined to confirm the day she was contacted, citing confidentiality concerns.)

## False Hope

Doctors also began administering intravenously a drug recommended to treat the virus. Over the next 10 days, Ms. Griffin's condition initially worsened but then seemed to improve. On Nov. 24, according to Dr. Blass's chronology, Ms. Griffin was "Feeling good, eating well" and walking around the halls "without difficulty." Doctors sent her home with equipment so she could continue receiving medication intravenously.

But by 4 a.m. the next day, Ms. Griffin was in trouble, and by 8 a.m. was back at the hospital, according to the chronology. She progressively worsened until, by 9:25 that night, Ms. Griffin was unable to breathe on her own and was partially paralyzed.

She never left the hospital. Over the next two weeks, she degenerated, experiencing seizures, severe nerve and lung damage, a blood infection and bacterial pneumonia. She died at 3 p.m. on Dec. 10.

Emory announced her death in a press conference at 5:30 the next afternoon. Thomas Gordon, Yerkes's associate director for scientific programs, called it "the most profoundly sad moment" of his nearly three-decade-long Emory career. Ms. Griffin, he said, "didn't see [the splash] as an accident or an injury."

Over the next several days, Yerkes officials underscored their position that the lab had done all it should have to protect Ms. Griffin. "We believe that the state of knowledge about risk to researchers has been advanced because of this tragic outcome," Yerkes said in a Dec. 16 statement, adding that Yerkes now would require eye

protection in areas previously "viewed as low risk and not requiring such protection."

Dr. Hilliard says it's unclear whether Ms. Griffin might have fared better had she been referred to infectious-disease specialists on the day she reported her splash. But she says Yerkes lacked a "seamless" coordination between its staff and infectious-disease doctors at Emory's hospital who could respond quickly in such an emergency. The process works only if "the employee knows to report the incident right away" and if "the first physician that the individual sees responds appropriately," she says. "And that's what seems to be missing in this particular case."

In memory of his daughter, Dr. Griffin hopes to establish a foundation at Yerkes, whose research, he stresses, he wholeheartedly supports.

Meanwhile, primate labs around the country have noted an increase in the number of reported splashes since Ms. Griffin's death. And several of them, like Yerkes, have beefed up their requirements about when workers must use protective eyewear.

The CDC is also considering toughening its recommendations about ways to guard against contracting herpes B through eye splashes. Ultimately, though, experts say, those recommendations are only as strong as the enforcement of them. "I would prefer to see people follow the guidelines," says Dr. Hilliard, "because I don't like to do autopsies on colleagues."

**SOUTHEAST JOURNAL** welcomes your comments—by mail, electronic mail, phone or fax. Letters should be addressed to Ken Gepfert, Editor, Southeast Journal, One Peachtree Center, Suite 4200, 303 Peachtree St. N.E., Atlanta, Ga., 30308. The phone number is 404-865-0170; the fax number is 404-865-4379; the E-mail address is [ken.gepfert@news.wsj.com](mailto:ken.gepfert@news.wsj.com)

## Winners Losers

▲ **Golden Oldies:** A country-music industry task force sends out 4,000 questionnaires to gauge interest in building a retirement community for musicians near Nashville

▲ **Coin Tosses:** After receiving identical bids for a school building, Gwinnett County, Ga., officials pick the winner through three dice rolls and the flip of a silver dollar.

▲ **Prolonged Pianists:** Fine-arts director Randy Price of Northside Christian Academy in Charlotte plays the piano for 50 hours to raise money for a choir trip to New York.

▼ **Honesty:** Authorities at Atlanta's Marist School uncover cheating on final exams in physics, chemistry and a religion course that discusses ethics.

▼ **Boosters:** The town council in Cary, N.C., worried about noise and truck traffic, opposes a plan to put a Federal Express hub at Raleigh-Durham International Airport.

▼ **Landlubbers:** Residents of washed-out Elba, Ala., object to disaster officials' talk of relocating the town to move it out of flood danger.