
**Flu views.** Scientists debate whether to resume controversial studies of the H5N1 avian influenza virus.

CREDIT: D. MALAKOFF/*SCIENCE*

AVIAN INFLUENZA

# H5N1 Researchers Ready As Moratorium Nears End

Researchers who study the H5N1 avian influenza virus will soon be able to do some science that's been off-limits for nearly a year.

U.S. government officials say they expect to put the finishing touches this month on new rules designed to help funding agencies identify and regulate especially problematic H5N1 studies before they begin (*Science*, 7 December 2012, p. 1271). Leading influenza scientists say that move will enable them to lift a year-old, self-imposed moratorium on certain kinds of potentially dangerous experiments (*Science*, 21 December 2012, p. 1533).

The moratorium "has now achieved its purpose" by giving governments time to act, says one of its 39 signers, virologist Ron Fouchier of Erasmus MC in Rotterdam, the Netherlands. "It is time to get back to work."

The two developments would essentially end a long and bruising controversy over the risks and benefits of H5N1 research. The controversy began in late 2011, after two research teams—including one led by Fouchier—showed how to alter the virus, which normally infects birds, so that it can move between mammals. Fearing that such "gain-of-function" experiments could enable terrorists or a lab accident to start a deadly human pandemic, critics demanded stricter controls on science that could be used for good and evil. The issue has been especially sensitive for the U.S. government, because its National Institutes of Health (NIH) funded the two studies and is one of the world's biggest funders of H5N1 research.

The controversy has had an impact far beyond influenza laboratories, however. In March, it prompted U.S. officials to impose new rules that require systematic reviews of federally funded studies involving 15 "high-consequence" pathogens and toxins, including H5N1, that could be used as bioterror weapons. In November, NIH issued draft guidelines designed to help the agency decide which types of H5N1 gain-of-function studies would need more stringent reviews.

Other nations, meanwhile, also moved to tighten laboratory safety requirements and reviews of such dual-use research. The conflict even threatened to blow apart a fragile global agreement on sharing samples of influenza viruses. The experience "polarized the science community in a way that is fairly rare," says Amy Patterson, an NIH administrator within the director's office who has helped lead efforts to design the new rules.

Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases (NIAID), defends the need for what he admits was an "arduous, highly charged" process that included nearly a dozen major public meetings around the world. The scientific community "was fundamentally closed" to hearing the fears and concerns of the public and policymakers, says Fauci, who played a major backstage role in developing the moratorium and reassuring politicians that science administrators could agree upon a safe path forward. "We're starting to get to a place where many of the objections have dissipated."

Some outside observers, however, are skeptical that the process has informed the public or made the world safer. "The moratorium was a communication strategy," says Peter Sandman, a risk communication expert in Princeton, New Jersey, who has worked extensively on pandemic preparedness. "It was never a goal of the moratorium to educate people that there might be a significant risk of releasing a bioengineered H5N1 virus with pandemic potential from a laboratory. … To the contrary, the moratorium aimed to buy time to persuade people that that risk was negligible."

Those risks were a major topic of conversation at a meeting last month at NIH that attracted some 200 scientists, policymakers, and nonprofit advocates from around the world. One agenda item was whether scientists can actually get information from H5N1 gain-of-function studies that would be useful for heading off a pandemic. Although many speakers said yes, researchers from places where H5N1 is a simmering problem, such as Indonesia and Vietnam, said they put a higher priority on characterizing naturally emerging viruses than creating new ones.

Thomas Inglesby, head of the Center for Biosecurity of the University of Pittsburgh Medical Center, argued that scientists had overstated the benefits. "We should continue the moratorium," he said. And "if we do decide to proceed, all should acknowledge the extraordinary risk."

Meeting participants were also asked to suggest improvements to the new NIH funding guidelines. They spell out seven criteria that a gain-of-function study would have to meet to be eligible for NIH support. A study that failed to meet even one of the criteria would get a more intensive review by NIH's parent, the U.S. Department of Health and Human Services (HHS). If publishing the results might pose a danger to public safety, the draft guidelines suggest that the study be transferred to an agency that does classified research, such as the Department of Defense.

That idea was widely panned at the meeting, however, with Fauci and other speakers arguing that secret work on H5N1 could





Published by AAAS

undermine international collaboration and fuel suspicions that the United States was conducting research on bioweapons. "If we fund something, it should be with the assumption that it will be published," Fauci said. "NIH doesn't do classified research."

Attendees also pointed to criteria they felt were worded poorly. "As written, a lot of H5N1 studies that were not intended to come to review will get reviewed," predicted Nancy Cox, a virologist and head of influenza research at the Centers for Disease Control and Prevention in Atlanta. Richard Webby, an H5N1 researcher at St. Jude Children's Research Hospital in Memphis, Tennessee, observed that, "if you read this conservatively, [HHS is] going to have to review 75% of H5N1 studies in the NIH portfolio."

One suggestion that gained traction was the need to rewrite a draft criterion that asked scientists to provide "evidence" that the H5N1 virus they wanted to create "could be produced through a natural evolutionary process in the foreseeable future." Such crystal ball-gazing is very difficult, several speakers argued.

Instead, they proposed that NIH limit the extra, HHS-level reviews to a subset of studies that would create especially dangerous H5N1 viruses. They had in mind viruses that could infect mammals and be spread through the air, by droplets of saliva for instance. A "growing chorus" of researchers endorsed that idea, noted Patterson, who will revise the draft guidelines after the 10 January deadline for public comments has passed.


**Painful process.** Amy Patterson (*left*) has helped lead the NIH effort to devise new H5N1 research rules, with input from scientists and public health experts including Ilaria Capua from Italy, Joseph Sriyal Malik Peiris from Hong Kong, and Adel Mahmoud from the United States (*right to left in right photo*).

Fauci made it clear that he wants to move quickly to finalize the rules. "I'm sensitive to the fact that this can't be drawn out over a long time," he said.

The new policy isn't expected to affect many studies initially. Gain-of-function research accounts for less than $10 million—or fewer than 1%—of NIAID's overall influenza research spending, Fauci said, and fewer than 10% of its H5N1 grants.

H5N1 researchers who don't rely on NIH funding could lift the moratorium before the United States has finalized its policy, both Fauci and Fouchier said. Those scientists have been "patiently waiting," for NIH to complete its work, Fauci said, and some are now "going to go ahead with their experiments if their country and funder allow it," he predicted.

That development should help the H5N1 influenza community refocus on important issues such as understanding how potential pandemic viruses work and developing better vaccines and surveillance methods, Fouchier said. "It is sobering to see how much time has been spent on addressing the challenges [posed by H5N1 research] and not on the scientific opportunities," he said.

**–DAVID MALAKOFF**

PUBLIC HEALTH

# China Partners With Gay Groups on HIV Screening

**HONG KONG**—"One-night stand?" asks an ad on the homepage of Gztz.org. Offering one of China's largest online platforms for gay and bisexual men, the organization boasts 200,000 registered members—30,000 of them in and around Guangzhou, where it operates a community center. On its cluttered home page, users can choose to chat with other members, browse relevant news, or peruse a list of bathhouses and sex stores that serve gay men. But it's the provocatively titled ad—which actually urges men to visit the community center for free, confidential HIV screenings—that occupies the most prominent spot.

That's because one of Gztz.org's key roles is to not to match up gay men, but to protect their health. It is among a handful of community-based organizations (CBOs) across China that offer HIV testing, usually in collaboration with local officials. Government health workers draw blood and do lab testing, while Gztz.org volunteers provide counseling to those with positive tests and advise on treatment options.

Since 2008, Gztz.org has performed about 11,000 HIV screening tests. Roughly 500 of them came back with positive preliminary results. To receive confirmatory testing, a member must register his national identification card number. That is where many men tend to fall through the cracks. But Gztz.org co-founder Roger Meng says that his volunteers have convinced more than 90% of men with preliminary positives to go in for further testing.

This is a major achievement for Meng's group. Their successful collaboration with government health workers also hints at an improvement in the Chinese government's rocky relationship with men who have sex with men (MSM), long subject to discrimination in the workplace and persecution by police. The country's current HIV/AIDS strategy includes reaching out to CBOs (the preferred term in China for such unofficial organizations). In November, Li Keqiang, who is expected to take over from Wen Jiabao as premier in 2013, underscored that point by meeting with representatives of several such organizations in Beijing, including those that work with MSM. Health officials, meanwhile, pledged to make it easier for civil society groups doing HIV prevention to operate in China. "We perceived that we needed to have a more supportive policy, with more funding and a more supportive

CREDITS: D. MALAKOFF/SCIENCE (2)





Published by AAAS