Bio Terror Bible

EXPOSING THE COMING BIO-TERROR PANDEMIC

BIOTERRORBIBLE.COM: The following propaganda was published within the calendar year of 2012. While some of the following reports may have been legitimate news stories, most if not all of them appear to be blatant propaganda with the overall goal of convincing American and the World that it is on the precipice of a bio-terror induced pandemic. The fact that this propaganda exists in mass confirms that an upcoming bio-terror attack is in the cards and may be played in a last ditch effort to regain political, economic and militarial control of society.

Title: Newly Identified Compound Could Stop Smallpox
Date: January 5, 2012
Source: Bio Prep Watch

Abstract: Scientists from the Boston University School of Medicine recently identified a compound that stops viruses from replicating.

The researchers, who collaborated with the U.S. Army Medical Research Institute for Infectious Diseases, believe their findings could lead to the development of compounds that could potentially inhibit the spread of poxviruses, according to CIDRAP News.

The study, which has been published online in the Journal of Virology, involved experiments on the emerging infectious disease Monkeypox.

Poxviruses, including smallpox, the vaccinia virus and the Monkeypox virus, replicate inside host cells after invading them. Utilizing state of the art screening techniques, the scientists were able to identify several compounds that could stop the replication process of vaccinia virus once it was inside human cells.

After focusing their attention on one of these compounds, they were able to understand how it inactivated a critical piece of viral machinery.

USAMRIID researchers then tested the compound's efficacy on the Monkeypox virus and demonstrated similar results.

"The compound we identified forces the catastrophic failure of the normal virus amplification cycle and illustrates a new drug-accessible restriction point for poxviruses in general," Dr. John Connor of BUSM said, CIDRAP News reports. "This can help us in developing new compounds that fight poxviruses infection" (Bio Prep Watch, 2012).

Title: Flu Season
Date: January 5, 2012
Source: Foreign Policy

Abstract: Making a superbug that can infect thousands of people is easier than ever. Is there anything governments can do to prevent terrorists from learning how to make a devastating bioweapon?

When flu scientist Ron Fouchier of Erasmus University in Rotterdam announced in September that he had made a highly contagious, supervirulent form of the bird-flu virus, a long chain of political events unfolded, mostly out of the public eye. Fouchier told European virologists at a meeting in Malta that he had created a form of the H5N1 avian flu -- which is naturally extremely dangerous to both birds and mammals, but only contagious via birds -- that was both 60 percent fatal to infected animals and readily transmitted through the air between ferrets, which are used as experimental stand-ins for human beings. The University of Wisconsin's Yoshihiro Kawaoka, one of the world's top influenza experts, then announced hours later that his lab had achieved a similar feat. Given that in some settings H5N1 has killed more than 80 percent of the people that it has infected, presumably as a result of their contact with an ailing bird, Fouchier's announcement set the scientific community and governments worldwide into conniption fits, with visions of pandemics dancing in their heads.

Clinton told the Palais des Nations audience that the threat of biological weapons could no longer be ignored because "there are warning signs," including "evidence in Afghanistan that … al Qaeda in the Arabian Peninsula made a call to arms for -- and I quote -- 'brothers with degrees in microbiology or chemistry to develop a weapon of mass destruction.'" (Al Qaeda in the Arabian Peninsula is the terrorist group's Yemeni-based affiliate and perhaps its most aggressive arm today, with connections to a number of ambitious plots.)

Then, in what has widely been interpreted as an allusion to the superflu experiments, Clinton added, "The nature of the problem is evolving. The advances in science and technology make it possible to both prevent and cure more diseases, but also easier for states and nonstate actors to develop biological weapons. A crude, but effective, terrorist weapon can be made by using a small sample of any number of widely available pathogens, inexpensive equipment, and college-level chemistry and biology. Even as it becomes easier to develop these weapons, it remains extremely difficult … to detect them, because almost any biological research can serve dual purposes. The same equipment and technical knowledge used for legitimate research to save lives can also be used to manufacture deadly diseases."

By the end of 2011, few governments or scientific committees were satisfied with the actions that had been taken to date to limit publication of the methods Fouchier and Kawaoka deployed, and most were frankly frightened. The Fouchier episode laid bare the emptiness of biological-weapons prevention programs on the global, national, and local levels. Along with several older studies that are now garnering fresh attention, it has revealed that the political world is completely unprepared for the synthetic-biology revolution.

So far, the rules -- weak and inconsistent as they may be -- have never been broken. Neither the Dutch virologist who created the roughly 90 percent mammalian transmissible form of superkiller H5N1 bird flu, nor the researchers who published a botulism cookbook -- and not even the scientists who re-created the horrible 1918 flu virus or the fellows who constructed a polio virus from scratch -- broke any existing rules. In every case, the researchers consulted with approval committees, sent their papers off when asked for review to various government committees, and then published their work openly in major scientific journals.

The problem is that there are no consistent, internationally agreed-upon regulations governing synthetic biology, the extraordinarily popular and fruitful 21st-century field of genetic manipulation of microorganisms. The chief agreement governing bioweapons work is the Biological Weapons Convention (BWC) which was created in the early 1970s as a bilateral accord between U.S. President Richard Nixon and Soviet Premier Leonid Brezhnev. Entered into force in 1975, the BWC now has 165 states that are party to it. Clinton's now-infamous Dec. 7 speech in Switzerland was to a BWC gathering. The institution's current president is Paul van den Ijssel of the Netherlands, Fouchier's home country. Van den Ijssel advocates "ambitious realism" in pursuit of policies that can make the BWC an effective instrument for control of dangerous science, terrorism, and biological weapons. His ambition is to modernize the BWC, giving it long-sought teeth for verifying weapons violations and monitoring compliance. Currently the BWC is toothless.

At the BWC's creation in 1975, biologists were just beginning to figure out so-called genetic engineering, moving genes from one bacterial species to another, typically using viruses as the vehicles on which the targeted gene hitchhiked from cell to cell. It was tedious work that was prone to contamination, and few political leaders had even a vague comprehension of what the scientists were up to. As a result, in its conception the BWC framed the bioweapons question in classic nation-state conflict terms. In many ways the original BWC bore more resemblance to nuclear weapons treaties than anything else, imagining stockpiles of vats full of dangerous microbes under the possession of national armies and "weaponized" to be hurled at enemy territories in some vague concept of biological warfare. The conceit was so crude and nightmarish that most political leaders and their intelligence advisors for decades dismissed the entire biowarfare notion as a ridiculous fantasy. The most common cry from skeptics was that no country would use biological weapons because they might kill more of their own people than the toll the microbes would take among the enemy. The microbes, it was thought, were uncontrollable and therefore unusable.

As I describe in detail in my new book, *I Heard the Sirens Scream,* the 9/11 attacks and 2001 anthrax mailings shook political establishments worldwide out of their complacencies. The United States, in particular, has spent trillions of dollars over the last decade in anticipation of bioterrorism, buying vaccines, treatments, alleged detection devices, and protective gear for civilian and military first-responders; staging drills and war-games scenarios; and practicing mass-casualty care in hospitals all over the country. On the civilian side alone, 2010 spending topped $5 billion, most directed to the National Institutes of Health (NIH) and Centers for Disease Control and Prevention (CDC) for research on specific microbes.

At the behest of President George W. Bush's administration, the CDC created a list of organisms and biotoxins considered possible weapons and encouraged a vast research-and-development effort. The numbers of biodefense centers, featuring high-security laboratories and stockpiles of the world's deadliest microbes, mushroomed over the last decade from an easily named handful to hundreds around the world, far too many meeting Biosafety Level (BSL) 3 or 4 standards. (Most biology research is conducted in lower-security facilities, but many universities and governments now have BSL-3 setups.) The flu experiments at Erasmus and the University of Wisconsin were executed in such settings. Researchers wear basic protective gear, and the actual microbes are held behind a glass barrier in a specially vented negative pressure space that sucks up all errant germs into a filter system. As added protection, the researchers breathe air that is pumped into their masks from a separate, safe source.

BSL-4 facilities are far more difficult to work in, more costly, and theoretically more secure. The scientists wear spacesuits and toil inside a facility that is itself nested inside at least one other secure layer. All air, food, water, and products are hygienically processed going into the lab and cleaned or destroyed rather than exiting the facility. Only the humans may freely leave the laboratory's confines. Yet despite all the security and protections provided by BSL-3 and -4 facilities, leaks and accidents have happened.

Remarkably, influenza research of all kinds -- including creation of superbugs -- is classified as BSL-3, and the Erasmus and Wisconsin facilities did their work in basic vented labs located on campuses. Fouchier did not blithely wade into his flu experiments, as some news reports have claimed, but followed all rules governing biosecurity in the Netherlands. In 2008, the Royal Netherlands Academy of Arts and Sciences released its Code of Conduct for Biosecurity, stipulating what types of science, under what conditions, can be executed and published by Dutch researchers. Fouchier very strictly adhered to the Dutch code.

Because Fouchier and Kawaoka are funded by the U.S. NIH, their research also had to meet American biosecurity guidelines. And it did -- at least, as those codes are currently conceived.

The rules governing such American research were largely created after the 2001 anthrax scare. Following the attacks, then-Secretary of Health and Human Services Tommy Thompson ordered creation of a cross-government committee to address the dual-use conundrum, finding a way to deter terrorist or other malicious use of scientific discoveries without impeding the pace of basic discovery and invention. The National Science Advisory Board on Biosecurity (NSABB) was the outcome, formally created in 2004. In

its original charter, signed by Thompson, the NSABB was supposed to review all questionable research -- every so-called dual-use study -- before experiments were executed. The NSABB was supposed to recommend special precautions, including prohibiting some experiments, and referee decisions regarding ultimate publication of discoveries. In the post-anthrax political environment, Thompson wanted a very tough NSABB, even if it meant some scientists would believe their work was constricted or censored.

By the time, however, that the NSABB convened in late 2011 to review the Fouchier and Kawaoka cases, the board's mandate had been pared down considerably. In a new charter signed by Secretary of Health and Human Services Kathleen Sebelius in 2010, the board functioned in a strictly advisory role, offering no review of experiments themselves. Its primary clout was over publication of the results once the experiments were performed. The scientists who served on the NSABB were themselves opposed to any pre-experimental regulation and had only modest faith in the powers of publication restriction. In 2007, the NSABB advised weakening its own authority, arguing that "a code of conduct can make good people better, but probably has negligible impact on intentionally malicious behavior."

Britain's Research Councils advised a similar policy in 2007, admonishing the government of then-Prime Minister Gordon Brown that, "systems should be based on self governance within the academic community." Similar advisories flowed from scientific expert bodies to governments across Europe, Japan, India, China, South Korea, and several Latin American countries. It seemed scientists wanted no additional oversight over dual-use research and no limits on publication of their discoveries.

"The rules governing the publication of research results follow from the rules for the performance of research," states the Dutch code. "Here too, publication is the rule and non-publication the rare exception."

Following Fouchier's dramatic September speech in Malta, both he and Kawaoka submitted their studies for publication to the American journal *Science* and Britain's *Nature*. The NSABB intervened, asking the journals to refrain from publishing pending the board's review. Shortly before Christmas, the NSABB advised that publication of the papers was OK so long as the actual methods used to create the superbugs were excised or so obscured as to be useless guidance for would-be terrorists. That put the entire burden of ethics and global dual-use biosecurity on the shoulders of the editors of these journals. Government punted, instructing publishers to please use their heads.

Bruce Alberts, the current editor of *Science*, faced similar instruction from the U.S. government in 2005 when Stanford University's Lawrence Wein and Yifan Liu, then also of Stanford, submitted a paper titled, "Analyzing a bioterror attack on the food supply: The case of botulinum toxin in milk." The authors carefully analyzed the expected human kill rates produced by inserting botulinum toxin at various stages of milk production in the United States, from the actual milk farm all the way to supermarket shelves lined with cartons. "We have a reasonably accurate estimate of the number of people who could be poisoned," the authors wrote -- as many as 568,000 victims, with death rates unknown but undoubtedly frighteningly high.

Bush administration officials were appalled and pleaded with the editor of the *Proceedings of the National Academy of Sciences* -- Alberts, at the time -- to decline the paper. As Bush security experts scrambled to find a legal way to force classification of the paper, Alberts noted that the then-new NSABB was not yet ready to offer advice. He was on his own. Alberts opted to publish, concluding, "If the types of calculations and analyses in the Wein and Liu article are carried out only by government contractors in secrecy, not only are the many actors in the U.S. system who need to be alerted unlikely to be well informed, but also the federal government itself may become misled."

The Fouchier and Kawaoka papers have yet to be published. While Alberts and his *Nature* counterpart mull their options, policymakers ought to consider what a bizarre predicament we are in. Why should such weighty decisions rest on the shoulders of editors? Every time serious dual-use conundrums have reached government, political leaders have demurred and ultimate decisions have similarly fallen to

publishers. In every known case, publishers have, as can be expected, opted to publish. This happened in 2001 when Australian scientists accidentally made a 100 percent lethal form of mousepox, the rodent equivalent of smallpox. It also happened when an American team used that same method to make superdeadly cowpox and other pox viruses. Similarly, publication was the choice for a lab-modified version of the 1918 flu virus, ultralethal forms of SARS, a man-made polio (published with a detailed how-to section), and dozens more potentially dual-use discoveries.

In their defense, the relevant scientists and editors argued that there was no evidence that evildoers made use of any of this information. In response to this view, Stuart Nightingale, a biosecurity consultant to the U.S. Department of Health and Human Services, recently wrote in the *Journal of the American Medical Association*, "this does not mean, however, that such articles have not been or will not be used to do so. Well-organized, valid information with the imprimatur of respected peer-reviewed journals could be especially valued by a malevolent actor over any information that might be available on the Internet."

Outside of police states, though, censorship is impossible to enforce and ultimately useless within scientific circles. No professional group is as cybersavvy as scientists, save the actual computer-industry coders. Indeed, the Internet was originally created decades ago to encourage the exchange of information among scientists. Most researchers have tight collegial relationships with their peers, among whom discoveries are shared almost instantly. Methods, samples, reagents, and the basic intellectual tools of science are freely exchanged, and scientists who opt out of this fluid process are shunned, even condemned, by their peers. This is true at all tiers of the scientific process, from the senior-investigator level all of the way down to undergraduates toiling inside campus laboratories for school credit. Electronic information leaks, gets hacked, or "disappears" all the time. It is profound folly to imagine that global biosecurity can be attained through censorship. Even the NSABB decision to allow publication with methods omitted misses the point: Most of us (I include myself) already know how, in broad terms, Fouchier made his supervirus, and dozens of leading scientists all over the world know the work in sufficient detail to replicate it.

Still, recognizing the limitations of current codes and the BWC, some members of the European Union now advocate policing of science. A movement is afoot to allow police authorities to examine lab notebooks and scour laboratories across the continent on a routine, proactive basis. In a controversial editorial in the December edition of the European Molecular Biology Organization's journal, editor Howy Jacobs argued, "Some might argue that the state has no place in an academic laboratory, but I believe the threat is real enough that this blanket appeal for trust and virtue is insufficient as a response.… No security system can be perfect. But democratic societies and responsible scientists need to be vigilant and proactive."

Jacobs's plea is not likely to find many adherents among biologists, who as a group strongly believe in sharing information. The social norm of sharing is at its most extreme among self-described "life hackers" and "DIY (do-it-yourself) synthetic biologists." By definition, these biologists think that science ought to, in the Internet era, be a vast collective enterprise for the good of humanity, wherein thousands of researchers toiling inside home pseudo-labs, colleges, or enormous professional facilities work together to solve pressing problems. They are trying to turn algae into genetically modified solar collectors, use viruses as switch signals in tiny biocomputers, make vital food crops drought- or pest-resistant, create living art from genetically modified assemblages of organisms, and cure diseases by growing genetically altered cell colonies that can be surgically implanted or injected into ailing people. Some adherents to the DIY biology movement insist that their collective amateur laboratories are akin to the garage days of the development of Apple and Microsoft hardware and software in Northern California. From a scientific viewpoint, it would be hard to name any time in the history of biology as exciting as this.

Even in traditional pharmaceutical, biotechnology, and academic environs, the synthetic-biology movement, coupled with extraordinary advances in genetic sequencing, have upped the ante on both what is possible and what constitutes "dual-use" potential. A decade ago, sequencing the human genetic blueprint was a monumental feat costing millions of dollars, executed in hundreds of labs around the world. Today an individual's genetic blueprint can be fully sequenced in a couple of days at a cost of

about $1,000; biotech company Illumina advertises the service at $4,000. New technology coming out of the pipeline will bring that time and cost down more than 90 percent this year. Sequencing far smaller microbes is now so cheap and easy that deciphering the deadly details of plague or AIDS can be performed by, as Clinton phrased it, anybody with "college-level chemistry and biology." A perfectly functional DIY synthetic-biology lab, complete with gene sequencer, costs about $25,000 today; it will go for $5,000 soon.

Industry is moving full-bore on synthetic biology as well. Maverick biologist J. Craig Venter, famous for setting up a private company that raced the NIH to be the first to synthesize the human genome more than a decade ago, violated no rules in 2010 when his private research institute published detailed how-to steps for inserting the genome of one species of bacteria into a different species, creating the ultimate Trojan horse that could sneak by human immune system defenses to deliver a lethal cargo. The experiments were so bold and dramatic that in 2010 the U.S. Presidential Commission for the Study of Bioethical Issues was tasked with finding guidelines to control private and industrial synthetic-biology experiments. It opted instead for free, unfettered science, except for first out-of-laboratory uses of man-made organisms.

In October, *Nature* published the genetic blueprint of *Yersinia pestis*, the bacterium that caused Europe's 14th-century Black Death. This followed a long list of microbial blueprint publications, complete with detailed analysis of what, genetically speaking, makes the bacteria or viruses tick: Here is the virulence sequence that kills human cells, scientists point out; these nucleotides control transmission from one human cell to another; thanks to these genes the microbe can evade the human immune system; and so on. The whole point of the work is to demonstrate *how* microbes infect and destroy cells, including those of human beings.

Political leaders can no longer relegate questions about bioterrorism, biological accidents, bioweapons, or bio-homicide to scientific review panels or, worse, journal editors. It is time to rethink both the BWC and the various biosecurity codes countries have created, without resorting to doomed calls for censorship.

In a 2007 speech to the NSABB, C. Kameswara Rao of India's Foundation for Biotechnology Awareness and Education almost pleaded with his American and European counterparts. India's burgeoning pharmaceutical industry is now taking in $2 billion annually, and enterprises akin to DIY biology have sprouted up from Bangalore to Mumbai. What might have once been considered unthinkable to Indians became ugly reality with the 2008 terrorist attacks in Mumbai. More than 300 people were injured and 172 died in the worst mass-casualty event in modern Indian history. Developing countries like India, Rao argued, are in desperate need of international guidelines, global governance of dual-use research, and basic know-how. Wealthy countries must, he stated, "share and provide state-of-the-art technical know-how" on biosecurity and surveillance of violations. There is a desperate need to globally "coordinate and monitor diagnostic, preventive, and remedial action." And an international funding agency must be created to support such preventive action in developing countries in order, Rao concluded, "to prevent human tragedy for want of technical know-how and financial resources." Rao was calling for nothing less than a massive global effort to train government institutions in poor and middle-income countries in the legal, biological, and public health tools necessary to control and respond to release of dangerous man-made contagions, whether deliberate or accidental.

Yanzhong Huang, senior fellow at the Council on Foreign Relations, finds a similar state incapacity to limit and surveil biothreats in China. In his estimation, Beijing has no capacity to prevent "biocrimes" or limit the synthetic-biology activities of its mushrooming biotech industry and academic science. Between them, India and China comprise much of the world's population and economic growth, have the lion's share of the new biotechnology and drug industry that could potentially execute dual-use research, and lack regulatory capacity to monitor such developments. That ought to worry all of us, whether we are in Beijing and Bangalore or Boston and Bangkok.

Developing countries' concerns put the World Health Organization (WHO) in a particularly difficult position on the H5N1 experiments and larger biosecurity issues. As H5N1 spread throughout Asia from 2003 to

2009, Indonesia experienced the majority of human cases and deaths, and virologists were eager to obtain samples of the flu viruses circulating around that vast island nation in order to comprehend why. The government declined to share viral samples, citing several concerns chiefly related to vaccine development, patents, and profits. After years of difficult negotiations, Indonesia and the World Health Assembly, the WHO's governing body, last year agreed to guidelines permitting sharing of both viruses and the profits derived from them. The resulting Pandemic Influenza Preparedness Framework is a fragile agreement governing the WHO's emerging-diseases and flu activities.

In an unusually harsh statement on Dec. 30, the WHO condemned the H5N1 experiments and demanded that the methods used to obtain superbugs remain secret, but also cited concern that any further restrictions on the flow of scientific information might undermine the fragile flu framework. Noting the extreme dangers posed by H5N1, which since 1997 has killed 60 percent of infected human beings, the WHO said, "Research which can improve the understanding of these viruses and can reduce the public health risk is a scientific and public health imperative" that requires open sharing of all viruses and information.

Meanwhile, bird flu is back, causing human and bird infections and deaths in Hong Kong, mainland China, India, Bangladesh, and Egypt. A Shenzhen bus driver died of H5N1 on Dec. 31; the source of his infection has not been determined. Nature carries out its own mutations. Indeed, all five of the mutations that were the key in Fouchier's experiments to transforming garden-variety bird flu into a supercontagious mammalian killer have already occurred separately in nature. Yes, the birds and viruses have already done it -- but not with all five mutations in a single viral strain. The biological clock is ticking. In late December, the U.S. CDC issued a warning, noting that yet another flu threat looms, combining the 2009 H1N1 "swine flu" with a H3N2 influenza now circulating in American commercial pig farms. The naturally occurring recombinant flu had infected a dozen Americans by Christmas (Foreign Policy, 2012).

Title: An Engineered Doomsday
Date: January 7, 2012
Source: New York Times

Abstract: Scientists have long worried that an influenza virus that has ravaged poultry and wild birds in Asia might evolve to pose a threat to humans. Now scientists financed by the National Institutes of Health have shown in a laboratory how that could happen. In the process they created a virus that could kill tens or hundreds of millions of people if it escaped confinement or was stolen by terrorists.

We nearly always champion unfettered scientific research and open publication of the results. In this case it looks like the research should never have been undertaken because the potential harm is so catastrophic and the potential benefits from studying the virus so speculative.

Unless the scientific community and health officials can provide more persuasive justifications than they have so far, the new virus, which is in the Netherlands, ought to be destroyed. Barring that, it should be put in a few government-controlled laboratories with the highest containment rating, known as biosafety level 4. That is how the United States and Russia contain samples of smallpox, which poses nowhere near the same danger of global devastation.

In the future, it is imperative that any such experiments be rigorously analyzed for potential dangers — preferably through an international review mechanism, but also by governmental funding agencies — before they are undertaken, not after the fact as is happening in this case.

The most frightening research was done by scientists at the Erasmus Medical Center in Rotterdam, who sought to discover how likely it is that the “bird flu” virus, designated A(H5N1), might mutate from a form that seldom infects or spreads among humans into a form highly transmissible by coughing or sneezing. Thus far the virus has infected close to 600 humans and killed more than half of them, a fatality rate that far exceeds the 2 percent rate in the 1918 influenza pandemic that killed as many as 100 million people.

Working with ferrets, the animal that is most like humans in responding to influenza, the researchers found that a mere five genetic mutations allowed the virus to spread through the air from one ferret to another while maintaining its lethality. A separate study at the University of Wisconsin, about which little is known publicly, produced a virus that is thought to be less virulent.

These findings led to an unprecedented request from an American federal advisory board that the researchers and the two scientific journals that plan to publish the studies omit any details that might help terrorists figure out how to unleash a devastating pandemic. That presumably includes details on how the engineered virus was made and details on the precise mutations that allowed it to go airborne.

We doubt that anything at all should be published, but it seems clear that something will be.

The two journals reviewing the papers seem inclined to follow the advisory board's recommendations that the research be published in a redacted form, provided there is some way for researchers who need the information to gain access to the full details. The Erasmus team believes that more than 100 laboratories and perhaps 1,000 scientists around the world need to know the precise mutations to look for. That would spread the information far too widely. It should suffice to have a few of the most sophisticated laboratories do the analyses.

Defenders of the research in Rotterdam claim it will provide two major benefits for protecting global health. First, they say the findings could prove helpful in monitoring virus samples from infected birds and animals. If genetic analysis found a virus somewhere that was only one or two mutations away from going airborne, public health officials would then know to bear down aggressively in that area to limit human contact with infected poultry and ramp up supplies of vaccines and medicines.

But it is highly uncertain, even improbable, that the virus would mutate in nature along the pathways prodded in a laboratory environment, so the benefit of looking for these five mutations seems marginal.

A second postulated benefit is that the engineered virus can be used to test whether existing antiviral drugs and vaccines would be effective against it and, if they come up short, design new drugs and vaccines that can neutralize it. But genetic changes that affect transmissibility do not necessarily change the properties that make a virus susceptible to drugs or to the antibodies produced by a vaccine, so that approach may not yield much useful new information.

We cannot say there would be no benefits at all from studying the virus. We respect the researchers' desire to protect public health. But the consequences, should the virus escape, are too devastating to risk (New York Times, 2012).

Title: We Need To Fix The Holey Biosafety Net
Date: January 13, 2012
Source: NewScientist

Abstract: Physics lost its innocence on 16 July 1945, when researchers involved in the Manhattan Project witnessed the first detonation of an atomic bomb. Years later, Robert Oppenheimer recalled that he was haunted by a verse from the Hindu scripture, the *Bhagavad Gita*: "I am become death, the destroyer of worlds."

Ron Fouchier and Yoshihiro Kawaoka haven't yet revealed their thoughts on learning that they had created flu viruses that could potentially kill tens of millions of people (see "One mistake away from a worldwide flu pandemic"). But with opinion divided on the wisdom of running the experiments, biology may have crossed a similar line.

The circumstances are very different, of course. Oppenheimer and his colleagues were trying to defeat tyranny. Fouchier and Kawaoka were motivated by a desire for knowledge that they argue will make the world safer.

The trouble is that in the wrong hands, or if handled carelessly, these viruses may be just as dangerous as a nuclear bomb. Fouchier and Kawaoka believe that understanding how the deadly H5N1 virus can become easily transmissible between people is crucial knowledge. Others argue that the experiments don't mimic what might happen in nature, and that the risks outweigh any benefits.

But what is done is done. The question now is, what can be learned from this episode?

First and foremost we must ask how it came to this. The research was first reported at a conference last September, yet the US National Science Advisory Board for Biosecurity (NSABB) was not asked for its opinion until later, as two papers describing the work neared publication. The board has now recommended that key details should be withheld from these papers - though whether that will be enough to neutralise any danger is debatable.

While no one doubts the researchers' good intentions, one has to ask how the work progressed so far without a wider debate. In 2007, NSABB drew up a framework for proactively weighing up the risks and benefits of experiments that might provide a recipe for bioterror. It was supposed to serve as a springboard for action, but has simply gathered dust. Before the framework, *New Scientist* flagged up a grant to Kawaoka which eventually paid for his flu experiments in an article on the pros and cons of such research (14 October 2006, p 20).

The US National Institutes of Health, which funded Fouchier's and Kawaoka's work, says that the US government will now develop a policy to "augment existing approaches" to evaluating such research - though it has not said what this means in practice.

Better late than never. But it is important not to overreact. As we warned more than five years ago, some security specialists see bioterrorists under every bed. If their views were to dominate, important research would become tangled in red tape.

The reality is that a vanishingly small number of projects present such dilemmas. But those that do need to be flagged up earlier in the game and subjected to scrutiny. The scientists involved must also accept that others can legitimately question whether everything that can be done should be done, lest they follow in Oppenheimer's deadly footsteps (NewScientist, 2012).

Title: Universal Flu Vaccine Could Be Available by 2013
Date: January 13, 2012
Source: U.S. News

Abstract: Annual flu shots might soon become a thing of the past, and threats such as avian and swine flu might disappear with them as a vaccine touted as the "holy grail" of flu treatment could be ready for human trials next year.

That's earlier than the National Institutes of Health estimated in 2010, when they said a universal vaccine could be five years off. By targeting the parts of the virus that rarely mutate, researchers believe they can develop a vaccine similar to the mumps or measles shot—people will be vaccinated as children and then receive boosters later.

That differs from the current '60s-era technology, according to Joseph Kim, head of Inovio Pharmaceuticals, which is working on the universal vaccine. Each year, the seasonal flu vaccine targets three or four strains that researchers believe will be the most common that year. Previous seasons'

vaccines have no effect on future strains of the virus, because it mutates quickly. The seasonal vaccine also offers no protection against outbreaks, such as 2009's H1N1 swine flu. A universal vaccine would offer protection against all forms of the virus.

"It's like putting up a tent over your immune system that protects against rapidly mutating viruses," Kim says. At least two other companies are working on a similar vaccine. In late 2010, Inovio earned a $3.1 million grant from the National Institutes of Health to work on the vaccine.

"It's a completely different paradigm than how [the vaccines] are made seasonably every year," Kim says.

Kim says early research has been promising. Flu strains fall into different "buckets," he says. All H1N1 strains share similar characteristics, as do all H5N1 strains, including the the Asian bird flu strain that has killed more than 60 percent of the 500 or so people it has infected over the past decade.

Kim says Inovio has already made and completed successful human tests for vaccines that protect against all H1N1 and H5N1 flu strains.

In late 2011, two research groups created a strain of H5N1 bird flu that could be passed from human to human, leading the World Health Organization to issue a statement that said they were "deeply concerned about the potential negative consequences" that publishing their research could cause. Some news outlets have called the new strain "engineered doomsday" and wondered whether terrorist organizations could create and distribute a similar virus. Kim says not to worry.

"I am very certain our vaccine can already neutralize that newly made virus," he says. "We're trying to get our hands on it."

Inovio is working on vaccines that'll protect against other strains, such as H3N2, which is seen in a newly-emerged swine flu virus. Those vaccines will be combined with the already-developed H1N1 and H5N1 vaccines to be delivered in one shot by the 2013 flu season. Researchers are taking a similar approach to HIV vaccine development, but working on the flu might be easier.

"Unlike other diseases, we have 50 plus years of diagnostics on the flu," Kim says. "There are lots of toolkits that let us know if our approach will work or not. ... Our goal is to have a vaccine strategy that can protect us from all mutations" (U.S. News, 2012).

Title: Soligenix Unveils Positive Results From Anthrax Vaccine Studies
Date: January 18, 2012
Source: Proactive Investors

Abstract: Soligenix (OTCBB:SNGX) unveiled Wednesday results from long-term stability studies of its proprietary DNI, or dominant negative inhibitor, anthrax vaccine, known as SGX204.

SGX204 is a hyperimmunogenic derivative of protective antigen and is being developed as a vaccine to protect against anthrax disease either as a pre-exposure prevantitive vaccine, or post-exposure vaccine.

The company said "positive stability" was seen when the DNI rPA, or recombinant protective antigen, was subjected to temperatures as high as 70˚C for one month.

DNI rPA retained native configuration, with no evidence of denaturation that typically occurs in water buffers under the same thermal conditions, the company said.

The DNI protein was formulated with common excipients that allow for the preservation of protein structure in the dried state.

Long-term stability of DNI rPA was also demonstrated after refrigerated storage for more than seven years, Soligenix said.

More importantly, when DNI rPA was combined with a potent adjuvant formulation, animals vaccinated with the combination developed high-titer neutralizing antibodies for protection against anthrax disease.

"We are very excited about these extraordinary stability results," said chief scientific officer, Robert N. Brey, PhD.

"We believe that the combination of long-term stability over several years with stability at such elevated temperatures has the potential to confer a distinct advantage over other anthrax vaccine technologies currently in development.

"Further, SGX204 is highly immunogenic and thereby offers the potential for complete immunization with just one or two doses. As with any biodefense product, our goal is to have SGX204 stockpiled by the US government."

Anthrax is an acute infectious disease that is easily transmitted to humans by spores that are produced by Bacillus anthracis and is therefore considered a Category A bioterror threat. Infection can happen through the skin, inhalation or through gastrointestinal ways.

Inhaled spores are particularly threatening, as these spores are transported to lymph nodes near the lungs where they germinate, releasing vegatative bacteria into the bloodstream. This leads to shock and organ failure.

Treatment of anthrax involves long-term antibiotic therapy, since ungerminated spores can lie dormant in the lungs for up to 60 days.

Once the toxin has entered the bloodstream, however, antibiotics are ineffective, and only toxin-specific therapy is effective.

Soligenix has entered into an option agreement with Harvard University to negotiate a license under patent rights that cover prophylactic uses of a modified anthrax toxin protein.

Initial development work will be covered under a previously issued $9.4 million National Institute of Allergy and Infectious Disease (NIAID) grant.

The option consists of an issued U.S. patent that covers engineered variants of protective antigen developed in the Harvard Medical School laboratory of Dr. John Collier, the company said.

Soligenix is a development stage biopharmaceutical company developing products to treat life-threatening side effects of cancer treatments and serious gastrointestinal diseases, as well as vaccines for certain bioterrorism agents.

Through its biodefense division, Soligenix is developing its RiVax vaccine, which is designed to protect against the lethal effects of exposure to ricin toxin, in addition to SGX204 (Proactive Investors, 2012).

Title: US Army Burns Off Final Chemical Weapons In Utah
Date: January 19, 2012
Source: NPR

Abstract: Gary McCloskey may have destroyed more chemical weapons than any man alive, but he barely reacted when the final weapons from the world's largest stockpile of warfare agents came out of an incinerator.

McCloskey, a 63-year-old engineer and manager for URS Corp.'s Federal Services division, was on hand as a U.S. Army depot in Utah finished destroying the last of 1.3 million munitions filled with a witches' brew of toxins, blister and blood agents. He was on a Pacific atoll in 1986 when the Army destruction campaign started, living just 300 yards from an incinerator.

"These things really are detoxified and are safe," McCloskey said Wednesday at the Deseret Chemical Depot, watching a video feed of mustard agent projectiles leave an incinerator on a conveyer belt. "This is the last tray of the last weapons to go through this plant."

The last 23 projectiles were baked for two hours at 1,500 degrees, purging them of mustard agent, which can produce painful skin blisters. The Utah depot — which at its peak held 13,600 tons of chemical agents, making it the world's largest — expects to complete the job by the weekend when it incinerates bulk supplies of Lewisite, a powerful skin, eye and lung irritant.

By then, the U.S. Army will have destroyed about 90 percent of its aging chemical weapons that accumulated through the Cold War.

"We can honestly say that the destruction of chemical agents ... has made the world a safer place," said Col. Mark Pomeroy, commander of the Deseret Chemical Depot.

The U.S. is part of an international treaty to rid the world of chemical weapons, a campaign taking place with spotty success around the globe. The goal was supposed to be accomplished by April 29 but will take years longer.

"Clearly, it's still a tremendous example of what the world can do," said Craig Williams, director of the Chemical Weapons Working Group in Berea, Ky., an advocate for safe disposal. "You've got 188 of 194 countries on the planet signing the treaty. It's an impressive effort, a great step forward for the safety of the world."

The U.S. has acknowledged it will take as long as 2021 to finish destroying the final 10 percent of its chemical weapons at depots in Pueblo, Colo., and Richmond, Ky. Russia is farther behind in its effort, having destroyed only about 48 percent of a large cache of chemical weapons, according to the Organisation for the Prohibition of Chemical Weapons in The Hague, Netherlands.

An international tribunal voted last month to waive trade or other sanctions and instead subject the U.S. and Russia to increasing pressure and inspections. Each country must submit plans by April 29 detailing how they will finish the job "in the shortest time possible."

A third country, Libya, also is expected to miss the deadline. The recent uprising in Libya interrupted that country's work and exposed more chemical weapons depots than were thought to exist, Williams said.

In the U.S., the Army has finished destroying chemical weapons at depots in Anniston, Ala.; Pine Bluff, Ark.; Newport, Ind.; Aberdeen. Md.; Umatilla, Ore.; and a Pacific atoll where the work started in 1986, according to the Army's Chemical Materials Agency.

That leaves a stockpile of mustard agent in Pueblo., Colo., and a mixed inventory of mustard and nerve agents at Kentucky's Blue Grass Army Depot.

The Deseret Chemical Depot in Utah once contained 44 percent of the nation's supply of chemical agents. The depot didn't just hold obsolete U.S. weapons. A supply of nerve agent seized from Nazi Germany at the end of World War II was destroyed only months ago.

McCloskey said about 1,100 URS contract workers are being let go with generous severance, sent into early retirement or transferred to other chemical weapons depots. Others took advantage of the company's college benefits to learn a new trade. A small number will remain for cleanup duty. The Deseret Chemical Depot will be turned into an Army storage site for conventional weapons.

The heavily guarded Utah incinerator sits in the middle of a desolate base of nearly 3 square miles, surrounded by barbed wire and chain-link fences in remote Rush Valley. Underground bunkers were used to store the explosive shells, mortars, land mines, projectiles, rockets, spray tanks for use by war planes and bulk storage containers.

The Deseret Chemical Depot logged 14 million man-hours destroying weapons since 1996 without a single serious accident, Pomeroy said.

Chemical weapons were introduced into warfare during World War I, killing 90,000 troops on battlefields, according to the Organisation for the Prohibition of Chemical Weapons.

As far as is known, the U.S. has never fired a chemical weapon in anger, although some consider the use of the defoliant Agent Orange during the Vietnam War a chemical attack, Williams said (NPR, 2012).

Title: Bio-Terror Fear Halts Bird Flu Research
Date: January 21, 2012
Source: Fox News

Abstract: Scientists who created easier-to-spread versions of the deadly bird flu said Friday they're temporarily halting more research, as international specialists debate what should happen next.

Researchers from leading flu laboratories around the world signed onto the voluntary moratorium, published Friday in the journals Science and Nature.

What the scientists called a "pause" comes amid fierce controversy over how to handle research that's high-risk but potentially could bring a big payoff. Two labs — at Erasmus University in the Netherlands and the University of Wisconsin-Madison — created the new viruses while studying how bird flu might mutate to become a bigger threat to people.

The U.S. government funded the work but last month urged the teams not to publicly reveal the exact formula so that would-be bioterrorists couldn't copy it. Critics also worried a lab accident might allow the strains to escape. The researchers reluctantly agreed not to publish all the details as long as the government set up a system to provide them to legitimate scientists who really need to know. The National Institutes of Health is creating such a system.

"We recognize that we and the rest of the scientific community need to clearly explain the benefits of this important research and the measures taken to minimize its possible risks," lead researchers Ron Fouchier of Erasmus and Yoshihiro Kawaoka of Wisconsin wrote Friday in the letter. They were joined by nearly three dozen other flu researchers.

They called for a public international meeting to debate how to learn from the work, safely. And they agreed to hold off on additional research with the existing lab-bred strains or that leads to any new ones for 60 days.

A U.S. official praised the development.

The moratorium "is a really good idea, because a lot of very important issues are at hand," said Dr. Anthony Fauci, director of the NIH's National Institute of Allergy and Infectious Diseases, who expects

most flu researchers doing such work to sign on. "There aren't a lot of people who are doing that, I can assure you."

The U.S. also wants international input; researchers are talking with the World Health Organization.

Today, the so-called H5N1 bird flu only occasionally infects people, mostly those who have close contact with sick poultry. But when it does, it's highly lethal. The lab-bred H5N1 strains were a surprise because they showed it was easier than previously thought for the virus to mutate in a way that lets it spread easily between at least some mammals — in this case, ferrets (Fox News, 2012).

Title: Bird Flu Mutation Study Stopped In Fear Of Deadly Global Outbreak
Date: January 21, 2012
Source: Russia Today

Abstract: Under pressure to put their research on hold due to fear of a biological disaster, an international team of scientists have voluntarily suspended their study on an advanced, incredibly deadly mutation of the H5N1 bird flu.

In an effort to better understand the deadly bird flu virus, Ron Fouchier of Erasmus Medical College in the Netherlands, Adolfo Garcia-Sastre of Mount Sinai School of Medicine in New York and Yoshihiro Kawaoka of the University of Wisconsin, Madison have been slaving over their study of the avian influenza. In conducting their own research, the team of scientists was able to mutate the original H5N1 virus into a much more lethal form to see how the outbreak could increase in intensity if not controlled outside of the lab. As word came around late last year that their research had returned a variation able to induce an international outbreak, however, the scientific community urged them to abandon their study in fear that the mutated strain would escape the lab and cause a deadly, worldwide outbreak.

With the fear failing to subside weeks later, the team of scientists has temporarily halted their research.

In its natural form, the bird flu virus has led to nearly 600 known cases and 340 deaths since it was discovered in 2003. That year there were only four outbreaks, all in East Asia, although in the years since an outbreak has claimed lives as far west as Egypt. The scientists were studying what damage a mutated strain of the virus could bring, but the US National Science Advisory Board for Biosecurity cautioned them to refrain from publishing the results of their finding, fearful that it would influence budding bioterrorists to use the study to create their own strain and launch an epidemic.

Despite the Board's urging, others in the science community were skeptical*. "In the end, is the likelihood of misuse outweighed by the danger of beginning a Big Brother society?"* Professor Wendy Barclay of Imperial College London asked the Daily Mail last month.

The researchers say in a letter published in the journals Nature and Science on Friday that they will take a two-month break from their efforts. Since news of their study caught wind, the US government, the World Health Organization and other international bodies have been evaluating a way to go about publishing the findings in periodicals eventually, taking into account their research but avoiding the publishing of a how-go guide for biological warfare.

"We realize that organizations and governments around the world need time to find the best solutions for opportunities and challenges that stem from the work," the scientists write.

"We hope that by having a calm and reasoned discussion of the facts, scientists and biosecurity experts can reach a better understanding and find ways to enable the research to go forward while minimizing risks," adds Kawaoka (Russia Today, 2012).

Title: Has Bird Flu Biology Opened Bioterror Box?
Date: January 25, 2012
Source: USA Today

Abstract: It was a public health nightmare: A deadly flu bug spread like wildfire around the world, killing tens of millions of people.

That was nearly a century ago. Fears that the nightmare could return today — perhaps with even more terrifying consequences — have set off a heated debate among scientists and, for the first time, delayed the publication of scientific flu research in two professional journals.

The object of those fears: a threatening new version of the bird flu virus that didn't emerge from nature but was born out of experiments in a lab.

Researchers in the Netherlands and at the University of Wisconsin-Madison, who were trying to determine what genes might mutate and make bird flu attack humans, created a strain that can pass easily among ferrets.

Why should we care that ferrets get the bird flu?

Ferrets are the closest lab animal models to humans for flu vaccine studies. Until now, cases of bird flu passing from infected birds to humans were limited to people — farmworkers usually — who worked closely with the birds. And bird flu almost never passes from person to person.

So creation of a bird flu strain easily transmissible between mammals poses frightening scenarios: What if the strain escaped from the lab and spread among humans? David Nabarro, a World Health Organization expert, estimated that such a pandemic could kill 20 million to 150 million people worldwide.

What if terrorists intent on doing harm learned enough from the published scientific work to reproduce the strain on their own? They could release it to start a pandemic.

The federal National Science Advisory Board for Biosecurity (NSABB) reviewed the work, and last month, it requested for the first time ever that two prominent scientific journals, *Science* and *Nature*, withhold from the public details of the two potentially dangerous bird flu studies.

Journal editors, sensitive to the security issues, have delayed publication of the studies.

"We have to protect the public by making sure the critical information doesn't get into the hands of those who might misuse it," says *Science* editor-in-chief Bruce Alberts.

On the other hand, he says, "this knowledge could be essential for speeding the development of new treatments to combat this lethal form of influenza."

Last week, leaders of the two labs involved announced a two-month halt to research on bird flu viruses engineered to pass among mammals, citing "perceived fears" that the microbes may escape from the lab. They called for the World Health Organization to discuss the risks and benefits of their research.

"I think it is a reasonable first step," says University of Michigan virologist Michael Imperiale, a member of the federal NSABB group.

The strains are securely locked down in labs in the Netherlands and Wisconsin, but the episode raises questions about whether such experiments should be done in the first place.

"I'm not convinced a 'doomsday' strain is what we have here," says NSABB chief Paul Keim, an anthrax researcher at Northern Arizona University in Flagstaff, "but now at this point, we can see the trajectory creating something of very grave concern."

A High Rate of Death

Why the concern? Bird flu, or H5N1 avian flu, has killed 342 people in the past decade out of 581 who were infected, a death rate of almost 60%, according to the World Health Organization. That percentage is much debated by researchers, who argue it's skewed because many milder cases aren't reported. That rate is about 120 times higher than for the 1918 flu, and roughly 600 times greater than for the 2010 seasonal flu.

The 1918 flu virus strain that killed perhaps 50 million people, including 675,000 Americans, according to the federal Centers for Disease Control and Prevention (CDC), hangs heavy over the debate. That bug, emerging near the end of World War I, had new genetic features and wreaked havoc on the unprepared immune systems of people at the time.

The nightmare for scientists today is that the mutation-prone bird flu virus — which they say is similarly foreign to the human immune system — could evolve into a strain that could be transmitted from person to person and trigger a similar deadly outbreak. In the ferret flu studies, biologists may have completed that step in the laboratory. The researchers reinfected ferrets with bird flu until a strain evolved that seemed able to move from ferret to ferret by sneeze, raising fears it could travel the same way among people if it escaped.

Outside the lab, some question the wisdom of putting the world at this kind of risk. Bioterror expert Michael Osterholm of the University of Minnesota asks what good it is to identify threatening new flu genes in a lab when no way exists to monitor Asia's poultry cages for an outbreak.

"We have worried about this for a long time," says microbiologist Ronald Atlas of the University of Louisville. Atlas was a member of the 2004 National Academy of Science panel that described this very scenario — a lab creation aimed at combating a disease triggering pandemic fears — and called for the creation of the NSABB. "My sense is the scientific community is really divided on this," Atlas says.

'Tickling the Dragon's Tail'

At the dawn of the atomic era, weapons scientists tried "tickling the dragon's tail," in the words of Manhattan Project physicist Richard Feynman, handling radioactive blocks just close enough together to gauge where nuclear chain-reactions start, at considerable risk to themselves and everyone in the vicinity.

Today's biological equivalent comes from "dual-use" microbes, grown in labs to be strong enough to test vaccines but running the risk the microbes could accidentally escape or be hijacked for bioterrorism.

Case in point: the anthrax attacks in 2001, which killed five people. The strain of Ames anthrax bacteria used in the attacks was specifically grown for vaccine testing.

FBI investigators concluded the culprit was a lab insider, researcher Bruce Ivins, who committed suicide in 2008 while the investigation was underway.

Over the past decade, a litany of other microbe reports have drawn concern:

•In 2002, Stony Brook (N.Y.) University researchers reported the re-creation of polio virus from stitched-together DNA fragments. The study raised concerns that bioterrorists could patch together attack bugs from gene scraps alone, not even needing the bugs themselves in a Petri dish.

•In 2005, federally funded researchers published a reconstructed gene map of the 1918 flu virus after a review by Keim's panel. Then-CDC chief Julie Gerberding called the research "critically important in our efforts to prepare for pandemic influenza."

•Last year, the National Research Council reported that the FBI and the "U.S. intelligence community" had inspected a suspected al-Qaeda bioterror lab during the anthrax murder investigation. Critics of the FBI case, such as Rep. Rush Holt, D-N.J., worried that terrorists were growing microbes for bioterror purposes.

Much like the knowledge that atomic bombs were possible spurred nuclear proliferation during the Cold War, news that bird flu can be made transmissible to mammals could suggest ideas to a well-trained, would-be bioterrorist, Keim says. "The research is out there," he says.

Scientific Disagreement

The pages of one journal in the middle of the debate, *Nature*, reveal the wide disagreement among scientists about whether publishing the lab-made bird flu strain represents a step too far.

"I believe that the risk of future outbreaks in humans is low," wrote flu genetics expert Peter Palese of the Mount Sinai School of Medicine in New York in a Jan. 12 opinion piece.

Bird flu has had millions of chances in tightly packed chicken coops of evolving the capability of transmitting among people, he argues, a natural experiment showing there is little chance of the bug triggering a pandemic.

"Slowing down the scientific enterprise will not 'protect' the public — it only makes us more vulnerable," Palese said.

Palese and some other researchers question the high mortality rate ascribed to bird flu, saying it more likely reflects deaths among the very sickest patients, ones who headed for the hospital.

Mild cases never showed up in records, they suggest. The death rate from the dreaded 1918 flu was about 0.5% (still very high for the flu — that's one in 200 patients), according to a U.S. Armed Forces Health Surveillance Center review.

On the other hand, smallpox researcher D. A. Henderson of the University of Pittsburgh's Center for Biosecurity in Baltimore wrote in *Nature*'s Jan. 19 edition, "We should not publish a blueprint for constructing such an organism." The lab creation, in his estimation, produced "the ultimate biological threat."

Looking for Middle Ground

"The real question is, where do we find some middle ground, to make a system that preserves scientific openness but also safety?" Atlas says. "The irony is that we do have the bones of a biosafety system already in place. Everyone seems to forget that."

Under federal law, bird flu must be investigated within a "Biosafety Level 3" lab, requiring special training, equipment, ventilation and oversight. Related regulations require that labs register "select agents," including bird flu.

"Obviously, it went through that process," says spokesman Terry Devitt of the University of Wisconsin-Madison, who notes that the National Institutes of Health approved the research in the first place.

However, Atlas points out the 2004 National Academy of Sciences report that called for the creation of the NSABB also said extra "biosafety" reviews should be conducted at the university level. Devitt acknowledges this wasn't part of the school's review process.

Some researchers, such as chemical biologist Richard Ebright of Rutgers University, have called for assigning the ferret study virus strains to Biosafety Level 4, the highest level of security.

Worldwide, at least 42 labs investigate bird flu, or bugs just as deadly, according to Lynn Klotz of the Center for Arms Control and Non-Proliferation in Washington, and Ed Sylvester of Arizona State University.

Looking at the history of lab infections, such as the SARS death in 2004 of a student in Beijing who caught the disease from two graduate students infected in a lab, they put the odds of a lab "escape" at 80% within four years. An escape doesn't mean a pandemic, but it does offer one an avenue.

Federal officials, according to Keim, have asked the NSABB to review the safety of communication of similar bird flu infection studies.

"We had a debate a decade ago and decided that this science was too important to restrict," Atlas says. "The real responsibility for control has to come from the scientific community" (USA Today, 2012).

Title: WHO Director-General Addresses Unprecedented Meeting On Neglected Tropical Diseases
Date: January 30, 2012
Source: WHO (World Health Organization)

Abstract:

Dr Margaret Chan
Director-General of the World Health Organization

Ladies and gentlemen,

Today's event sends a strong message of encouragement.

At a time of severe financial constraints, it is still possible to set ambitious targets for diseases, secure unprecedented commitments, and accelerate action to meet those targets.

This message is all the more heartening given the people who will benefit. The bottom billion. The poorest of the poor. People with little visibility and even less political voice.

For decades, WHO has been the champion of these people, steadily working to give them the vision of a better life. This leadership, supported by research, partners, and industry donations, has changed the face of NTDs.

Once considered inevitable companions of poverty, many NTDs are now being brought to their knees, with stunning speed.

Last week, WHO issued a roadmap for accelerating work to overcome these diseases. The targets for implementation are ambitious yet feasible, based on the best science available, but also on impressive results under some of the most challenging conditions in the world.

With the boost to this momentum being made today, I am confident almost all of these ancient diseases can be eliminated or controlled by the end of this decade.

The strategies set out in the WHO roadmap are tested and proven to be effective. Let me assure you: WHO knows how to deliver on these commitments in ways that bring results.

The roadmap follows two overarching approaches being covered today.

That is, using what exists while maximizing the impact through smart programme management. And innovation to improve or repurpose existing tools and develop better ones.

We know that programmes for disease elimination or eradication that stress innovation have the best chance of success. This is what we all want: success in relieving the misery of more than a billion people.

The payback will be enormous.

Thank you (WHO, 2012).

Title: Panel: Biologists Face Bioterror Risk "Crossroads"
Date: January 31, 2012
Source: USA Today

Abstract: A federal advisory panel Tuesday warned microbiologists that their research now raises bioterror dangers akin to the proliferation risks faced by the early atomic scientists.

"We are in the midst of a revolutionary period in the life sciences," says the National Science Advisory Board for Biosecurity in a statement released by the journals *Science* and *Nature*. "However, there is also a growing risk that the same science will be deliberately misused and that the consequences could be catastrophic."

The panel of 22 senior scientists made headlines last month by requesting that the journals *Science* and *Nature* withhold details of two bird flu transmission studies from publication. The studies dealt with strains of the deadly flu able to transmit among ferrets, the closest animal models to humans. In the statement, the NSABB explains their decision, made at the request of the federal government:

"Our concern is that publishing these experiments in detail would provide information to some person, organization, or government that would help them to develop similar mammal-adapted influenza A/H5N1 viruses for harmful purposes. We believe that as scientists and as members of the general public, we have a primary responsibility "to do no harm" as well as to act prudently and with some humility as we consider the immense power of the life sciences to create microbes with novel and unusually consequential properties," says the statement.

The heads of the two study teams recently announced a two-month halt to their research for a World Health Organization symposium on the risks and benefits of the research. The NSABB panel compares the current moment in biology to ones faced before by atomic scientists and recombinant DNA researchers in the 1970's.

"The life sciences have reached a crossroads. The direction we choose and the process by which we arrive at this decision must be undertaken as a community and not relegated to small segments of government, the scientific community, or society. Physicists faced a similar situation in the 1940s with nuclear weapons research, and it is inevitable that other scientific disciplines will also do so," said the statement.

In a separate commentary, NSABB chief Paul Keim of Northern Arizona University in Flagstaff, further explained the panel's reasoning, calling for the scientific community as an international endeavor to

decide on steps for controlling "dual-use" microbiological research. "What is gratifying and essential is that the debate is occurring; it is occurring on an international stage, and it is occurring rapidly," Keim said, in the statement released by the *mBio* journal (USA Today, 2012).

Title: Scientists Created Bird Flu Superbug That Could Set Off Next Global Pandemic
Date: Janaury 31, 2012
Source: Natural News

Abstract: During roughly the same time period that health experts worldwide have been warning that the infamous H5N1 avian flu virus could soon morph into a highly-transmissible, exceedingly-deadly "super strain" capable of killing millions, scientists from around the world have been exposed deliberately developing such a strain in laboratories.

Last month, we reported about research work conducted by Ron Fouchier from Erasmus Medical College in the Netherlands that had successfully created a super-deadly strain of H5N1. Fouchier and his colleagues had originally planned to publish their controversial findings in medical journals until the scientific community and many members of the public decried the research, calling for an immediate end to it.

Not only is the publishing of critical data about a deadly new strain of H5N1 a massive public health risk, but the research itself is a huge risk as well, as the strain could end up escaping from labs and quickly spreading around the world. Bio-terrorists could also gain hold of the strain -- or produce a similar one themselves -- to be used for starting the next global pandemic.

Whatever the case may be, it is all too coincidental that such research has been taking place for the past several years at the same time that authorities from around the world have been fear-mongering about how H5N1 could eventually mutate. As it currently stands, H5N1 has not naturally become more virulent. The only seriously virulent strains in existence right now are those deliberately created by scientists using public funds.

Opposition to Fouchier's work has continued so fervently since day one that he and his team have decided to temporarily halt any further research on their H5N1 strain, according to *Russia Today*. The damage has technically already been done, though, as the strain has already been created. However, details of the methodology used to create it have not been published, at least not yet.

Arguments in favor of Fouchier and the others research on H5N1 simply do not hold water, as they appear to offer nothing more than a convenient excuse for the intentional creation of a deadly, bio-weaponized viral strain. If and when the next global pandemic finally does arrive, in other words, we will all know who to blame if it happens to be a mutated form of H5N1 (Natural News, 2012).

Title: No More Bullshit: James Cameron Runs From Threat Of Bio Attack, Economic Collapse
Date: February 1, 2012
Source: Infowars

Title: Biodefense Panel Begins 2012 Work
Date: February 3, 2012
Source: NTI

Abstract: A senior U.S. Health and Human Services Department official on Thursday requested that the National Biodefense Science Board begin preparing an update to the U.S. program for developing the strongest possible stockpile of vaccines and other medical treatments for WMD materials, the Center for Infectious Disease Research and Policy reported (see *GSN*, Oct. 26, 2011).

The 13-member panel of experts, which conducted its first meeting of 2012 on Thursday, was established through 2006 legislation "to provide expert advice and guidance to the secretary of the U.S. Department

of Health and Human Services (HHS) on scientific, technical, and other matters of special interest to HHS regarding activities to prevent, prepare for, and respond to adverse health effects of public health emergencies resulting from chemical, biological, nuclear, and radiological events, whether naturally occurring, accidental, or deliberate."

It has been five years since the board last conducted a significant assessment of U.S. ambitions for its holdings of medical treatments against biological, chemical or other unconventional materials that could be used against the nation. Such examinations are usually conducted at intervals of five to seven years, according to Nicole Lurie, Health and Human Services assistant secretary for preparedness and response.

"We need a new strategy and implementation plan that takes advantage of what we have learned from experience," according to Lurie (NTI, 2012).

Title: Biological Attack Threat Cited As Pentagon Bolsters Defenses
Date: February 4, 2012
Source: Bloomberg

Source: The Pentagon is increasing spending to combat biological threats, such as highly toxic ricin, as U.S. spy agencies warn that a terrorist group might conduct a “limited” attack “in the next year.”

While a mass attack by foreign terrorist groups using a chemical, biological or radiological weapon in the U.S. is “unlikely” in the next 12 months, intelligence agencies “worry about a limited” attack domestically or abroad, Director of National Intelligence James Clapper told a Senate panel yesterday. He cited interest expressed in such attacks by al-Qaeda in the Arabian Peninsula, which operates in Yemen and Saudi Arabia.

American intelligence agencies judge that lone actors abroad or in the U.S. “are capable of conducting at least limited attacks in the next year,” Clapper said in written testimony submitted to the Senate Intelligence Committee before his hearing.

Culprits might include criminals or “homegrown violent extremists” who have been influenced by terror groups or literature advocating similar attacks, he said.

The threat assessment follows the Pentagon’s unveiling last week of revised budget priorities for the next five years that protect spending on programs to counter weapons of mass destruction and that increase funding in the field of biological weapons. Secretary of State Hillary Clinton warned of the threat at a biological weapons meeting in Geneva in December.

Crude but Effective

“A crude, but effective, terrorist weapon can be made by using a small sample of any number of widely available pathogens, inexpensive equipment and college-level chemistry and biology,” Clinton said. “Even as it becomes easier to develop these weapons, it remains extremely difficult -- as you know -- to detect them.”

Clinton cited what she said was a “call to arms” by al- Qaeda in the Arabian Peninsula for supporters with degrees in microbiology or chemistry to develop a weapon of mass destruction.

“That’s probably one of the reasons they’re ramping up the threat assessment for biological weapons,” said Kelsey Gregg, project manager of the Virtual Biosecurity Center at the Federation of American Scientists in Washington.

In contrast, last year's joint threat assessment from U.S. intelligence agencies devoted only three sentences to the terrorist threat involving chemical, biological, radiological or nuclear weapons. It said some terror groups remain interested in acquiring the weapons and threaten to use them, and that stockpiles that were poorly secured might provide material for attacks.

Increasing Capability Worldwide

The Pentagon said the increased focus on biological defense wasn't spurred by any specific intelligence assessment. President Barack Obama's 2009 National Strategy for Countering Biological Threats was the impetus, said Air Force Lieutenant Colonel April Cunningham, a Pentagon spokeswoman.

"A key part of the strategy is a broad effort to increase capability worldwide to conduct effective and timely disease surveillance" and counter disease outbreaks, Cunningham said.

The Obama administration is due to release its budget recommendations on Feb. 13 for the fiscal year starting Oct. 1.

"I would put ricin at the top of the list" of threats, Gregg said. "You can get a deadly amount of it pretty easily."

The Defense Department first revised its chemical and biological weapons programs for the year that started Oct. 1 "to increase focus on biological capabilities such as bio surveillance and medical countermeasures," Cunningham said in an e-mailed response to questions.

Downplaying Some Aspects

She said the department now is increasing funding for the next fiscal year to expand work under the Cooperative Threat Reduction program, which involves joint work with other nations.

This year's assessment downplays concern that countries may have supplied help in developing or obtaining weapons of mass destruction.

"We assess that no nation-states have provided WMD assistance to terrorist groups and that no non-state actors are targeting WMD sites in countries with unrest," Clapper said in the written statement (Bloomberg, 2012).

Title: Government 'May Sanction Nerve-Agent Use On Rioters', Scientists Fear
Date: February 7, 2012
Source: Independent

Abstract: Leading neuroscientists believe that the UK Government may be about to sanction the development of nerve agents for British police that would be banned in warfare under an international treaty on chemical weapons.

A high-level group of experts has asked the Government to clarify its position on whether it intends to develop "incapacitating chemical agents" for a range of domestic uses that go beyond the limited use of chemical irritants such as CS gas for riot control.

The experts were commissioned by the Royal Society, the UK's national academy of sciences, to investigate new developments in neuroscience that could be of use to the military. They concluded that the Government may be preparing to exploit a loophole in the Chemical Weapons Convention allowing the use of incapacitating chemical agents for domestic law enforcement.

The 1993 convention bans the development, stockpiling and use of nerve agents and other toxic chemicals by the military but there is an exemption for certain chemical agents that could be used for "peaceful" domestic purposes such as policing and riot control.

The British Government has traditionally taken the view that only a relatively mild class of irritant chemical agents that affect the eyes and respiratory tissues, such as CS gas, are exempt from the treaty, and then only strictly for use in riot control.

But the Royal Society working group says the Government shifted its position to allow the development of more severe chemical agents, such as the type of potentially dangerous nerve gases used by Russian security forces to end hostage sieges. "The development of incapacitating chemical agents, ostensibly for law-enforcement purposes, raises a number of concerns in the context of humanitarian and human-rights law, as well as the Chemical Weapons Convention (CWC)," the report says.

"The UK Government should publish a statement on the reasons for its apparent recent shift in position on the interpretation of the CWC's law enforcement position." The Royal Society group points to a 1992 statement by Douglas Hogg, the then Foreign Office Minister, who indicated that riot-control agents were the only toxic chemicals that the UK considered to be permitted for law-enforcement purposes. But in 2009 ministers gave a less-restrictive definition suggesting the use of "incapacitating" chemical agents would be permitted for law-enforcement purposes as long as they were in the categories and quantities consistent with that permitted purpose.

Professor Rod Flower, a biochemical pharmacologist at Queen Mary University of London, said the latest scientific insights into human brain is leading to novel ways of degrading human performance using chemicals (Independent, 2012).

Title: Mugabe Calls Typhoid Outbreak “Biological Warfare”
Date: February 8, 2012
Source: Bio Prep Watch

Abstract: Zimbabwe’s President Robert Mugabe’s Zanu-PF party has blamed a typhoid fever outbreak that has impacted 1,500 people in the country’s capital Harare on biological warfare.

Claudious Mutero, a spokesperson for Zanu-PF, made the claim in Harare. Meanwhile, Henry Madzorera, the Health and Child Welfare minister, cautioned that the outbreak would spread to other areas due to collapsing sewer and water infrastructure, Africa Review reports.

“The sanctions induced typhoid does not discriminate whether one is MDC (Movement for Democratic Change) or Zanu-PF as it attacks all people irrespective of their sex, ethnic or religious background,” Mutero said, according to Africa Review. “We suspect biological warfare by imperialists who are using nationals worldwide as conduits. Councilors must unite and call for the removal of these sanctions.”

Mugabe blamed the sanctions imposed on his inner circle for Zimbabwe’s economic collapse and said that the West was interested in re-colonizing the continent. Critics of Mugabe said that these claims of renewed imperialism are attempts to mask a failed land grab that ravaged the country’s economy, which is based on agriculture.

“This is not the first time that Zanu-PF has made ridiculous claims against foreign countries,” Madzorera said, according to Africa Review. “A few years ago, the struggling party alleged that the foreign countries were responsible for the abnormal rainfall in the country.”

Madzorera said that the government must put more money into sanitation and water to prevent recurring outbreaks.

“As a country, we should not be suffering from medieval diseases,” Mazdorera said, Africa Review reports. “The problem is that we are receivers of a failed economy” (Bio Prep Watch, 2012).

Title: D.A. Henderson Warns U.S. Unprepared For Bioterror Attack
Date: February 8, 2012
Source: Bio Prep Watch

Abstract: An epidemiologist who led the global effort to eradicate smallpox has spoken out against the government’s inability to coordinate response plans and preparations in the event of a biological attack or pandemic.

D.A. Henderson, who was named the chief of the Office of Public Health Preparedness shortly after the 2001 anthrax attacks, gave a preview of a speech he plans to make later in February at the Public Health Preparedness Summit. He said that despite a decade of work to improve biodefense at all levels of government, an overall strategy has yet to be developed, Huffington Post reports.

“I’ve kept quiet about this for a long time, but I’m deeply concerned,” Henderson said, according to Huffington Post.

Henderson followed the sentiment of other red flags that have been raised about the country’s bioterrorism preparedness. The Bipartisan WMD Terrorism Research Center gave the country failing grades in its Bio-Response Report Card in October with respect to its readiness to counteract a large-scale pandemic.

“This has been discussed for years,” Henderson said, according to Huffington Post. “It’s still not decided – what do we recommend? Nobody is really in charge. Somebody has got to take the lead.”

While Henderson said that it is impossible to prevent a biological attack and that the only defense is quick action to reduce the damage, he worries that the nation will not be ready when the time comes.

“I’ve come to the point I really have to talk about it,” Henderson said, according to Huffington Post. “We’ve really got to crack this thing loose and get people on it. They will say they have the report, the plan is made, it’s ready to go. That’s what I was told a year and half ago” (Bio Prep Watch, 2012).

Title: CDC Warns Untreatable Gonorrhea Is On The Way
Date: February 13, 2012
Source: U.S. News

Abstract: Gonorrhea, one of the most common sexually transmitted diseases in the United States, is increasingly showing resistance to one of the last known effective antibiotic treatments, leading researchers from the Centers for Disease Control to "sound the alarm" about potentially untreatable forms of the disease.

"During the past three years, the wily gonococcus has become less susceptible to our last line of antimicrobial defense, threatening our ability to cure gonorrhea," Gail Bolan, director of the CDC's sexually transmitted disease prevention program, wrote in *The New England Journal of Medicine* last week.

According to the CDC, gonorrhea has a long history of developing immunity to antibiotics, but doctors have always had a stronger medicine up their sleeves to treat patients. Not anymore—about 1.7 percent of gonorrhea is now resistant to cephalosporins, the last line of defense against gonorrhea. That might not seem like much, but it's a 17-fold increase since 2006, when about one tenth of one percent of gonorrhea was believed to have resistance to cephalosporins.

According to Bolan, the strains are showing up most often in the western states, where 3.6 percent of gonorrhea has shown resistance to cephalosporins, and in men who have sex with men, with nearly 5 percent of gonorrhea showing resistance.

The disease has been estimated to affect 600,000 Americans annually, causing burning with urination, abdominal pain, itching, and genital discharge.

Nikki Mayes, a spokesperson for the CDC, wrote in an email that by using a combination of cephalosporins and other antibiotics, American doctors have been able to prevent anyone from getting a completely untreatable case of gonorrhea. But she says it's only a matter of time.

"The trends in decreased susceptibility that we're seeing, coupled with the history of emerging resistance and reported treatment failures in other countries point to the likelihood of treatment failures on the horizon," she writes.

Not much help is on the way, according to both Mayes and Nicole Mahoney, senior officer of the antibiotics and innovation project at PEW Charitable Trusts.

"As far as gonorrhea goes, I'm not aware of any new drugs in the pipeline," says Mahoney. "This is just one more example of a bigger problem—bacteria are developing resistance faster than we're inventing new medicines to fight them."

Mahoney says Congress and the Food and Drug Administration should encourage and reward pharmaceutical companies to devise new antibiotics. According to a PEW report, only two new classes of antibiotics have been introduced since 1968 because antibiotics are difficult to produce and are less profitable than other drugs.

Bolan writes in the medical journal that a vaccine to prevent gonorrhea "remains key to prevention and control," but that it is a "distant goal."

"The threat of untreatable gonorrhea is emerging rapidly," she adds (U.S. News, 2012).

Title: WHO Calls For Stepped-Up Fight Against Leprosy
Date: February 14, 2012
Source: AFP

Abstract: The World Health Organization called Monday for greater efforts to fight leprosy, warning the disfiguring disease was defying efforts to wipe it out across many countries in the Asia-Pacific region.

"We opened the champagne too early," said Shin Young-soo, chairman of the WHO's Western-Pacific region that covers 37 countries at the start of a three-day conference looking at how to combat leprosy and treat its victims.

There are 5,000 new cases being reported each year in the Western Pacific, according to Shin.

He said the problem was most severe in Micronesia, the Marshall Islands and Kiribati, which had failed to meet the WHO's technical definition of "elimination" of fewer than one case per 10,000 people.

Even in the Philippines, where the disease was officially "eliminated" in 1998, 2,000 new cases are still recorded every year, according to Shin.

Outside of the Western Pacific, the problem is worse.

India leads the world with more than 130,000 new leprosy cases every year since 2006, while Brazil is second with about 40,000 new cases annually, according to WHO documents.

Shin called for a renewed commitment to fight leprosy, stressing that it had to be long-term because the disease could incubate for as long as 20 years.

"We have the drugs, we have the knowledge. It does not take a lot of money. We must make a final push," he said.

Leprosy is an infectious bacterial disease that has been recorded for thousands of years. If left untreated it can damage the nerves, leading to paralysis in the extremities of the body and horrible disfigurements.

However it is curable with early detection and modern drugs.

The WHO has been providing free drug therapy to patients anywhere in the world since 1995.

Shin said that, with the medical hurdles overcome, the major challenge in countries with enduring leprosy was to ensure long-term commitment from governments (AFP, 2012).

Title: 'Lay Down Your Arms!' Anonymous Attacks US Tear-Gas Maker
Date: February 14, 2012
Source: Russia Today

Abstract: Hackers have sent a sweet Valentine to an American weapons manufacturer, knocking out its website. The group says it was an act of retaliation for the company's arming of security forces against pro-democracy protests in Egypt, Bahrain, and the US.

The one-year anniversary of the Arab Spring uprising in Bahrain seems to have ignited pro-protest feelings in the hackers' hearts. The Anonymous-aligned activists have accused Combined Systems, a tear-gas maker located in the US, of selling "*mad chemical weapons to military and cop shops around the world.*"

Putting out the company's website, the hackers slammed the producer over alleged war profiteering on demonstrations in Egypt and elsewhere.

"*You shot and gassed protesters, running them off public parks in the US. Several dozen died because of your tear gas used in Egypt. Did you think we forgot? Why did you not expect us?*" read the statement.

It is unclear if the hackers accuse Combined Systems of selling tear gas to Mubarak's government or the country's current ruling Supreme Council of the Armed Forces. However, they accuse the company of working for governments and armies, and as they see it, that is a good enough reason for an attack.

"*Combined Systems, lay down your arms: you just lost the game. In the past we have marched on your offices in Jamestown, Pennsylvania: now it is time to march on your websites*."

The website for Combined Systems Inc. was down on Tuesday. Messages to the site's administrative staff were not immediately returned ahead of business hours.

In addition to defacing the website, the hackers say they have stolen and published personal information belonging to clients and employees of the company.

The latest attack has been credited by the shady collective as part of both the HackVDay Valentine's Day rampage and protests commemorating the Bahrain uprising's first anniversary.

Bahraini activists have called for demonstrations on Sunday, Monday and Tuesday to commemorate the Shiite-dominated protest that erupted last year. At least 40 people have been killed during months of unprecedented political unrest in Bahrain, inspired by the Arab Spring uprisings (Russia Today, 2012).

Title: How Secure Are Labs Handling World's Deadliest Pathogens?
Date: February 15, 2012
Source: Reuters

Abstract: To reach his office in Galveston National Laboratory, where scientists study deadly pathogens such as the Ebola and Marburg viruses, director James Le Duc swipes his key card at the building's single entrance, which is guarded 24/7 by Texas state police.

As he walks the hallways, more than 100 closed-circuit cameras watch him. Seven more locked doors stand between him and his destination. Entering a research lab requires another card swipe and, for labs housing especially dangerous microbes, a fingerprint scan.

To keep deadly viruses from escaping, each lab uses negative air flow and dedicated exhaust systems. Workers wear full-body air-supplied suits. To test its security, Galveston ran an exercise with the Federal Bureau of Investigation simulating a would-be intruder and another, with the University of Texas, war-gaming a campus shooter. The facility passed both tests.

Galveston's strict security underlines a little-known fact about hundreds of labs working with bacteria and viruses that could make the 1918-19 Spanish flu epidemic - when as many as 40 million people died - seem like a summer cold. Many of the precautions it takes are not required by law.

"A lock on the door is the only specified requirement," said Rutgers University virologist Richard Ebright. "There is no explicit requirement for guards, bio-identity checks, or video monitoring like 7-Elevens have. The rules require very strict paperwork but no real physical security."

Labs whose experiments on dangerous pathogens are funded by the U.S. government must follow specific rules to keep the microbes from escaping, but those rules are not enforceable for researchers working with private funds. Outside the country, security and safety requirements vary widely, experts say.

"It's all subject to interpretation," said a scientist close to the U.S. National Science Advisory Board for Biosecurity, which monitors research that might pose a bioterrorism threat.

If a lab receiving U.S. government funding violates the guidelines, the Centers for Disease Control and Prevention can cut off the flow of money, "but it can't shut you down," the scientist said. "I don't have a lot of confidence in our biosafety right now."

Immediate Concern Over Bird Flu Research

Questions about biosafety - keeping dangerous microbes from escaping labs - and biosecurity - keeping out bad actors intent on releasing or stealing the pathogens - are front and center for global health officials due to a growing controversy over experiments with the bird flu virus.

Scientists and government officials will meet on Thursday and Friday at the World Health Organization in Geneva to hash out the safest way to deal with the studies and address fears that lab-engineered viruses could either escape or be used as a bioterror weapon.

Last year, labs at the University of Wisconsin, Madison, and Erasmus MC in Rotterdam independently created mutant forms of avian influenza, known as H5N1, that can be transmitted directly among mammals. The natural strain can be caught only through close contact with infected birds.

One immediate question is what level of safety should be required for that research. So far, it has been conducted at biosafety-level 3 labs. Under U.S. guidelines, BSL-3 applies to agents that cause "serious or lethal disease" but do not ordinarily spread between people and for which treatments or preventives exist. BSL-4 applies to agents with no preventives or treatment.

The Wisconsin and Erasmus scientists received approval to conduct their experiments under BSL-3 conditions because, they argued, antiviral drugs can treat avian flu. Erasmus was subject to U.S. guidelines because its experiments were funded by the National Institutes of Health.

"The viruses generated here are sensitive to influenza antivirals" so they fit the BSL-3 criteria, said Rebecca Moritz of the University of Wisconsin's Office of Biological Safety. There are "multiple physical barriers and the facilities are monitored at all times."

All lab workers there wear disposable jumpsuits and powered respirators in addition to scrubs, shoes, shoe covers, and double gloves, she said. Each time scientists leave the lab, they must remove their protective equipment and shower before putting on their street clothes. Erasmus does the same.

The labs said they have emergency and security plans for a wide variety of threats. Neither would provide specifics on those security measures on the grounds the details could aid any would-be attackers.

Such precautions are not foolproof, however. According to a 2009 report by the Government Accountability Office, there were 400 accidents at BSL-3 labs in the United States in the previous decade.

Some scientists therefore argue that the experiments creating contagious H5N1 mutants should be done only at BSL-4 facilities.

"An escape would still produce the worst pandemic in history," said Michael Osterholm of the University of Minnesota and a member of the NSABB, at a symposium at the New York Academy of Sciences this month.

"The risk of this agent, if in fact it can be readily transmitted between humans, is catastrophic," he told Reuters. "Until we know how this virus actually acts in humans, I think you have no choice but to move this (research) to BSL-4."

Space Suits

BSL-4 labs, like the one in Galveston, have all the BSL-3 precautions and are also in isolated facilities with dedicated exhaust, vacuum, and other systems to prevent escape. In addition, workers must wear what are essentially space suits.

But the BSL guidelines relate to biosafety, not security.

The debate over H5N1 experiments has also raised the question of how secure BSL-3 and BSL-4 labs are. It has assumed a greater urgency as the number of known U.S. BSL-3 labs has surged from 415 in 2004 to 1,495 in 2010.

Hundreds or thousands of BSL-3 laboratories may be unknown, however, because "no federal agency is required to track the number of biocontainment labs," found a 2011 report by the National Research Council, an arm of the U.S. National Academy of Sciences.

Globally, BSL-3 labs have recently been built or are under construction in Bangladesh, India, Indonesia, China, Brazil, and Mexico, among others, the NRC found. Yet "many countries have few or no regulations," the NRC concluded.

BSL-4 labs are also proliferating. A 2011 workshop in Istanbul organized by the NRC was told that there are 24 BSL-4 facilities, including in Germany, Gabon, Sweden, Russia, South Africa and Canada. The United States has six, including Le Duc's, which is part of the University of Texas Medical Branch.

"We are now in a proliferation race for BSL-3 and 4 labs," said Laurie Garrett, the senior fellow for global health at the Council on Foreign Relations in New York. "Having such a facility is a mark of national sophistication. But the spread of these labs allows the unfettered proliferation of the world's most dangerous microbes."

Indeed, deadly microbes have escaped high-security labs. Between 1978 and 1999, just over 1,200 people acquired infections from BSL-4 labs around the world; 22 were fatal. Since then, lab workers have been killed by Ebola and SARS, or severe acquired respiratory syndrome. Thieves tried to steal animal pathogens from an Indonesian lab in 2007, the NRC workshop was told.

Guidelines, Not Law

U.S. research on dangerous human pathogens must follow safety guidelines set by the CDC. They may or may not be followed at labs elsewhere in the world, concluded the NRC workshop.

In part, that is because BSL-3 and BSL-4 designations "have very wide interpretations," said Ren Salerno, senior manager for cooperative threat reduction programs at Sandia National Laboratories, part of the U.S. Department of Energy.

Although U.S. government-funded research must adhere to biosafety guidelines, they "do not have the force of law," said Ebright. "If you're a private lab, privately funded, there is no requirement that you comply." The CDC declined to make a spokesperson available to discuss biosafety and biosecurity.

Many labs in developing countries say they adhere to guidelines as tough as those applied to U.S. facilities. If they receive U.S. funding, lab personnel must pass an FBI security risk assessment, for instance.

In Thailand, police check the background of all staff members and require fingerprints to access freezers containing microbes.

A BSL-4 lab in Australia employs a security staff of 10. It is housed in a fenced, isolated building and has infrared cameras to detect intruders. Gabon's BSL-4 lab is surrounded by electric fences and has a guard on duty at all times. Only three people know the code to the freezer holding Ebola.

U.S. biosecurity requirements are laid out in the 2001 Patriot Act, which says that facilities storing "select agents" - microbes and toxins that could be used as bioweapons - must develop and implement a plan to keep them secure. Such labs must also provide the government the names of everyone with access to the pathogens; none can be on a terrorism watch list.

Experts dismiss Hollywood's nightmare scenarios such as bombing a BSL-4 lab or crashing a 737 jumbo jet into one.

"The one nice thing about pathogens is that they'll self-destruct under intense heat," said Salerno.

What Salerno does give credence to is either an accidental escape or a plot to steal a pathogen by lab employees acting on their own or under duress.

"As more of this kind of research occurs, and it will, especially internationally, the risks of both accidental release or potential theft and misuse will increase as well," Salerno said. "The science is way ahead of governments' ability to regulate the science" (Reuters, 2012).

Title: Study Questions U.S.'s Ability To Detect Biothreats
Date: February 17, 2012
Source: Bio Prep Watch

Abstract: A recently published workshop summary by the Institute of Medicine revealed that the goal of creating an integrated biosurveillance system in the United States to detect threats to human and animal health remains a long way off.

A biosurveillance system, called for in a 2004 presidential directive, still faces complex obstacles, including a lack of trust between relevant agencies, according to CIDRAP News.

The IOM workshop's participants cited a range of problems that face the U.S. Department of Homeland Security's National Biosurveillance Information System. According to the report, there is still a lack of built-in authority to regulate the agencies that collect the relevant data.

Dr. William Raub, a former science advisor to the U.S. Health and Human Services secretary, recently said that the obstacles represented a serious challenge to the formation of a robust and relevant system.

"The collaboration, the sharing, and the integration are difficult in the context of multiple agencies with multiple missions and a rich variety of data sets, including areas where the data sets are nonexistent," Raub said, CIDRAP News reports. "If it were easy, it would be done."

The workshop was held last September. Its account was recently published as "Information Sharing and Collaboration: Applications to Integrated Biosurveillance: Workshop Summary." The IOM is part of the Academy of Sciences, but the report reflects only the views of the participants, not those of the IOM.

This entry was posted in U.S. Bioterror Policy and tagged U.S. bioterror policy. Bookmark the permalink (Bio Prep Watch, 2012).

Title: Experts Fear Diseases 'Impossible To Treat'
Date: February 20, 2012
Source: Independent

Abstract: ritain is facing a "massive" rise in antibiotic-resistant blood poisoning caused by the bacterium E.coli – bringing closer the spectre of diseases that are impossible to treat.

Experts say the growth of antibiotic resistance now poses as great a threat to global health as the emergence of new diseases such as Aids and pandemic flu.

Professor Peter Hawkey, a clinical microbiologist and chair of the Government's antibiotic-resistance working group, said that antibiotic resistance had become medicine's equivalent of climate change.

The "slow but insidious growth" of resistant organisms was threatening to turn common infections into untreatable diseases, he said. Already, an estimated 25,000 people die each year in the European Union from antibiotic-resistant bacterial infections.

"It is a worldwide issue – there are no boundaries," he said. "We have very good policies on the use of antibiotics in man and in animals in the UK. But we are not alone. We have to think globally." Between 2005 and 2009 the incidence of E.coli "bacteraemias" [the presence of bacteria in the blood] rose by 30 per cent, from 18,000 to over 25,000 cases. Those resistant to antibiotics have risen from 1 per cent at the beginning of the century to 10 per cent.

"Only one in 20 of infections with [resistant] E.coli is a bacteraemia, so the above data are only the tip of an iceberg of infected individuals," says a report produced by Professor Hawkey's group, commissioned by the Department of Health and the Department for Environment, Food and Rural Affairs.

Dame Sally Davies, the Government's chief medical officer, has pledged £500,000 to fund research into the threat. Drug companies have lost interest in developing new antibiotics because it is increasingly difficult to find new agents and it is not commercially viable – antibiotics are taken for a few days, compared with, say, a heart drug which may be taken for life.

"There are only so many antibiotics available and as we lose them it becomes more and more difficult to replace them," Professor Hawkey said.

The rapid rise in E.coli blood poisoning is thought to be linked with the ageing of the population. E.coli is a common cause of urinary-tract infections but may also cause wound infections following surgery or injury. These are regarded as minor conditions, but if they became untreatable they would be life-threatening.

E.coli infections pose a much bigger problem than MRSA because the bacterium is more common. Only one in 10 people is a carrier of MRSA, but E.coli is present in everyone. "Those who get ill [with E.coli] are rare – but because it is so common it is a big problem," Professor Hawkey said.

Using standard antibiotic regimens, there is a one in 10 chance that treatment of an E.coli infection will fail because the bug is resistant. But, as numbers of resistant infections rise, there will be increasing pressure to use more powerful antibiotics, called carbapenems, which are the last line available. And resistance to those is already emerging. "In the last two or three years we have seen [organisms] develop which destroy carbapenems. That is a great worry," Professor Hawkey said. The warnings follow increasing reports from Europe of patients with infections that are almost impossible to treat. In November, the European Centre for Disease Control and Prevention (ECDC) said up to 50 per cent of cases of blood poisoning with the bacterium K.pneumoniae, a common cause of urinary and respiratory conditions, are resistant to carbapenems in some countries.

Across Europe, the percentage of carbapenem-resistant K.pneumoniae has doubled from 7 per cent to 15 per cent, the ECDC said. Marc Sprenger, the director, said: "The situation is critical. We need to declare a war against these bacteria."

Meanwhile, the UK Health Protection Agency warned doctors in October to abandon a drug usually used to treat a common sexually transmitted disease because it was no longer effective. The agency said that gonorrhoea – which caused 17,000 infections in 2009 – should be treated with two drugs instead of one.

Explained: how bugs adapt to beat antibiotics

Bugs are like all other life forms: they must adapt to survive. Unlike human beings, however, for whom evolution is measured in millennia, reproduction is so rapid among bacteria that they can change in months or years.

With the introduction of a new antibiotic, natural selection goes to work. Most bacteria are killed by the new drug but the natural variation that occurs in any species means a few examples may, by chance, have some quirk in their genetic structure that allows them to survive.

These bacteria are then selected out by the antibiotic, which kills the rest. The mutant bacteria grow in numbers until they become the dominant species (Independent, 2012).

Title: Lack Of Security At Labs Handling World's Deadliest Pathogens Could Lead To Epic Pandemic
Date: February 20, 2012
Source: Natural News

Abstract: The mainstream media appears to be priming the public consciousness once again for the inevitable release of a highly-deadly pathogen in the very near future. A recent *Reuters* report explains that many of the world's biosafety level-3 (BSL-3) and biosafety level-4 (BSL-4) laboratories, which house some of the deadliest pathogens in existence, may not be as safe and secure as people think they are because federal regulations technically require nothing more than a single locked door at such facilities as a security measure.

According to the report, some labs voluntarily employ rigorous safety and security measures, including the Galveston National Laboratory in Texas, which is a highly-protected complex with at least eight levels of secured entry, closed-circuit video monitoring, and negative air flow and dedicated exhaust systems to prevent the accidental release of deadly pathogens. But many other such labs do not have this same tight level of a security, as federal law does not regulate the safety protocols used by private research labs.

"Galveston's strict security underlines a little-known fact about hundreds of labs working with bacteria and viruses that could make the 1918-19 Spanish flue epidemic -- when as many as 40 million people died -- seem like a summer cold," says the report. "Many of the precautions it takes are not required by law."

Will the militarized H5N1 avian flu strain be 'accidentally' released from an unsecured BSL facility?

The report conveniently comes just a few months after it was first announced that scientists in Europe had deliberately created a weaponized H5N1 avian bird flu strain capable of spreading between humans (http://www.naturalnews.com/034228_bioterrorism_flu_strain.html). And since that announcement, there has been a lot of chatter about whether or not the results of this creation should be published in scientific journals, and what the likelihood is that this vicious strain will someday get released into the wild where it could kill off populations around the world at pandemic levels.

The stage is being set, in other words, for the "accidental" release of one of these pathogens at some point in the future, upon which there will be a host of scapegoats to blame. And since all this private research being conducted on deadly viral and bacterial strains at private BSL-3 and BSL-4 labs around the world is apparently not much of a security concern to the federal government, it appears that it is only a matter of time before something catastrophic occurs.

There are also few specifics on the types of research that must be conducted in BSL-4 labs versus BSL-3 labs, which means that the deadly new H5N1 mutant strain can technically be conducted at either, even though BSL-3 labs are intended for less-serious bacterial and viral strains. This is highly concerning because, according to a 2009 Government Accountability Office (GAO) report, there were 400 accidents at BSL-3 labs just in the U.S. alone that year (Natural News, 2012).

Title: Expert Warns Of Bioattack On U.S. Cattle Industry
Date: February 21, 2012
Source: Bio Prep Watch

Abstract: According to a terrorism expert, a low-tech biological attack on the cattle industry of the United States using virulent foot and mouth disease may be a simple way for terrorists to damage the economy.

According to an article in the FBI's Law Enforcement Bulletin, Dean Olsen, a former commander of the Douglas County Sherriff's Department in Omaha, Neb., said that agroterrorism has become more attractive to terrorists dealing with dwindling resources and leadership. Such an attack would lead to major economic stress, but would be relatively simple and cheap to implement, Government Security News reports.

"Every level of the food chain, including farms, feedlots, chemical storage facilities, meatpacking plants, and distribution operations, remains vulnerable to agroterrorism," Olsen said, according to Government Security News.

Olsen, who participated in the regional Joint Terrorism Task Force before his retirement in 2008, recommended that law enforcement agencies put plans into place to prevent such attacks before they happen. He said that experts agree that foot and mouth disease, which can affect cloven hoofed animals like deer, pigs, sheep and cattle, is the most ominous threat to the food chain in the U.S.

Olsen said that an outbreak could be spread to 25 states in five days when animals are moved from one farm to another. He warned that law enforcement officers investigating livestock thefts should look at them from an agroterror perspective and that such incidents should be reported to their state intelligence fusion centers or threat-integration centers (Bio Prep Watch, 2012).

Title: CDC Warns That New Swine Flu Strain Has 'Pandemic Potential'
Date: February 22, 2012
Source: Chicago Tribune

Abstract: A paper published Tuesday by scientists at the Centers for Disease Control suggests a new swine flu virus has the potential to cause an outbreak.

The A(H3N2)v swine flu strain that has infected at least 18 Americans since Sept. 2010 has shown the potential for human-to-human transmission. According to the paper, which was published in the Proceedings of the National Academy of Sciences, the H3N2 strains "resemble viruses with pandemic potential." Terrence Tumpey, one of the authors of the study, says the current seasonal flu vaccine won't protect against this swine flu strain, although he says the CDC is working on creating a vaccine for swine flu variants such as the one he studied.

In November, the CDC suggested that "limited human-to-human transmission" of H3N2 had occurred in Iowa, but the most recent findings show that the virus is more easily transmissible than originally thought, leading the authors to warn that "swine-origin H3N2 viruses have the potential to cause additional human disease." Since August, people in at least five states (Indiana, Iowa, Maine, Pennsylvania and West Virginia) have caught the strain.

The paper warns that people born after the mid-1990s may be "particularly susceptible to infection" because of a virus that circulated in the early part of that decade that may have given some people a low level of protection.

The virus was shown to be highly transmissible from ferret to ferret, an animal which has long been used to explore the possibility of human-to-human transmission of viruses.

"The use of the ferret model has become indispensable for understanding the virulence and transmission of influenza viruses, partly because ferrets and humans share similar lung physiology," the paper says.

The CDC hasn't received any new reports of infection since December, which has scientists stumped.

"I wish we had a good answer for why it hasn't taken off in humans. We don't fully understand the factors involved," Tumpey says.

The resulting flu from H3N2 viruses have generally been more severe than seasonal flu viruses, according to Tumpey. "Overall, the cases have been fairly mild, but there have been a few cases of hospitalization," he says.

From mid-August to late December 2011, the CDC received 12 reports of human infections from H3N2. The CDC has not reported any additional cases in 2012, but last week the organization warned that the 2012 season is the "latest flu season in nearly three decades" and that America will likely see more infections in the coming weeks.

"We've been lucky nothing has occurred so far in 2012," he says. "This study underscores the need for continued public health surveillance" (Chicago Tribune, 2012).

Title: Bird Flu Cases More Common Than Thought: Study
Date: February 23, 2012
Source: AFP

Abstract: Bird flu is believed to be a rare disease that kills more than half of the people it infects, but a US study out Thursday suggests it may be more common and less lethal than previously thought.

The research could help soothe concerns about the potential for a deadly pandemic that may kill many millions of people, sparked by the recent lab creation of a mutant bird flu that can pass between mammals.

Researchers at Mount Sinai School of Medicine in New York analyzed 20 previous international studies that tested the blood of nearly 13,000 participants worldwide, according to the study in the journal Science.

They found that between one and two percent of those tested showed evidence of a prior H5N1 avian flu infection, meaning millions of people may have been infected around the globe.

The World Health Organization's figures currently show just 573 cases in 15 countries since 2003, with 58.6 percent of those resulting in death.

The researchers said the WHO may be overlooking cases by focusing only on hospitalizations and severe illnesses, and recommended a new approach to calculating the true number of bird flu cases.

The findings could also mean that the death rate from bird flu is underestimated, largely because many of the people who get sick from it live in rural farming areas where medical care may be difficult to come by.

"We suggest that further investigation, on a large scale and by a standardized approach, is warranted to better estimate the total number of H5N1 infections that have occurred in humans," the authors wrote.

Researchers in the Netherlands and the United States have sparked international alarm with lab research that was successful in creating a mutant form of bird flu that was found to be transmissible among ferrets.

US health authorities have urged major science journals to publish only heavily edited forms of the studies in order to prevent the data from falling into terrorists' hands.

However, an international group of experts meeting at WHO headquarters in Geneva last week decided that the studies should eventually be published in full, but that a further risk assessment is needed before that can happen (AFP, 2012).

Title: England's Shadow Defense Secretary Warns Of Lack Of Biopreparedness
Date: February 23, 2012
Source: Bio Prep Watch

Abstract: England's shadow defense secretary has warned the United Kingdom that the country is unprepared for a bioterror attack.

Shadow Defense Secretary Jim Murphy predicted that fanatics armed with deadly biological agents such as anthrax or smallpox pose a greater threat to British security than those with conventional explosives, according to the Mirror.

Murphy presented his assessment at the launch of the Labor party's new defense review. The former Europe minister sees the changes being brought about by the Arab Spring as potentially making the world a more dangerous place, with terrorists able to choose among numerous weak and failing states for safe havens.

Meanwhile, England's response to a doomsday-type attack remains untested while scientific advances are poised to give terrorists new means of delivering existing biological agents.

"Bioterrorism both exposes significant weaknesses in our security architecture and is a threat which could cause mass suffering," Mr. Murphy said during his speech, the Mirror reports. "It is unclear whether the UK and out allies are sufficiently prepared. Existing international organizations have not been tested to respond to an attack with the potential scope and complexity of a mass bioterrorist incident, which there are limited international stocks of vaccine" (Bio Prep Watch, 2012).

Title: Bird Flu Cases More Common Than Thought: Study
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Source: AFP

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Title: Bird Flu, Pig Flu, Now Bat Flu? Human Risk Unclear
Date: February 28, 2012
Source: Fox News

Abstract: For the first time, scientists have found evidence of flu in bats, reporting a never-before-seen virus whose risk to humans is unclear.

The surprising discovery of genetic fragments of a flu virus is the first well-documented report of it in the winged mammals. So far, scientists haven't been able to grow it, and it's not clear if - or how well - it spreads.

Flu bugs are common in humans, birds and pigs and have even been seen in dogs, horses, seals and whales, among others. About five years ago, Russian virologists claimed finding flu in bats, but they never offered evidence.

"Most people are fairly convinced we had already discovered flu in all the possible" animals, said Ruben Donis, a Centers for Disease Control and Prevention scientist who co-authored the new study.

Scientists suspect that some bats caught flu centuries ago and that the virus mutated within the bat population into this new variety. Scientists haven't even been able to grow the new virus in chicken eggs or in human cell culture, as they do with more conventional flu strains.

But it still could pose a threat to humans. For example, if it mingled with more common forms of influenza, it could swap genes and mutate into something more dangerous, a scenario at the heart of the global flu epidemic movie "Contagion."

The research was posted online Monday in the journal Proceedings of the National Academy of Sciences.

The CDC has an international outpost in Guatemala, and that's where researchers collected more than 300 bats in 2009 and 2010. The research was mainly focused on rabies, but the scientists also checked specimens for other germs and stumbled upon the new virus. It was in the intestines of little yellow-shouldered bats, said Donis, a veterinarian by training.

These bats eat fruit and insects but don't bite people. Yet it's possible they could leave the virus on produce and a human could get infected by taking a bite.

It's conceivable some people were infected with the virus in the past. Now that scientists know what it looks like, they are looking for it in other bats as well as humans and other animals, said Donis, who heads the Molecular Virology and Vaccines Branch in the CDC's flu division.

At least one expert said CDC researchers need to do more to establish they've actually found a flu virus.

Technically, what the CDC officials found was genetic material of a flu virus. They used a lab technique to find genes for the virus and amplify it.

All they found was a segment of genetic material, said Richard "Mick" Fulton, a bird disease researcher at Michigan State University.

What they should do is draw blood from more bats, try to infect other bats and take other steps to establish that the virus is spreading among the animals, he continued. "In my mind, if you can't grow the virus, how do you know that the virus is there?"

Donis said work is going on to try to infect healthy bats, but noted there are other viruses that were discovered by genetic sequencing but are hard to grow in a lab, including hepatitis C (Fox News, 2012).

Title: Congress Should Take Agroterror Threat Seriously, Expert Says
Date: March 12, 2012
Source: Bio Prep Watch

Abstract: According to an editorial by Tom Quaife of the Dairy Herd Network, the threat of agroterrorism should be taken much more seriously by members of Congress and the Obama administration.

Quaife has attended four agroterrorism conferences sponsored by the Federal Bureau of Investigation since 2005. Upon seeing the seriousness of the issue and simulations of how quickly infectious animal diseases could spread within the United States, he said that it has been difficult watching the uncertainty behind the proposed animal disease testing facility in Manhattan, Kan., Dairy Herd Network reports.

“It’s been hard to watch the political haggling that is taking place over the proposed National Bio- and Agro-Defense Facility in Manhattan, Kan.,” Quaife said, according to Dairy Herd Network. “The Obama administration wants to reassess the cost and scope of the project and Congress has been slow to approve funding.”

According to Quaife, if an international attack were to occur on the world’s food supply, it could cost billions of dollars and undermine the public’s confidence. While Quaife was comforted that the proposed state-of-the-art facility would be built to address agroterrorism threats, he is concerned that the facility wouldn’t be operational until 2018.

“The need is there and a plan is in place to address it,” Quaife said, according to Dairy Herd Network. “It is time that the Obama administration and Congress start paying attention to the threat and back it up with a solid commitment to the NBAF” (Bio Prep Watch, 2012).

Title: U.S. Travelers To Olympics May Bring Home Measles, CDC Warns
Date: March 19, 2012
Source: USA Today

Abstract: Health officials are bracing for the possibility of a measles outbreak in the USA, fueled by unvaccinated American tourists returning home from this summer's Olympic Games.

The Centers for Disease Control and Prevention warns that the Olympics in London, as well as the Euro 2012 soccer cup in Poland and Ukraine, will be huge draws for American travelers and will increase the risk for measles infection. The virus is much more prevalent in Europe, leading to eight deaths and 26,000 illnesses last year.

"Disease knows no borders," said Rebecca Martin, director of the CDC's Global Immunization Division. "We are concerned about Americans coming back from the Olympics this summer and unknowingly infecting others."

The Olympics in London starts July 27 and the Euro 2012 soccer cup on June 8 in Poland and Ukraine.

Martin urges Americans who plan to travel this summer to be up-to-date on measles vaccinations. Measles infections have been on the rise in the U.S. even though vaccinations eliminated the routine spread of the disease here in 2000.

Most U.S. cases of the measles are imported by U.S. travelers who have not been vaccinated. Before routine vaccinations, the virus killed between 3,000 and 5,000 Americans each year.

"We usually have about 50 cases a year, but last year we had a record number of importations" — at least 214 cases — says Greg Wallace, a measles specialist with the CDC's division of viral diseases. About 30% of those cases required hospitalization.

Vaccine Breakdown

Who should get the measles vaccine?
-Children should get two doses of the Measles, Mumps and Rubella (MMR) vaccine. The first at 12-15 months, the second at 4-6 years.
-Any adult who hasn't been vaccinated for measles.
-People who have been exposed to measles but weren't vaccinated may benefit from getting the MMR vaccine prophylactically. Consult your health care professional.

Who shouldn't get the measles vaccine?
-People who have had a life-threatening allergic reaction to gelatin, the antibiotic neomycin or a previous dose of MMR vaccine.
-Women should avoid getting pregnant for four weeks after getting the MMR vaccine.
-Pregnant women should wait until after they have given birth before getting the MMR vaccine.

Some people should check with their doctor about whether they should get the MMR vaccine, including:
-Those with HIV/AIDS or another disease that affects the immune system.
-People being treated with drugs that affect the immune system, such as steroids, for two weeks or longer.
-People with cancer.
-People who have had a low platelet count (a blood disorder).

Source: Centers for Disease Control and Prevention

Last year, England and Wales had 1,086 cases of measles, according to the U.K. Health Protection Agency. "Ukraine is experiencing a large measles outbreak right now," Martin says.

Measles strikes worldwide but is of special concern in Western Europe, Wallace says. The disease had been under control there until a 1998 paper in the British medical journal *The Lancet* purported a link

between autism and the measles, mumps and rubella vaccine. It also said the vaccine caused gastrointestinal disorders in children.

Vaccination rates fell after the paper gained widespread publicity. It was later revealed that Andrew Wakefield, the main author, had faked his research. The paper was retracted in 2010, and Wakefield was banned from practicing medicine. Vaccination rates are again rising in Europe, but in England and France they remain too low to fully control the disease.

The CDC, which is part of a global effort called the Measles Initiative to fight the disease, maintains a Web page for Americans going overseas at cdc.gov/travel.

Many U.S. parents who chose not to vaccinate rely on "herd immunity," the protection against infection offered by vaccination rates of 95% of higher. But with so many Americans traveling overseas, you can be exposed anywhere.

In California, three children under a year old, too young to be vaccinated, were infected in a doctor's waiting room when a 7-year-old who had caught measles in Switzerland came in to be seen, says Kathleen Harriman, an epidemiologist with the state Department of Public Health.

In 2011, 214 people in the United States got the measles and 68 were hospitalized.

All travelers' packing lists should include "passports and immunization records," says Erika Jenssen, the director of communicable disease outbreaks in Contra Costa County, a suburban county east of San Francisco. You can be vaccinated at any age. "It's the most serious and critical thing you can do, both to make sure you're protected while you're there and so that you don't bring it back home" (USA Today, 2012).

Title: Big Pharma Creates Resistant “White Plague” Through Mass Drugging
Date: March 21, 2012
Source: Natural Society

Abstract: Thanks to widespread and unnecessary usage of antibiotics throughout the modern world, a heavily drug-resistant form of tuberculosis is now striking fear into the hearts of scientists and doctors alike. Affecting both poor and rich, those affected with the disease are put into quarantine and injected with a large number of super drugs. If the disease were to spread and develop, tuberculosis experts are worried that medical professionals would be helpless to stop it — at least when it comes to more of big pharma’s drugs. Natural solutions do exist, and they don’t involve the very drugs that *spawned* the ‘white plague’ in the first place.

India is receiving the bulk of the blame for spurring on the drug-resistant killer, as the country is known for its massive overuse of antibiotics. In fact, India has the most cases of multi-drug resistant tuberculosis in the world, with more than 100,000 cases of the disease. While multi-drug resistant tuberculosis is still quite deadly, it is the ‘extensively drug-resistant’ and ’*totally* drug-resistant’ tuberculosis that worries many health organizations and officials.

‘Totally a Man Made Disease’
Make no mistake that this is not a ‘natural’ evolution of disease, but a result of excessive drug use made possible by big pharma and mainstream health officials. Even members of the World Health Organization’s ‘Stop TB Partnership’ are outraged over the man-made disease progression, with member Lucica Ditiu stating that the drug-resistant TB “is a totally man-made disease”. Dr. Zarir Udwadia, also a TB specialist from India, had similar statements, explaining that that resistant strains were ”an accident waiting to happen.”

Dr. Udwadia published a report in the journal Clinical Infectious Diseases last year documenting four cases of totally drug-resistant tuberculosis. Currently, he has about twelve cases of the resistant disease with no treatment options left, and three have already died. Each medicine the doctor used to combat the mutated bacteria failed, with the bacteria immune to 12 drugs total. Dr. Udwadia explains that to even get to the point of developing such a drug resistant strain, it requires severe misuse of antibiotic drugs:

"To get to this stage, you have to have amplified resistance over years, with loads of misuse of (antibiotic) drugs. And no other country throws around second-line drugs as freely as India has been doing."

Real Solutions
It is clear that the resistant strain is a real threat to public health, with many experts concerned about a potential pandemic. Unfortunately these very same individuals who blow the whistle over the new resistant 'white plague' being a man-made disease are turning to even more pharmaceuticals to 'treat' the condition. This is a serious web of drug use, with drugs creating problems that require even *more* drug usage. There's simply no room for a cure within this drug paradigm, because even if they make a drug powerful enough to wipe out the resistant tuberculosis bacteria, it comes with an onslaught of symptoms that 'require' more drugs.

In one case of treatment, for example, Anna Watterson was given so many drug injections in an attempt to treat the resistant disease that she was heavily bruised, constantly nauseous, and *unable to go out into the sun*.

Instead of subjecting yourself to this 'drug web', you can utilize natural solutions that will also serve to enhance other biological aspects of your life as well. Vitamin D3, for example, can not only boost your overall immunity and resistance to tuberculosis, but it can also help fight the disease once you've been infected. Scientists have even found that vitamin D intake can significantly reduce tuberculosis associated mortality on a global scale. But what if you're infected with the totally resistant mega bacteria?

Garlic has been found to outpace drugs in the treatment of resistant tuberculosis, putting pharmaceuticals to shame and of course boosting your overall health in the process. This has been proven by more than one piece of peer-viewed research, with scientists finding garlic to be one of many natural solutions that should be considered by all medical professionals. Amazingly, there are 43 other natural substances documented as powerful solutions to tuberculosis, virtually all of which most doctors ignore. In the abstract of the study from the University of Health Sciences in Pakistan, scientists state:

"Alternate medicine practices with plant extracts including garlic should be considered to decrease the burden of drug resistance and cost in the management of diseases. "

Big pharma's drugs spawned this new plague, so why take them to fight it? Empower your health naturally through nutrient-dense foods, supplements, and pure water. In particular, stock up on vitamin D and turmeric — they will be highly beneficial in the event of a pandemic or disease outbreak (Natural Society, 2012).

Title: Putin Argues That Russia Must Be Prepared For Bioattack
Date: March 28, 2012
Source: Bio Prep Watch

Abstract: Russian President-elect Vladimir Putin recently argued that Russia must be prepared for the use of future weapons systems, including those based on genetics, which will alter how states achieve their aims and protect themselves.

Putin, writing as prime minister shortly before being re-elected as president, said that Russia must mobilize its military and scientific resources in order maintain an effective deterrent strategy, according to Premier.gov.ru.

Putin's essay appeared in Rossiiskaya Gazeta, the Russian government's daily newspaper, as part of a series about the country's problems running up to his bid to return to the presidency, according to Foreign Policy.

"Such hi-tech weapons systems will be comparable in effect to nuclear weapons but will be more 'acceptable' in terms of political and military ideology," Putin wrote, Premier.gov.ru reports. "In this sense, the strategic balance of nuclear forces will play a gradually diminishing role in deterring aggression and chaos.

"[Russia's] armed forces, special services and other security-related agencies should be prepared for quick and effective responses to new challenges. This is an indispensable condition for Russia to feel secure and for our partners to heed our country's arguments in various international formats."

Russian Defense Minister Anatoly Serdyukov recently returned to the subject of "genetic" weapons, as well as those of a "beam, geophysical, wave and psychophysical" nature, during a meeting with Putin and several cabinet ministers to discuss implementing the ideas put forth in the essays.

David E. Hoffman, a contributing editor to Foreign Policy, acknowledged that Putin appeared to be making the point that weapons based on genetically engineered pathogens are a potential threat, but argued that the president-elect should be more circumspect.

"Putin did not react, but he should have stopped this loose talk," Hoffman wrote, Foreign Policy reports. "'Genetic' weapons – and more broadly, all biological weapons – are banned by the 1972 Biological and Toxin Weapons Convention. Russia has insisted that it is in compliance and is not working on biological weapons of any kind."

Hoffman said that the Soviet Union built a massive biological weapons program despite singing the BTWC.

"Perhaps someone needs to remind the defense minister and the re-elected president," Hoffman said, according to Foreign Policy (Bio Prep Watch, 2012).

Title: London Warns Of Hand Cream Olympics Terror Plot
Date: March 29, 2012
Source: Bio Prep Watch

Abstract: Islamic extremists recently posted a series of detailed instructions online for how to launch a terrorist attack during the 2012 Olympic Games in London.

One member of the group, called Abu Hija Ansari, called for cyanide to be mixed into hand cream so victims can absorb it through their skin. Ansari warned those attempting the recipe to wear gloves for their own protection, according to the Telegraph.

"Through skin: 1 – cyanide, 2 – skin cream," Ansari wrote in Arabic, the Telegraph reports. "Mix the ingredients. The skin cream will open the pores in the skin and speed up the absorption and effectiveness of the poison."

A British newspaper, the Sun, said the website, which it reportedly accessed using a false identity, has approximately 17,000 members and known links to several terrorists working with the group Al-Qaeda.

A second terrorist wrote her missive under the logo of the 2012 games.

“It’s time to prepare for the event, as once again they are interfering with innocent Muslims,” she said, the Telegraph reports.

U.K. security services remain on high alert, looking for any potential threat to the games, which begin on July 27 in east London. Jonathan Evans, the director-general of MI5, recently briefed the British Cabinet on terrorist threats the U.K. might face in the run-up to the opening ceremony (Bio Prep Watch, 2012).

Title: Government To Reconsider Nerve Agent Pesticides
Date: March 31, 2012
Source: Independent

Abstract: The Government is to reconsider its refusal to ban neonicotinoid pesticides, the nerve-agent chemicals blamed for the collapse of bee colonies worldwide, the chief scientist at the Department of the Environment, Sir Robert Watson, told *The Independent*.

Sir Robert, a former head of the UN climate panel, moved quickly to begin a comprehensive re-evaluation of the Government's stance after two new scientific studies, from Britain and France, strongly linked neonicotinoid use to bee declines.

He said the new studies, and others, would be closely analysed.

The Government has refused previous requests to consider a precautionary suspension of the chemicals, which have been banned in France and Italy, despite mounting evidence that they are harmful to bees and other pollinating insects, even in minute doses.

Bees' role in pollinating crops is worth billions of pounds annually to global agriculture.

Even on Thursday, after the new studies were published, a spokesman for Defra said the new research did not change the Government's position, and that "the evidence shows that neonicotinoids do not pose an unacceptable risk to honey bees".

But yesterday Sir Robert said: "The real Defra position is the following: we will absolutely look at the University of Stirling work, the French work, and the American work that came out a couple of months ago [a study by the US government's leading bee researcher, Dr Jeffrey Pettis, which showed that exposure to microscopic doses of neonicotinoids weakened bees' resistance to disease]. We must look at this in real detail to see whether or not the current British position is correct or is incorrect.

He added: "I want to get a really careful analysis of all three papers, and I've asked for a briefing on some ongoing work that we've been doing ourselves. I want this all reassessed, very, very carefully" (Independent, 2012).

Title: Real Or Fake? Pentagon Proposal To Lobotomize ‘Terrorists’ Using Virus
Date: April 2, 2012
Source: Prison Planet

Abstract: A video on You Tube appears to show a Pentagon briefing in which the idea of lobotomizing terrorists to remove their religious fanaticism using a manufactured virus containing a vaccine is seriously proposed, although debate has raged about whether the clip is authentic or not.

The footage shows a speaker giving a lecture to a handful of attendees and is accompanied by authentic-looking Department of Defense project ID numbers. According to the text on the clip, the lecture took place inside a Pentagon briefing room.

The speaker discusses how certain people are predisposed to be religious fundamentalists because they have an aggressive VMAT 2 (God) gene which causes them to act on their beliefs in fanatical ways.

After a member of the audience asks the speaker if the idea is to "by spreading this virus….eliminate individuals who are going on to a bomb fest, who are going into a market and blowing it apart," the speaker confirms, "by vaccinating them against this, we'll eliminate this behavior."

The question of how to implement the vaccine is answered by the speaker when he responds to the man in the audience, who raises doubts over the feasibility of performing CT scans on suspected terrorists rather than just "putting a bullet in their head".

"The virus would immunize against this VMAT 2 gene and that would….essentially turn a fanatic into a normal person, and we think that would have major effects in the Middle East," states the speaker.

The audience member then asks, "How do you suggest this can be dispersed, via an aerosol?" – to which the speaker responds, "The present plan and the tests we've done so far have used respiratory viruses such as flu and we believe that's a satisfactory way to get the exposure of the largest part of the population."

The speaker confirms that the name of the proposal is "Funvax – the vaccine for religious fundamentalism."

Debate over the video's authenticity has raged over the course of the past year since the video was uploaded to You Tube.

Skeptics argue that the image of the brain scan used in the lecture, which according to the time stamp on the video took place in June 2005, is actually taken from a 2010 Neurology.org article on a completely different subject. The two images are also clearly the same brain, whereas the speaker in the clip claims they are from two different people.

The other point made by skeptics to illustrate that the clip is a hoax is the claim that the audio is not in time with the speakers on the video. This is a weaker argument – the audio would not be in perfect sync on a You Tube clip anyway, plus the back and forth exchanges between the two speakers allied with their hand gestures do appear to be authentic, in that the audience member is expressing genuine shock at the scope of the idea.

The only information about 'Funvax' comes from a single source, a website run by "supporters" of an individual named Joey Lambardi. There is no other confirmation or discussion of 'Funvax' from any official source or mainstream website.

Whatever the true providence of the video clip, the fact that brain eating vaccines which alter brain chemistry to perform a de facto lobotomy on the subject have been developed are now being promoted to the general public is a fact.

Back in 2010, Dr Robert Sapolsky, professor of neuroscience at Stanford University in California, announced that he had created a vaccine to impose a state of "focused calm" by altering brain chemistry.

The proposals ominously hark back to George Lucas' 1971 dystopian chiller *THX 1138*, in which the population is controlled and subjugated through the use of special drugs to suppress emotion.

Feeling stress, getting angry, expressing emotion and displaying passion are all innate, natural and vital aspects of human behavior. Reacting with stress to dangerous or uncomfortable situations is an essential and healthy response, and is one shared by just about every living thing on the planet.

However, scientists are now telling us that getting angry, upset and passionate is abnormal and needs to be "treated" through a fresh dose of pharmaceutical drugs and injections that will virtually lobotomize us into submissive compliance.

Likewise, the notion that populations should be unwillingly vaccinated to lobotomize them of their religious beliefs is also clearly an abomination against free will and represents the ultimate tool of a scientific dictatorship (Prison Planet, 2012).

Title: Expert: U.S. Unprepared For Bioterrorism Attack
Date: April 5, 2012
Source: Bio Prep Watch

Abstract: A recent essay published in Forbes magazine supports the contention that the United States remains woefully unprepared, if not uninterested, in the chances that it will face an attack using biological weapons.

James Glassman, a former undersecretary of state for public affairs and public diplomacy and the founder of the George W. Bush Institute, said that the United States remains vulnerable to an attack that could potentially kill hundreds of thousands of people because it lacks a means of producing needed medical countermeasures, according to Forbes.

Three years ago, a Congressional commission concluded that there is 50 percent chance that there will be an attack using a weapon of mass destruction somewhere in the world by 2013. The Commission on the Prevention of WMD Proliferation and Terrorism declared that the weapon used would more likely be biological than nuclear.

Regardless, Glassman said that the public has heard little about bioterrorism since the anthrax attacks in 2001, despite the considerable risk.

"Terrorists could spray Bacillus anthracis from crop-dusters over football stadiums," Glassman wrote, Forbes reports. "Or they could send intentionally infected fanatics out to spread the smallpox virus through a crowded city, doing far more damage than a brigade of suicide bombers."

Glassman pointed to last October's Bio-Response Report Card study, issued last year by the Bipartisan WMD Terrorism Research Center, as proof that the country needs to do more to confront the threat of bioterrorism. The report card gave the United States a "D" grade for its detection and diagnosis capability and for the availability of medical countermeasures.

Glassman said that larger biopharmaceutical firms have done little to develop countermeasures, but small firms have filled the gap with mixed success.

"Today, largely because of these small firms, we currently have enough drugs to limit the impact of a small-to-medium attack using anthrax or similar pathogens, but we would probably be helpless against an attack using mutant strains," Glassman said, according toForbes. "Here is the challenge: Unless the U.S. government makes a clear, long-term commitment to the development and purchase of medical countermeasures to bioterrorism, the companies that produce and develop these medicines will not be able to continue to make them. The market is limited, the liability risk is high, and the firms have to make long-term investments that now seem highly dubious without more certainty from the federal government" (Bio Prep Watch, 2012).

Title: Handshakes
Date: April 5, 2012
Source: ESPN

Title: No Consensus Reached On Keeping Potentially Dangerous Studies From The Public
Date: April 6, 2012
Source: Bio Prep Watch

Abstract: Scientists at a two day meeting recently held in London achieved little consensus concerning whether some potentially dangerous studies should be kept from the public for security reasons.

Bruce Alberts, the editor of the journal Science, told an audience at the Royal Society that it could take years before an international understanding could be reached on whether or not it is appropriate to publish censored versions of scientific papers, according to the Washington Post.

“My fear is that now this crisis is over, nobody will work on this,” Alberts said, the Washington Post reports.

The London meeting was called after the journals Science and Nature agreed to redact portions of two independent studies on H5N1 avian influenza in response to a request by the U.S. government. Both journals recently received a go-ahead to print revised versions of the studies.

The issue touches on the very nature of modern scientific research, its openness, funding, cybersecurity and the regulation of human behavior.

The papers in question described the successful efforts to create a strain of H5N1 that is transmissible in human being through the air.

The U.S. National Science Advisory Board for Biosecurity, a committee that advises the U.S. government on issues relating to federally funded research, made the request. Both studies received money from the U.S. government, according to the Washington Post.

The NSABB recently altered its decision after learning more specific information about why the studies were conducted and what their potential impact could be on further H5N1 research (Bio Prep Watch, 2012).

Title: Riots May Be Controlled With Chemicals
Date: April 9, 2012
Source: Guardian

Abstract: Future riots could be quelled by projectiles containing chemical irritants fired by police using new weapons that are now in the final stages of development.

The Discriminating Irritant Projectile (Dip) has been under development by the Home Office's centre for applied science and technology (Cast) as a potential replacement for plastic bullets.

Documents obtained by the Guardian reveal that last summer's riots in England provided a major impetus to Home Office research into new-generation riot control technology, ranging from the Dip to even more curious weaponry described by Cast technicians as "skunk oil".

The briefing by Cast for the Police Service of Northern Ireland says that last year's disorder sparked a surge of ideas to the Home Office from the public as well as companies manufacturing police technology. To capitalise on the interest, Cast convened a "brainstorming" event in October. Participants included

police from London and Northern Ireland, the Police Federation, the Serious Organised Crime Agency (Soca) and the Ministry of Defence's Defence Science and Technology Laboratory.

"No ideas too stupid or 'off the wall' to consider," the briefing notes record.

The November briefing, The Development of New Less Lethal Technologies, suggests that the Dips would be loaded into guns used to fire the existing generation of plastic bullets. They would be intended to be accurate at a range of up to 65 metres.

It is understood that the Dip, which was originally supposed to have been introduced in 2010, would be loaded with CS gas, pepper spray or another irritant.

Other parts of the briefing, released under the Freedom of Information Act, refer to a need in the short term by police to develop "counter laser dazzle" technology to protect officers from being dazzled by people using lasers like those used in recent Greek riots.

Large sections of the briefing were redacted by the Home Office, which designated them as "commercially sensitive". However, the Guardian understands that the "less lethal" technology discussed included heat rays and sound weapons. One weapon that particularly interested police officers was something Cast technicians referred to as "skunk oil".

The system would involve pellets containing foul-smelling liquids being fired from weapons similar to paintball guns. Such would be the smell that individuals hit by the pellets would want to go home to change their clothes, while associates would be reluctant to stay close to them.

The Guardian has also obtained figures illustrating the extent of recent spending by police forces around the country on the existing generation of plastic bullets, now referred to as attenuating energy projectiles (AEPs).

Some forces appear to have decided to considerably boost their stocks. Leicestershire constabulary spent £19,630 buying AEPs in 2010-11, doubling its spending on the previous year. So far in 2011-12 it has spent more than £10,000. Even a relatively small force, Avon and Somerset, which faced serious disorder in Bristol last year during the English riots and on a previous occasion amid anger over a controversial Tesco store, has spent more than £70,000 in the last three years. It also currently possesses 28 AEP launchers. That is 16 more than the larger West Midlands police, which still nevertheless spend more than £53,000 stocking up on AEPs in the last three years.

Gloucestershire police, whose territory was the scene of one of the more surprising outbreaks of rioting last summer, decided to considerably boost its AEP stocks last year. It spent £32,060 doing so, more than double its combined spending in 2009 and 2010. Elsewhere, Greater Manchester said it had sufficient supplies last year after spending more than £76,000 in the previous two years, while Nottinghamshire has spent £74,000 in the past three years.

A number of forces, including Merseyside and West Yorkshire, declined to provide information. Merseyside used the Home Office's claim that terrorism remains a "substantial" threat as a reason for not providing the information.

A final response has not been provided by the Metropolitan police. The Met commissioner, Bernard Hogan-Howe, told a meeting of the Metropolitan police authority last November that the force authorised the deployment of plastic bullets on at least 22 different dates last year.

Another freedom of information request from the Guardian found that the Home Office supplied £4.4m worth of AEPs between 2007 and March last year to police forces across England and Wales. The projectiles are supplied to the Home Office by the Ministry of Defence for police use.

While the Home Office invoiced forces for £700,000 worth in 2007-08, this rose to £1.2m in each of the following years and to £1.3m in 2010-11 (Guardian, 2012).

Title: Censoring Data On Influenza Could Increase Bioterror Threat
Date: April 9, 2012
Source: Bio Prep Watch

Abstract: The attempt to censor science by redacting scientific research may cause the very bioterrorism problems it is trying to prevent, a a leading cyber-security specialist has revealed.

Bruce Schneier, the chief security technology officer for the London-based telecommunications firm BT, spoke before a meeting of flu and security experts last week at the Royal Society in London. He warned the assembled experts that the redaction could lead to additional bioterrorism problems, New Scientist reports.

The meeting came in the wake of a decision by the U.S. National Science Advisory Board for Biosecurity to publish two scientific papers reporting on an H5N1 flu strain that spreads among mammals. The board previously called to have details omitted from the papers so that bioterrorists would not be able to construct the viruses themselves. The board changed its mind, but the U.S. government published a policy regulating such research in March.

Schneier said that computer hackers are not likely to search the internet looking for random files related to science to hack into.

“If no one knows about it, it’s safe,” Schneier said, according to New Scientist. “If you announce that you have sensitive information by putting out a redacted paper, then if someone wants to know, they will. Any computer can be hacked.”

Schneier emphasized that he was talking about both scientific papers being hacked along with experimental notes and data kept electronically in laboratories (Bio Prep Watch, 2012).

Title: Group Releases Recommendations For Response To Botulinum Attack
Date: April 13, 2012
Source: Bio Prep Watch

Abstract: A working group from the United States recently made a series of recommendations for how medical and public health professionals should respond to a bioterror attack using botulinum toxin.

Dr. Stephen S. Arnon and his colleagues from organizations such as the California Department of Health Services, the U.S. Army Medical Research Institute of Infectious Diseases, the U.S. Centers for Disease Control and Prevention, the U.S. Department of Health and Human Services, Science Applications International Corporation and the Johns Hopkins University School of Public Health analyzed studies from 1960 to 1999 as the basis for the guidance, according to UPI.

After examining the literature, the group sought further opinions from experts on the treatment and management of botulinum infection.

Exposure to botulinum as an aerosolized or food-borne weapon would generally cause the onset of symptoms within 12 to 72 hours of exposure. Responding effectively to a release would require timely clinical diagnosis, case reporting and epidemiological investigation.

“Persons potentially exposed to botulinum toxin should be closely observed, and those with signs of botulism require prompt treatment with antitoxin and supportive care that may include assisted ventilation for weeks or months,” the researchers said, UPI reports. “Treatment with anti-toxin should not be delayed for microbiological testing.”

The results of the working group’s work were recently published in the Journal of the American Medical Association (Bio Prep Watch, 2012).

Title: DHS: Anthrax Attack Remains A “Serious Threat”
Date: April 18, 2012
Source: Bio Prep Watch

Abstract: Testifying before the House Subcommittee on Emergency Preparedness, Response and Communications, James Polk, the principal deputy assistant secretary and deputy chief medical officer of the Office of Health Affairs at the Department of Homeland Security, stressed the ongoing threat of an anthrax attack in the U.S.

“The threat of an attack using a biological agent is real and requires that we remain vigilant,” Polk said. “A wide-area attack using aerosolized Bacillus anthracis, the bacteria that causes anthrax, is one of the most serious mass-casualty biological threats facing the US.”

Polk went on to note that anthrax is nearly 100 percent fatal without treatment, and pointed out that “a successful anthrax attack could potentially encompass hundreds of square miles, expose hundreds of thousands of people, and cause illness, death, fear, societal disruption and significant economic damage.“

Anthrax is considered a major threat because it can be easily produced in vitro and aerosolized. In 2001, letters containing anthrax were mailed to two Democratic senators and several news offices, infecting 22 and killing five (Bio Prep Watch, 2012).

Title: Navy Launches Fleetwide Effort Against Biological Weapons
Date: April 20, 2012
Source: Bio Prep Watch

Abstract: The U.S. Navy has taken major steps against biological weapons by launching an effort to equip sailors more effectively for biological and chemical warfare.

A decade ago, a Navy crew would only know if it had been infected with a biological agent after people started getting sick. Even just a few months ago, many ships might not have known for at least a few hours, the Virginian-Pilot reports.

“By then, everything could be contaminated,” Jeff Smith, a civilian engineer with the Naval Surface Warfare Center in Dahlgren, Va., said, according to the Virginian-Pilot. “It had to get faster.”

The Navy anticipates that by 2016, almost half its fleet will be outfitted with new technology that can identify biological agents in a matter of minutes. By 2018, all surface ships are expected to have equipment to detect most chemical threats immediately.

"We know there are many countries that have the capability to launch these kinds of attacks," Smith said, according to the Virginian-Pilot. "No question, it's a threat that our sailors have to be able to counter quickly."

While Navy ships have had the capacity for detecting chemical and biological warfare agents for years, the new systems are faster, more accurate and easier to use. The biological attack system has now been installed on more than 50 ships. Sailors just need to flip a switch to turn on the automated system mounted permanently within the ship.

"You know almost immediately if there's a problem," Lt. Junior Grade Arthur Bond, the damage control assistant aboard the Norfolk, Va.-based Mahan, said, according to theVirginian-Pilot. "So you can start dealing with it immediately" (Bio Prep Watch, 2012).

Title: The NBC Triad- Realistic Threat Assessment And Destroying Prepper Dogma
Date: April 24, 2012
Source: APN

Abstract: On the Friday the 13th show, Karen and I tackled the NBC boogeymen and the dogma, myths, and misconceptions often bandied about in the Prepper community. NBC, originally a military acronym, denotes nuclear, biological, and chemical threats. The new acronym is CBRN for chemical, biological, radiological, and Nuclear threats. The show drew a large audience, and we did a full 90 minutes and only scratched the surface of the layman's version of understand the NBC threat. You can download this show on the player below. We also announced our upcoming 5-week long preparedness trivia promotional giveaway of fire starters that will begin on April 27, 2012.

I opened with an excerpt from a blog that I did on the subject published on January 30, 2012. The full blog can be found at http://maryland.preppersnetwork.com/ and the excerpt is as follows:

Over a decade ago, (after getting out of active duty,), I was in the private security world, (where) I consulted and trained corporate security clients, as well as law enforcement agencies. After 9/11, I had clients, and even police departments, approach me concerning the NBC threat. I admit that I have never been impressed with the response plans that we trained on (in the military). They were too (optimistic, in my opinion.)..

Let us look at a typical multi-story business or apartment (building.) What are the three biggest infiltration points on these buildings? The answer is the doors, windows, and HVAC systems. Even IF the residents were able to secure the doors and windows, what about the HVAC systems? It takes time to isolate buildings from outside air intake, especially in larger buildings.

But before we even got to that point, what WARNING would civilians get? In the Gulf War, aircraft were flying through airborne agents released by the bombing…and ground crews were later scrambling…over the (aircraft) fuselages to service (them). The detectors did not pick up these trace agents and as such many crewmen were contaminated in repetitive low doses. If NATO detectors were not able to accurately detect trace agents, then what would tell Joe Six-Pack that something was (wrong)?

What would (building) maintenance (crews) wear if they…went… into a contaminated environment? What would…warn (them) to initiate such precautions? Seriously, do you think the government is able to get the warning out in time, PRIOR to such an attack?

When…the military are operating in an increased NBC threat environment, (they usually operate in reduced MOPP levels, (Mission Oriented Personal Protection). (These) levels dictate how much gear is worn versus carried. In MOPP 2, the over boots and garment (are worn) but the outer gloves, glove liners, and mask (are carried). From MOPP 2, a full minute can be used by TRAINED troops to don,

tighten, clear, fit check, and buddy check…the mask and gloves. How well and how fast is Joe Six-Pack going to don his gear, assuming he even dons it all correctly?

I told (my clients) to isolate (themselves and the) building as much as they could. The good news is that most agents are non-persistent and that dispersal is the bane of any agent delivery system. Let the emergency responders decon evacuation routes before releasing their people. I advised against trying to use off the shelf chemical protection devices…because without the training,…(they) may lead to more deaths if used.

Now, I realize that there is a certain…(bulletproof) attitude in (the prepper) community and that a significant number of (Preppers) have military surplus NBC (gear). But the simple (truth is that) the VAST majority of Americans have never had any military or first responder training. (Additionally, this surplus military gear is) of dubious quality and origin to begin with, and…are not inspected by trained technicians on a regular basis.

(Most) people have NO IDEA HOW DEBILITATING everyday operations in these suits are. I was once in an exercise where the unit was transported, within 24 hours, from a winter environment to a humid southern environment and forced to operate for HOURS under the sun in MOPP 4 condition. Fully 20% of the unit was sent to the hospital for dehydration and heat (related injuries).

How will (the average prepper) hold up? Have you ever run in a mask? Without excellent fitness and psychological preparation, many will end up hyperventilating because of the amount of air you can intake through a mask valve. What about water? (Do you have the proper equipment to drink water while in protective gear?) How many cartridges do you have? What are their lifespans? Do you even know what your mask and suit protect against? What is your decon plan? How bad would it be to make a successful foray outside only to die because you deconned improperly (and) introduced agent into your shelter?

The answers to these questions will probably reveal a vast ignorance of counter NBC operations. So what then is the answer? How do you counter this potential threat or do you go meekly into the void and surrender yourself to a fatalistic attitude? (That is what we shall look at tonight…)

The show proceeded with a thumbnail summarization of the various nuclear, radiological, biological and chemical threats, with an emphasis on militarized threats; however, industrial threats were discussed, as well. We defined the threats as the military and emergency management personnel community does, to give the audience a chance to experience the commonality of language that the professionals use. In the process, we cleared up some misnomers and myths about size, complexity, lethality, and employment of various NBC threats, such as what a “suitcase” nuke really is.

We talked about the history of employment of such weapons and industry accidents by governments and terrorists. We talked about the prevalence or, in some cases, the extreme rarity of the threats being employed. We even informed of cases of NBC terrorism on US soil throughout our history.

We took time to talk about the non-engineered biological threats that can and regularly do appear after major disasters due the breakdown of sanitation systems. I talked about Haiti and my experiences during the Katrina response.

We briefly touched upon the nature of the chemical threats and how blood, blister, and nerve agents, as well as, certain hazardous industrial chemicals behaved and attacked the human body. From there we moved on to realistic threat assessment.

Here was where we really began to depart from the popular dogma of the Prepper community that seems to be equal parts bravado, cavalier disregard of reality, and eternal optimism. We burst the bubbles of the glow worm doom and gloom Preppers by relegating the nuclear and chemical weapon threats to the

bottom of the threat ladder. We explained how bio-weapons are the easiest threat to employ because they are so easy to conceal in a population, due to incubation periods and the variety of transmission methods. We emphasized how easy disease epidemics take hold post-disasters.

We then talked about industrial accidents briefly and moved into the radiological or "dirty bomb" threats. We followed it all up with our reasons why militarized chemical and nuclear threats were almost non-issues. I explained the difficulty of employing nuclear weapons and the engineering challenges of chemical dispersal, by highlighting the Tokyo Subway attacks by Aum Shrynko using homemade sarin gas.

We touched upon some threat mitigation and response information as we discussed the various threats. Keep in mind that future shows will discuss this more thoroughly.

As usual, we had some very interesting callers offer their viewpoints and questions. One caller in particular stands out because of her concern that her proximity to an old uranium breeder reactor increased her chances of having her community attacked by rogue states with intercontinental ballistic missile capabilities. We set her mind at ease as we discussed the SALT treaties and gave some SIOP (system integrated operational planning) insights to Cold War era targeting protocols of both NATO and the Warsaw Pact.

We ended the show by briefly talking about the detection of these threats. We emphasized the likelihood of high civilian casualties should these threats materialize. We talked about the logistics of emergency management to respond to such threats on the local level. It was a very frank admission of government's limitations.

So, in closing, on behalf of my co-host Karen and I, we want to thank you for supporting our show as we grow weekly. Without you, our audience, we would not have a purpose to share our experiences. Thank you and you can join us every Friday evening at 9pm Eastern/8pm Central at prepperbroadcasting.com (APN, 2012).

Title: Research Shows Psychological Impact Of Anthrax Attack On Seattle
Date: April 27, 2012
Source: Bio Prep Watch

Abstract: A new study recently assessed the potential consequences of a major anthrax attack directed at Seattle, Washington, in order to gain a better insight into how residents would react in such a situation.

Researchers at the University of Southern California's Center for Risk and Economic Analysis of Terrorism Events examined the potential psychological and economic impact an attack would have by interviewing hundreds of Seattle residents, according to NeonTommy.com.

The U.S. Department of Homeland Security-funded study focused on perceptions of risk, health awareness and the possible changes that would occur after an anthrax attack claimed 50,000 victims. The study examined how government actions could make a difference in whether or not people returned to the city or chose to live somewhere else.

"The way we did this is by using the Department of Homeland Security's national planning scenarios of an anthrax attack," Heather Rosoff, a post-doctoral research associate at CREATE, said, NeonTommy.com reports. "What we did is we took the language of the scenario and developed it further into short videos segments starting with the initial attack and extending out over a two year period."

The video segments were designed to emulate real news coverage of the event. Participants in the study watched the videos and then responded to a survey.

The study showed that an attack would have long-term consequences for the economic health far beyond Seattle's city limits.

"An anthrax attack like this could have a devastating impact on the real estate market," researcher Adam Rose said, NeonTommy.com reports. "It would really cause a major decline in property values."

The decline could extend far into suburban areas and the surrounding region. A significant number of residents would leave and business would most likely follow. If Seattle were the target, underwater mortgage levels in the city could increase by up to $15 million and foreclosures could reach 70,000.

In addition, the stigma of living in a city that was attacked by a bioterror agent would cause more residents to eventually leave. The study determined that up to 20 percent of the population would seek to live elsewhere. In Seattle, this would mean 300,000 people. More than 200,000, however, would be affected by foreclosures.

Government intervention would have to be gauged appropriately. Too much intervention, according to researcher Richard John, could stigmatize the population.

"We found the more it was suggested the government would implement certain policies, the more afraid residents were," John said, according to NeonTommy.com (Bio Prep Watch, 2012).

Title: 'Washing Hands Has Saved More Lives Than Any Medical Breakthrough In A Generation': MRSA Cases Plummet As Campaign Helps Hospitals Clean Up Their Act
Date: May 4, 2012
Source: Daily Mail

Abstract: Thousands of deaths have been prevented in hospitals because medical staff are being more diligent about washing their hands, a study has claimed.

The high-profile Clean Your Hands campaign to encourage doctors and nurses to use soap and water or alcohol gel between patients has saved more lives than any medical development for a generation, according to the report published in the British Medical Journal today.

Following the launch of the drive in 2004, the amount of soap and alcoholic hand rub bought by NHS trusts almost tripled.

Over the same period of time MRSA rates in hospitals fell by more than half, while there was a significant drop in the number of Clostridium difficile infections.

Sheldon Paul Stone who led the study, estimated that around 10,000 lives were saved because of the campaign which encouraged medical staff to take the simple step of washing their hands.

He added: 'If hand hygiene were a new drug, pharmaceutical companies would be out selling it for all they were worth.'

There were around 1,000 deaths from MRSA and 4,000 deaths from C.diff each year in the mid-2000s, with the National Audit Office estimating that it cost over £1billion a year to treat people who developed the infection.

Rates for the superbugs MRSA rose significantly in the 1990s from just 100 a year to a peak of 7,700 in 2003 to 2004. Following the launch of the hand-washing campaign rates fell steadily each year to 1,481 cases in 2010 to 2011.

The Clean Your Hands campaign reminded visitors and staff to go back to basics by scrubbing their hands before touching patients, eating food and after going to the toilet.

Thousands of posters were put up by bedsides to drive the message home and regular checks were made to ensure hands were kept clean.

The BMJ study found that the number of patients infected with MRSA fell from 1.88 cases per 10,000 bed days to 0.91 over the four-year period.

Over the same time rates of C.diff infection dropped from 16.75 to 9.49 cases, while the cases of MSSA - a bacteria found on the skin - did not fall.

The study also found that hospital trust procurement of soap and alcohol hand rub rose from a combined 21.8ml to 59.8ml per patient bed day over the period.

The increased levels of soap in hospitals was linked to reduced rates C.diff infection, while rising levels of alcohol hand rub were associated with a reduction in MRSA cases.

The number of MRSA infections fell to 1,114 for the period 2011-12.

Studies in 2004 showed one in four doctors and nurses in Britain still did not wash their hands reliably between every patient.

The campaign which ended in 2010 cost £500,000 over four years.

Researchers from University College London Medical School and the Health Protection Agency say 'strong and independent associations' between the rise in soap orders and the fall in infection rates 'remained after taking account of all other interventions' (Daily Mail, 2012).

Title: Poison Drones Carrying Biological Weapon Are New Olympic Threat, Warns Colonel In Charge Of Keeping London Calm
Date: May 5, 2012
Source: Daily Mail

Abstract: A senior Army officer has warned that unmanned drones carrying deadly poison could be used in a devastating terrorist attack during the Olympic Games.

Lieutenant Colonel Brian Fahy delivered the grim warning at a meeting intended to allay the fears of residents worried about the Army's plans to place missiles on the rooftops of flats.

He said it was 'feasible' that remote-controlled aircraft filled with poison and small enough to fit into a backpack could be used as a biological weapon in the capital.

He told The Mail on Sunday: 'An Unmanned Aerial Vehicle (UAV) can be put in a backpack. They come in all sorts of sizes and it's feasible they could be filled with something noxious and flown by remote-control.'

Lieut Col Fahy – the officer responsible for community relations during the Games – made his remarks on Friday in Leytonstone, East London, near one of six sites which could see the deployment of surface-toair missile batteries in order to shoot down aircraft attempting to infiltrate an Olympic 'no fly' zone.
During the meeting at Buxton School, his team showed locals a 'dummy' missile battery and allowed children to play on the unarmed weapon.

Lieut Col Fahy declined to elaborate on what type of poison might be used during an aerial attack.

He said: 'For the duration of the Olympics anyone flying into controlled airspace is to file their flight plan with the Civil Aviation Authority.

'The range of threats varies in size and capability. It could be a commercial airliner hijacked by somebody with malicious intentions or a protest group using a microlight to get their name in the papers.'

His poison warning came as it was revealed that SAS troops have had anthrax emergency training at the Government's top-secret military research establishment at Porton Down, Wiltshire.

Sources say the elite soldiers wore biochemical protection suits, gloves and masks during exercises over the past few months to prepare for any attack using the deadly bacteria.

Such an incident could threaten the lives of thousands of people attending the Games this summer.

Lieut Col Fahy told The Mail on Sunday: 'We have worked up a comprehensive plan to protect against the potential hijacking of a commercial airliner down to slow-moving microlights or radio-controlled planes.'

Asked if they would fire a missile at a protester flying a microlight near the Olympic site, Lieut Col Fahy said: 'We would not take it out. For something like that we would scramble helicopters to go and look at it.

'There will be an RAF sniper on board if there was serious evidence to suggest something like that represented a threat. That information gets passed on and it's a political decision to engage.

'It's the same politicians who will decide whether we fire surface-to-air missiles at a potential threat. It's a decision that I'm quite happy not to make. It will weigh very heavily.'

Defence Secretary Philip Hammond has made it clear he is ready to give the order to shoot down any aircraft threatening the Olympics with a 9/11-style attack.

Lieut Col Fahy also revealed that armed police would guard any missile sites being used in case any attempts were made to steal them or protest against their deployment.

He added: 'What we are doing is unusual. Londoners are not used to seeing a lot of soldiers around. Some people feel uncomfortable about the missiles but the vast majority, I think, appreciate we are doing this.'

HMS Ocean, one of the UK's biggest warships, is based in the Thames, with the capability to fire a hail of missiles at a terrorist aircraft.

The awesome array of military hardware ready to thwart an attack includes four RAF Typhoon jets, three Royal Navy Sea King and two RAF Puma helicopters.

A Ministry of Defence spokesman said last night: 'We are prepared for any eventuality' (Daily Mail, 2012).

Title: Drug-Defying Germs From India Speed Post-Antibiotic Era
Date: May 7, 2012
Source: Bloomberg

Abstract: Lill-Karin Skaret, a 67-year-old grandmother from Namsos, Norway, was traveling to a lakeside

vacation villa near India's port city of Kochi in March 2010 when her car collided with a truck. She was rushed to the Amrita Institute of Medical Sciences, her right leg broken and her artificial hip so damaged that replacing it required 12 hours of surgery.

Three weeks later and walking with the aid of crutches, Skaret was relieved to be home. Then her doctor gave her upsetting news. Mutant germs that most antibiotics can't kill had entered her bladder, probably from a contaminated hospital catheter in India. She risked a life-threatening infection if the bacteria invaded her bloodstream -- a waiting game over which she had limited control, Bloomberg Markets magazine reports in its June issue.

"I got a call from my doctor who told me they found this bug in me and I had to take precautions," Skaret remembers. "I was very afraid."

Skaret was lucky. Eventually, her body rid itself of the bacteria, and she escaped harm from a new type of superbug that scientists warn is spreading faster, further and in more alarming ways than any they've encountered. Researchers say the epicenter is India, where drugs created to fight disease have taken a perverse turn by making many ailments harder to treat.

India's $12.4 billion pharmaceutical industry manufactures almost a third of the world's antibiotics, and people use them so liberally that relatively benign and beneficial bacteria are becoming drug immune in a pool of resistance that thwarts even high-powered antibiotics, the so-called remedies of last resort.

Medical Tourism

Poor hygiene has spread resistant germs into India's drains, sewers and drinking water, putting millions at risk of drug-defying infections. Antibiotic residues from drug manufacturing, livestock treatment and medical waste have entered water and sanitation systems, exacerbating the problem.

As the superbacteria take up residence in hospitals, they're compromising patient care and tarnishing India's image as a medical tourism destination.

"There isn't anything you could take with you traveling that would be useful against these superbugs," says Robert Moellering Jr., a professor of medical research at Harvard Medical School in Boston.

The germs -- and the gene that confers their heightened powers -- are jumping beyond India. More than 40 countries have discovered the genetically altered superbugs in blood, urine and other patient specimens. Canada, France, Italy, Kosovo and South Africa have found them in people with no travel links, suggesting the bugs have taken hold there.

Post-Antibiotic Era

Drug resistance of all sorts is bringing the planet closer to what the World Health Organizationcalls a post-antibiotic era.

"Things as common as strep throat or a child's scratched knee could once again kill," WHO Director-General Margaret Chan said at a March medical meeting in Copenhagen. "Hip replacements, organ transplants, cancer chemotherapy and care of preterm infants would become far more difficult or even too dangerous to undertake."

Already, current varieties of resistant bacteria kill more than 25,000 people in Europe annually, the WHO said in March. The toll means at least 1.5 billion euros ($2 billion) in extra medical costs and productivity losses each year.

“If this latest bug becomes entrenched in our hospitals, there is really nothing we can turn to,” says Donald E. Low, head of Ontario’s public health lab in Toronto. “Its potential is to be probably greater than any other organism.”

Promiscuous Plasmids

The new superbugs are multiplying so successfully because of a gene dubbed NDM-1. That’s short for New Delhi metallo-beta- lactamase-1, a reference to the city where a Swedish man was hospitalized in 2007 with an infection that resisted standard antibiotic treatments.

The superbugs are proving to be not only wily but also highly sexed. The NDM-1 gene is carried on mobile loops of DNA called plasmids that transfer easily among and across many types of bacteria through a form of microbial mating. This means that unlike previous germ-altering genes, NDM-1 can infiltrate dozens of bacterial species. Intestine-dwelling E. coli, the most common bacterium that people encounter, soil-inhabiting microbes and water-loving cholera bugs can all be fortified by the gene.

What’s worse, germs empowered by NDM-1 can muster as many as nine other ways to destroy the world’s most potent antibiotics.

Untreatable Killers

NDM-1 is changing common bugs that drugs once easily defeated into untreatable killers, saysTimothy Walsh, a professor of medical microbiology at Cardiff University in Wales. Or as in Skaret’s case, the gene is creating silent stowaways poised to attack if they find a weakness -- or that can pass harmlessly when the body’s conventional microbes win out.

Cancer patients whose chemotherapy inadvertently ulcerates their gastrointestinal tract are especially vulnerable, says Lindsay Grayson, director of infectious diseases and microbiology at Melbourne’s Austin Hospital.

“These bugs go straight into their bloodstream,” Grayson says. Newborns, transplant recipients and people with compromised immune systems are at higher risk, he says.

Six infants died in a small hospital in Bijnor in northern India from April 2009 to August 2010 after NDM-1-containing bacteria resisted all commonly used antibiotics.

India Vulnerable

India is susceptible because it has many sick people to begin with. The country accounts for more than a quarter of the world’s pneumonia cases. It has the most tuberculosis patients globally and Asia’s highest incidence of cholera.

Most of India’s 5,000-plus drugmakers produce low-cost generic antibiotics, letting users and doctors switch around to find ones that work. While that’s happening, the germs the antibiotics are targeting accumulate genes for evading each drug. That enables the bugs to survive and proliferate whenever they encounter an antibiotic they’ve already adapted to.

India’s inadequate sanitation increases the scope of antibacterial resistance. More than half of the nation’s 1.2 billion residents defecate in the open, and 23 percent of city dwellers have no toilets, according to a 2012 report by the WHO and Unicef.

Uncovered sewers and overflowing drains in even such modern cities as New Delhi spread resistant germs through feces, tainting food and water and covering surfaces in what Dartmouth Medical School researcher Elmer Pfefferkorn describes as a fecal veneer.

Tap Water
Germs with the NDM-1 gene existed in 51 of 171 open drains along the capital's streets and in two of 50 samples of public tap water, Walsh found in 2010.

Abdul Ghafur, an infectious diseases doctor in Chennai, southern India's largest city, sees patients every week who suffer from multidrug-resistant infections. He and others who used to successfully combat infections with such common antibiotics as amoxicillin now must use more-expensive ones that target a broader range of germs but typically cause greater side effects. Some infections don't respond to any treatment, evading all antibiotics, he says.

That's bad news because the more frequently the NDM-1 gene is inserted into different bacteria, the more likely it will enter virulent forms of E. coli, sparking outbreaks that may be impossible to subdue, says David Livermore, who heads antibiotic resistance monitoring at the U.K.'s Health Protection Agency in London.

Black Death

The gene may even spread to the microbial cause of bubonic plague, the medieval scourge known as Black Death that still persists in pockets of the globe.

"It's a matter of time and chance," says Mark Toleman, a molecular geneticist at Cardiff University. Plasmids carrying the NDM-1 gene can easily be inserted into the genetic material ofYersinia pestis, the cause of plague, making the infection harder to treat, Toleman says.

"There is a tsunami that's going to happen in the next year or two when antibiotic resistance explodes," says Ghafur, 40, seated at a polished wooden table in a consulting room in Chennai as patients fill 20 metal chairs in the waiting area, forcing others into the corridor. "We need wartime measures to deal with this now."

R.K. Srivastava, India's former director general of health services, says the government is giving top priority to antimicrobial resistance, including increasing surveillance of hospitals' antibiotics use.

Name Shame
At the same time, it's trying to preserve the country's health-tourism industry. Bristling that foreigners coined a name that singles out their capital to describe an emerging health nightmare, officials say the world is picking on India for troubles that impede all developing nations.

When Indian researchers joined international teams studying the NDM-1 gene, the government questioned the data and methods of the scientists, among them Chennai microbiologist Karthikeyan K. Kumarasamy.

"These bacteria were present globally," says Nirmal K. Ganguly, a former director general of the Indian Council of Medical Research and one of 13 members of a government task force created in September 2010 to respond to the NDM-1 threat.

"When you are blamed, the only reaction is that you put your back to the wall and fight."

Ulterior Motive?
S.S. Ahluwalia, a former deputy opposition leader in the upper house of India's parliament and a member of the Bharatiya Janata Party, says Western rivals want to muscle in on the medical tourism industry. Josef Woodman, founder of the guidebook "Patients Beyond Borders," values the industry globally at $54 billion a year.

“These reports are meant to destabilize India’s emergence as a health destination,” says Ahluwalia, whose term ended in April.

About 850,000 medical tourists traveled to India in 2010 for treatments from lifesaving cancer operations to cosmetic surgeries, generating $872 million in revenue, according to the Associated Chambers of Commerce and Industry of India, or Assocham. The number of foreign patients is predicted to almost quadruple by 2015, the trade body says.

Manish Kakkar, a doctor researching infectious diseases at the New Delhi-based Public Health Foundation of India and a task force member, says the government has its priorities wrong.

“We have been in a phase of denial,” he says. “Rather than responding to the situation scientifically, we’ve completely diverted attention, saying that it’s attacking our medical tourism.”

‘That’s What’s Scary’

Kakkar and others worry about NDM-1 because unlike germs such as VRE, short for the vancomycin-resistant enterococci bug that can cause infection around a patient’s surgical incision, NDM-1 is spreading beyond hospitals.

Two travelers from the Netherlands picked up an NDM-1 bug in their bowels after visiting India in 2009 although they hadn’t received medical care there, says Maurine Leverstein-van Hall, a clinical microbiologist at the University Medical Center in the Dutch city of Utrecht.

“That’s what’s scary,” she says. “It’s not just surgery or being near a hospital. In some way, you get it through the food chain or through the water.”

For now, it’s impossible to tell how common NDM-1 infections are or how often the mutant germs kill because testing and surveillance are inadequate in developing countries, says Keith Klugman, the William H. Foege chair of global health at Emory University’s Rollins School of Public Health in Atlanta.

‘Perfect Breeding Ground’

Cardiff’s Walsh estimates 100 million Indians carry germs that harbor the NDM-1 gene, based on an extrapolation of studies in New Delhi and from neighboring Pakistan.

“It’s not measured, and that’s the problem,” says Klugman, who pinpoints India as the epicenter.

India’s jammed cities, poor sanitation and abundant antibiotics produce an ideal incubator, Harvard’s Moellering says.

“You have almost no control over the prescription of antibiotics,” says Moellering, who has studied drug resistance for four decades. “You have horrible sanitation problems in many parts of the country. You have incredible poverty, and you have crowding. When you put those four things together, it’s the perfect breeding ground for multidrug-resistant bacteria.”

Antibiotics even pollute India’s rivers, streams and soil. The bacteria that thrive in these places do so because they’ve developed resistance to the drugs they encounter. People or animals who ingest the water or soil may become colonized by the resistant germs.

Mining Cipro

Until the government built a pipeline to a modern sewage plant in 2010, the Patancheru Enviro Tech Ltd. treatment facility on some days released the equivalent of 45,000 daily doses of ciprofloxacin into the Isakavagu stream outside Hyderabad in southern India, Swedish researchers reported in 2007. The plant treated wastewater from drug-making factories.

Residue from ciprofloxacin, a mainstay treatment for E. coli infections, was so prevalent in river sediment downstream that lead researcher Joakim Larsson of the University of Gothenburg jokes, "Had ciprofloxacin been a little bit more expensive, we could probably mine it from the ground."

India's antibiotics overload is forcing doctors to rely on ever-more-powerful drugs. Many now turn to a class called penicillin-based carbapenems to treat ailments as routine as urinary tract infections, says Grayson, who was editor-in-chief of medical text "Kucer's The Use of Antibiotics" (Hodder Arnold/ASM Press, 2010).

'Antibiotic Stewardship'

NDM-1 has rendered even carbapenems useless, sometimes leaving no way to fight infections. Two drugs potentially capable of treating NDM-1 bacteria have toxic side effects in some patients that include an increased risk of death.

"It's an example of why we need to have good surveillance and why we need to have good antibiotic stewardship," says Thomas R. Frieden, director of the U.S. Centers for Disease Control and Prevention in Atlanta. "We are looking at the specter of untreatable illness."

Drugmakers have been slow to respond with new medicines. Most abandoned antibiotic discovery during the past decade, says Karen Bush, a microbiologist at Indiana University in Bloomington. She led teams that developed five bacteria-fighting drugs beginning in the 1970s in laboratories that are now part of AstraZeneca Plc (AZN), Bristol-Myers Squibb Co. (BMY), Johnson & Johnson and Pfizer Inc. (PFE)

Companies instead pursued hypertension and high-cholesterol drugs that patients take for a lifetime rather than a few weeks, she says.

International Uproar

Kumarasamy, the Chennai microbiologist, says he thought he was doing his country a favor when he helped track down the cause of unexplained deaths inside India. Instead, he sparked an international uproar over NDM-1.

Beginning in June 2000, Kumarasamy, now 36, studied bacteria and went from hospital to hospital in Chennai to collect specimens. He says he witnessed a steady increase in difficult-to-treat infections. Patients were dying, and doctors couldn't identify what type of resistant germs killed them, he says.

"No matter how skilled or intelligent the doctor is, they are helpless when it comes to these infections," he says over lunch of rice and curry in a noisy Chennai food court. He didn't keep a tally of the deaths.

Kumarasamy, who received a Bachelor of Science degree from Navarasam Arts & Science College in Tamil Nadu state in 1997, says he began isolating bacteria from the blood, sputum, pus and urine of patients and freezing the samples. He quit his lab job in 2007 to study resistant germs for a doctorate in microbiology at the University of Madras. He's winding up his thesis on carbapenem-resistant bacteria.

Festering Bedsores

Kumarasamy's curiosity spiked in 2008 when he realized he was dealing with something totally new. He reached out to Walsh, whose Cardiff lab was at the forefront of international antibiotic resistance research.

Around that time, Walsh was studying the case of a diabetic stroke patient of Indian origin. The man had festering bedsores and had been transferred from New Delhi to his home in Swedenfor treatment. When bacteria cultured from his urine and feces evaded more than a dozen drugs, including last-resort carbapenems, Christian G. Giske, a clinical microbiologist at Stockholm's Karolinska University Hospital, sent the samples to Walsh's lab.

Stockholm Hotel
In a hotel room in the Swedish capital, Walsh and Giske named the gene that made the bacteria immune to virtually all these antibiotics New Delhi metallo-beta-lactamase-1.

Beta-lactams are a class of antibiotics that includes penicillins, cephalosporins and carbapenems. Beta-lactamase is an enzyme that destroys those drugs. Metallo-beta-lactamases are so named because they contain zinc and destroy carbapenems, the most powerful beta-lactams.

Kumarasamy, suspecting something similar in his own specimens, asked Walsh to share the DNA sequence of this new bacterial gene. Walsh did -- and Kumarasamy got a match.

Kumarasamy began visiting Chennai hospitals anew to look for drug-resistant specimens. He also got samples from researchers in India's northern Haryana state.

When his collection was added to those Walsh and his colleagues were studying, the researchers discovered the same NDM-1 gene from four countries: India, Pakistan, Bangladesh and the U.K. For most of the British patients, the link was recent travel to India or neighboring Pakistan.

In Kumarasamy's samples from inside India, many cases emerged in people who hadn't recently been hospitalized. That suggested the bacteria were spreading in the community.

'Unsung Hero'
"He is India's unsung hero," Walsh says.

The University of Madras initially thought so, too. It feted Kumarasamy after he became the youngest scholar from the 155-year-old institution to have research appear in any publication of the British medical journal "The Lancet." His August 2010 paper, in "The Lancet Infectious Diseases," became that publication's most-read article that year.

The mood soured a few days later. Officials at India's Ministry of Health & Family Welfare balked at the gene's name, which threatened medical tourism's public image.

"There was a lot of stress and tension, and I could not sleep properly for two months," says Kumarasamy, who says he developed gastric reflux and heartburn.

The next month, authorities at the ministry grilled the eight Indian contributors to the "Lancet" report, including lead author Kumarasamy, according to two co-authors who declined to be identified because their employers don't permit them to speak to the media.

'Batten Down the Hatches'
Officials questioned their data and chastised them for sending specimens overseas without approval, saying the researchers had violated a 13-year-old regulation, according to two in the group.

The Indian Council of Medical Research says it requires researchers to submit detailed proposals to send any bacterial collections abroad. The process may take at least four months.

"The regulations were already in place," says Sandhya Visweswariah, a professor at the Indian Institute of Science in Bangalore.

The researchers countered that the rules were nebulous and were rarely enforced.

"It is suppression of scientific freedom," Walsh says of the government behavior. "They just try to batten down the hatches and make everything very, very difficult and pretend nothing has happened."

Front-Page News
After front-page stories on the superbug appeared in Indian newspapers, the government formed an antibiotic resistance task force. It recommended in April 2011 that antibiotic use be tracked in the country's 100,000 hospitals to find excessive prescribing. The group advised making it harder to get antibiotics without a prescription by requiring pharmacists to keep records for two years to aid audits and inspections.

Current rules make a prescription mandatory, but regulations are rarely enforced and it's easy to get potent antibiotics, even intravenous ones, without a doctor's assent. The group advised enacting rules allowing drug inspectors to immediately cancel the license of pharmacists dispensing unprescribed antibiotics.

Task force member Ganguly says tracking antibiotic use will be difficult.

"How do you regulate 1.2 billion people with so much diversity?" he asks.

Dying Babies
While Kumarasamy was documenting NDM-1 in Chennai hospitals, pediatrician Vipin Vashishtha was discovering how deadly the gene can be.

In June 2010, new father Sanjeev Thakran, 28, rushed his half-hour-old son in a car through monsoon-soaked streets to Vashishtha's Mangla Children's Hospital in Bijnor. His wife, Lalita, had delivered baby Tapas in a maternity hospital across town three weeks early, and the infant was laboring for air.

Nurses in green scrubs warmed the 4-pound (1.8-kilogram) newborn in a dome-covered crib and fed him milk and medicines through a nasal tube. About 2 feet away, a frail-looking baby was connected to a ventilator, Sanjeev Thakran says.

Vashishtha, seated on a leather swivel chair in his consulting room, recalls thinking that Tapas might need only a few days of intensive care. Instead, the baby spent weeks in and out of the unit. Blood sometimes trickled from his nose and shriveling umbilicus, according to medical records.

Even though he was being treated with a carbapenem, the most powerful class of antibiotic, bacteria raged inside his tiny lungs and bloodstream, eventually attacking membranes covering his brain and spinal cord.

Incurable Scourge
Other infants in the eight-crib neonatal intensive care unit were suffering, too. Vashishtha, 48, had tried several antibiotics without success. When carbapenems didn't work, he says, he felt helpless because he knew he was dealing with a potentially incurable scourge.

Tapas died 11 weeks after he was admitted. Lab results identified the culprit a month later: NDM-1. The gene was in bacteria known as Klebsiella pneumoniae. The germ exists in people's gastrointestinal tract and can cause pneumonia and urinary-tract infections in hospital patients.

The lab also found two soil-borne species that normally cause trivial infections but that were suddenly becoming killers.

Tapas was one of 14 infants at the hospital who were infected with NDM-1-containing bacteria over the course of 17 months. Six of the babies died. Among the eight survivors, half developed meningitis, arthritis or water on the brain, Vashishtha wrote to an Indian medical journal in February 2011.

‘Horrific Period’
“It was the most horrific period,” Vashishtha says as he fixes his eyes on the playpen where he amuses children in his office. “I was losing neonates at regular intervals. I suspected we were dealing with something quite different, something quite new.”

Vashishtha says he has improved infection control, walling off part of the ICU for contagious, complicated cases.

He can’t, however, control what happens outside his hospital. Sewage from nearby homes flows in an open drain along one wall of the two-story building.

Bijnor, like other small cities in Uttar Pradesh, lacks a modern underground drainage system. During the rainy season, it’s impossible not to wade through sewage water, the doctor says.

‘Wash Hands Properly’
So far, Vashishtha has prevented more NDM-1 deaths. He fumigates his wards every four weeks and applies fresh paint every three months. He keeps hand-sanitizing liquid in his office, along the corridors and next to every bed in intensive care. Nurses must wash their hands with running water and soap and scrub with an antimicrobial sanitizer before handling patients.

“The first and foremost step to avoiding hospital-acquired infection is to wash hands properly,” he says.

India’s major hospitals are marshaling tactics from common cleanliness to computerized databases to outsmart resistant bacteria and prevent more tragedies.

Artemis Health Institute, a private, 300-bed specialty hospital in Gurgaon, southwest of New Delhi, employs an infection-control officer who collects data every month on the hospital’s four most troublesome bacteria to review patterns of drug resistance. The officer, Namita Jaggi, also serves as national secretary of a Buenos Aires-based group that collates infection information worldwide.

‘Infection Surveillance 24/7’
About 3 miles (4.8 kilometers) away, cardiac surgeon Naresh Trehan’s medical complex,Medanta-The Medicity, requires patients transferring from other hospitals to be screened for resistant bacteria. This procedure, routine in some Nordic countries, isn’t standard in India.

Medanta has a strict hand-washing policy and a 40-member team to monitor infections, says Trehan, 65, who trained in cardiac surgery at New York University and worked at Bellevue Hospital in Manhattan before returning to India in 1988.

“We have a very senior person whose sole responsibility is to keep the whole hospital under infection surveillance 24/7,” he says.

Livermore at the U.K.’s Health Protection Agency says these efforts may not be enough in a country where 626 million people defecate in the open and that treats only 30 percent of the 10.1 billion gallons of sewage generated each day. Even the most modern hospitals can’t exist as islands of cleanliness, he says.

“How does the hospital -- however good its surgeons and physicians -- isolate itself when its patients, staff and food all come from outside, where they are exposed to this soup of resistance?” he asks.

‘Hope for the Future’
Bush, the antibiotics researcher, has been investigating novel ways to fight bacteria since 1977. She says

combinations of existing drugs, including an experimental compound from AstraZeneca in late-stage patient studies, may neutralize some carbapenem-destroying enzymes.

Should these mixtures pan out, they may help the superdrugs regain at least some of their potency, potentially extending their usefulness for a decade or more, she says.

A drug candidate from Basel, Switzerland-based Basilea Pharmaceutica AG (BSLN) in early-stage trials shows some promise against NDM-1, she says.

“What’s frustrating is to see that companies refused to address the issue until the last few years,” Bush says. “There are still some that are trying, and that’s the hope for the future.”

‘Very Cautious’

Drugs that could once again tackle the world’s most resistant germs would be a relief for people worldwide, Norway’s Skaret among them. She spent more than six months fearing a microbial time bomb until she learned that the NDM-1 supergerms had passed from her system.

Even though she escaped physical harm, Skaret says, NDM-1 made her feel isolated. She says therapists, concerned about their own exposure, refused to help her with rehabilitation to recover from the car accident. Neighbors who delivered food were careful not to get too close.

“When they heard about it, they were very cautious,” she says.

If Walsh’s projection is accurate, 100 million Indians may be carrying the NDM-1 gene unwittingly and doing little to contain its spread. The number of countries reporting NDM-1 will continue to grow as more bacteria pick up the gene and people transport it around the globe.

To prevent a worldwide catastrophe, microbiologists Kumarasamy and Walsh -- along with scores of scientists and doctors inside and outside India -- are sounding an alarm.

“Combine sophisticated medicine, poor sanitation and heavy antibiotic usage, and you have a rocket fuel to drive the accumulation of resistance,” Livermore says. “That surely is what India has created” (Bloomber, 2012).