Without Improved Security, Biodefense Laboratories May Double as Arsenals for Terrorists

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An American public, already edgy from the September 11th attacks, quickly found itself having to deal with another terrorist attack in the form of the so-called “Amerithrax” attacks of September and October 2001. Five were killed and 17 fell ill to anthrax distributed via United States mail.1 The federal government responded by spending generously on anti-bioterrorism measures, such as the construction of biodefense research laboratories. Programs such as Project Bioshield, which devoted $5.6 billion to fighting “potential agents of bioterror,” illustrated President Bush’s commitment to develop countermeasures against potential biological attack.2 In all, $41 billion has been spent on bioterror research since 2002.3 Private companies, which had previously considered this research unprofitable, joined in with their own biodefense research ventures.4

However, despite the rapid proliferation of these laboratories and the large amount of funding allocated to them, security measures and oversight remain inadequate. A 2008 Government Accountability Office (GAO) report stated that the federal government was unaware of the number of BSL-3 laboratories – the class of biosafety laboratory at which potentially lethal pathogens are studied – that even existed.5,6 A 2004 survey was able to identify 598 laboratories at 245 facilities reporting BSL-3 capability. Furthermore, this figure likely underestimates the actual number of BSL-3 laboratories, as more than half of the contacted facilities did not respond and no federal facilities were surveyed at all.7 To be sure, the amount of laboratory space is considerable. The 2008 GAO report also pointed out poor perimeter security measures at two BSL-4 laboratories. Because BSL-4 laboratories study potentially lethal pathogens for which there is no vaccine or cure, they require even stricter security measures than the BSL-3 laboratories.6 Yet, one of the two BSL-4 laboratories had no security cameras performing any live monitoring at all.5

It is of the utmost importance that the government secures these laboratories. If infectious agents were to be accidentally released, it would be yet another example of a surprisingly common occurrence. In 2004, more than 6,000 laboratories around the world received samples of an H2N2 influenza virus that was responsible for between one and four million fatalities in the late 1950s.8 Earlier in 2004, employees of the Children’s Hospital Oakland Research Institute in California were accidentally exposed to live anthrax.9

If infectious agents were to be weaponized and used in a terrorist attack, the implications could be devastating. The Centers for Disease Control and Prevention have listed anthrax as a Category A bioterrorism agent, the most threatening class of bioterrorism agent.10 Releasing a
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few hundred pounds of anthrax into the air over a densely populated area could sicken tens of thousands of people.\(^2\) Thankfully, weaponizing potentially lethal organisms such as anthrax is a project that poses significant technical and logistical obstacles.\(^{11}\) However, with a combination of poor security and a well-placed accomplice among the 15,000 employees nationwide with access to weaponizable pathogens, would-be biological terrorists would find that the hardest work has been done for them.\(^3\)

The existence of these vulnerabilities may lead one to question the organizations that are responsible for laboratory security. Institutional biosafety committees (IBCs) at BSL-3, BSL-4, and other biocontainment laboratories exist to ensure safe operation and oversight in accordance with a set of NIH-established rules called the NIH Guidelines for Research Involving Recombinant DNA Molecules.\(^{12}\) The NIH stipulates that any institution with at least one NIH-funded project subject to the Guidelines must adhere to the Guidelines for every other such project whether that project receives NIH funding or not.\(^{13}\) However, a recent study found that many facilities in the private sector were not compliant with this rule. In all, 75% of major private biotechnology companies are not overseen by any NIH-recognized IBC at all. Making matters worse, the laboratories studying the most dangerous agents were not spared from this lack of oversight. Of the BSL-3 laboratories identified in this study, 98% had not subjected all of their federal BSL-3 research grants to IBC review.\(^{12}\)

This may be regarded as a natural consequence of the NIH’s reluctance to enforce compliance. As of 2008, the NIH has never withdrawn funding for a project based on an institution’s noncompliance with the Guidelines. Even if the NIH began to withdraw funding from noncompliant institutions, projects funded by non-NIH sources would be unaffected since they lie outside the jurisdiction of the Guidelines.\(^{12}\) Laboratories receiving outside funding are only encouraged, but not required, to maintain IBCs.\(^{14}\) Clearly, the scope of the IBC system is not sufficient to properly oversee all laboratories nationwide studying dangerous agents. The domain of its authority is not comprehensive enough and enforcement is lax within that domain.

An expanded biosafety research sector is one of the legacies of the Bush administration. Support and criticism for the current scope and nature of federally funded biosafety research runs somewhat along partisan lines. However, one thing that all should be able to agree upon is that as long as these laboratories exist, they must be secure. Rectifying the current situation is not an insignificant task. In addition to the relatively small jobs of constructing more robust perimeter security measures, larger-scale reforms to the institutions that oversee the operations of these laboratories must be enacted. Otherwise, these expensive laboratories would double as storehouses of potential weapons to be accidentally or intentionally used against the American population. Without proper security, the billions of dollars spent funding these biodefense efforts will have only exacerbated a national security risk.
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