#### **Hobbes NC**

**The meta-ethic is perspectivism:**

1. **Relativism –** We can never access another person’s perspective, because we can never fully understand who they are or what they think. That means we can’t have universal values.
2. **Subjectivity –** We can’t understand a priori truths, because we are not omnipotent divine beings. We are restricted in our reasoning abilities by the conditions of the world around us.
3. **Semantics –** Truth is constructed by language, which is arbitrary. Nothing tells me that a pen is a pen. Moral truths can’t be contained within language if we make it up ourselves.

#### **Parrish 1** Rick Parrish, “Derrida’s Economy of Violence in Hobbes’ Social Contract”, Pgs. 4-5, 2004.

#### Perhaps the single most telling quote from Hobbes on this point comes from *The Philosophical Rudiments Concerning Government and Society* (usually known by its Latin name, *De Cive*), in which he states that "to *know truth*, is the same thing as to *remember* that it was made by ourselves by the very usurpation of the words."24 "For Hobbes **truth is a function of logic and language,** not of the relation between language and some extralinguistic reality,"25 so the "connections between names and objects are not natural."26 They are **artificially constructed by persons, based on individual** psychologies and **desires.** These individual desires are for Hobbes the only measure of good and bad, because value terms "are ever used with relation to the person that useth them, there being nothing simply and absolutely so, nor any common rule of good and evil to be taken from the nature of the objects themselves."27 Since "there are no authentical doctrines concerning right and wrong, good and evil,"28 these labels are placed upon things by humans in acts of creation rather than discovered as extrinsic facts. 16. Elaborating on this, Hobbes writes that "the nature, disposition, and interest of the speaker, such as are the names of virtues and vices; for one man calleth *wisdom*, what another calleth *fear*; and one *cruelty* what another*justice.*"29 A more simplistic understanding of the brutality of the state of nature, which David Gauthier calls the "simple rationality account,"30 has it that mere materialistic competition for goods is the cause of the war of all against all, but such rivalry is a secondary manifestation of the more fundamental competition among all persons to be the dominant creator of meaning. Certainly, Hobbes writes that **persons** most frequently "**desire to hurt each other**" **because** "**many** men at the same time **have an appetite to the same thing**; which yet very often they can neither enjoy in common, nor yet divide it; whence it follows that the strongest must have it, and who is strongest must be decided by the sword."31 But this competition for goods only arises as the result of the more primary struggle that is inherent in the nature of persons of meaning creators. In the state of nature, "where every man is his own *judge,*"32persons will "mete good and evil by diverse measures,"33creating labels for things as they see fit, based on individual appetites. 17. One of the most significant objects that receives diverse labels in the state of nature is 'threat'. Even if most people happen to construe threat similarly, there will be serious disagreement regarding whether or not a specific situation fits a commonly-held definition. This is of course the key to the famous Security Dilemma that international relations theorists spend so much time trying to overcome34 -- certain perfectly innocent actions by one person (or state) can easily be construed, and rationally *must* be construed, as a threat. Furthermore, any attempt by one person to allay another's fears about the threatening nature of actions must be taken as strategic disinformation, rather than as genuine explanation. Even if "I agree with you in principle about your right to preserve yourself," this agreement is useless "if I disagree about whether this is the moment for you to *implement* that right."35 Given that persons "are **individual[s’]** in experience, they are individual in their conceptions and in their speech. Their **power of reasoning with words** . . . **dissociates them and provokes violent competition**"36specifically **because concepts** that seem simple **invoke** very **different interpretations. If there were some universal**ly objective and knowable **set of circumstances** that constituted Threat as such, the rationally **self-interested persons** of the state of nature **would not have to seek control** over all things for their own protection. All persons could both avoid actions that would be defined as threat and shed the overbearing suspicion that, taken together, make the Hobbesian state of nature so unbearably brutish.

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#### **Therefore, a sovereign is necessary to reconcile subjects’ differing values and views. Otherwise, we revert to infinite conflict and oppression in the state of nature, since everyone wants their truth claims to be true.**

**Parrish 2** Rick Parrish, “Violence Inevitable: The Play of Force and Respect in Derrida, Nietzsche, Hobbes, and Berlin,” 2006.

All of the foregoing pints to the conclusion that in the commonwealth **the sovereign’s first and most fundamental job is to be the ultimate definer**. Several other commentators have also reached this conclusion. By way of elaborating upon the importance of the moderation of individuality in Hobbes’ theory of government, Richard Flathman claims that **peace “is possible only if the ambiguity and disagreement that pervade general thinking and acting are eliminated by the stipulations of a sovereign.”** Pursuant to debunking the perennial misinterpretation of Hobbes’ mention of people as wolves, Paul Johnson argues that “**one of the primary function**s **of the sovereign is to provide the necessary unity of meaning and reference for the‘ primary terms in which [people] men try to conduct their social live**s.” “The whole [purpose in the sovereign’s ruling] raison d’entre of sovereign helmsmanship lies squarely **in the chronic defusing of interpretive clashes,” without which humans would** “fly off in all directions” and **fall** inevitably **into the violence of the natural condition.**

**Thus, the standard is upholding the will and power of the sovereign.**

**Prefer It:**

**1) Moral Discourse - Outside of the state, there is no authority to ensure a shared moral language. The sovereign solves this dispute by being an ultimate arbiter: absent my standard, moral language makes no sense.**

**2) Bindingness - Even if your moral rules are correct, nobody would follow them absent a sovereign that compels them to do so. My framework is therefore a side constraint to all others.**

**Offense:**

**1) Through the use of the word “ought,” the Aff places an obligation on the state to act, which is incoherent:**

1. **Under Hobbes, the state’s only obligation can be to prevent the state of nature.**
2. **It implies the existence of a moral authority higher than the sovereign with the power to constrain it.**

#### **2) The WTO is an illegitimate sovereign, for it has neither military nor citizens: thus, any resolutional action is incoherent.**

**Hobbes** Thomas Hobbes, *Leviathan* (1651), Translated by Jonathan Bennett (2017), <https://www.earlymoderntexts.com/assets/pdfs/hobbes1651part2.pdf>.

The agreement of these creatures is natural, whereas men's agreement is by covenant only, which is artificial; so it's no wonder if **something besides the covenant is needed to make** their **agreement constant and lasting, namely a common power to keep them in awe and direct their actions to the common benefit. The only way to establish a common power that can defend them from the invasion of foreigners and the injuries of one another, and thereby make them secure enough to be able to nourish themselves and live contentedly** through their own labours and the fruits of the earth, **is to confer all their power and strength on** one man, or **one assembly** of men, **so as to turn all their wills by a majority vote into a single will**. That is to say: to appoint one man or assembly of men to bear their person; and everyone to own and acknowledge himself to be the author of every act that he who bears their person performs or causes to be performed in matters concerning the common peace and safety, and all of them to submit their wills to his will, and their judgments to his judgment. This is more than .mere. agreement or harmony; it is a real unity of them all. They are unified in that they constitute one single person, created through a covenant of every man with every other man, as though each man were to say to each of the others: I authorize and give up my right of governing myself to this man, or to this assembly of men, on condition that you surrender to him your right of governing yourself, and authorize all his actions in the same way. When this is done, the multitude so united in one person is called a COMMONWEALTH, in Latin CIVITAS. This is the method of creation of that great LEVIATHAN, or rather (to speak more reverently) of that mortal god to which we owe, under the immortal God, our peace and defence. For by this authority that has been given to `this man' by every individual man in the commonwealth, he has conferred on him the use of so much power and strength that people's fear of it enables him to harmonize and control the wills of them all, to the end of peace at home and mutual aid against their enemies abroad. He is the essence of the commonwealth, which can be defined thus: **A commonwealth is one person of whose acts a great multitude of people have made themselves the authors (each of them an author), doing this by mutual covenants with one another, so that the common-wealth may use the strength and means of them all, as he shall think appropriate, for their peace and common defence. He who carries this person is called sovereign, and said to have 'sovereign power', and all the others are his subjects.**

**T - Reduce**

**Interpretation: “Reduce” implies an unconditional and permanent change, while the Aff is merely a suspension.**

**Violation: They only defend a temporary waiver for one type of medicine and for a limited time period.**

**Reynolds, 95** Judge (In the Matter of Doris A. Montesani, Petitioner, v. Arthur Levitt, as Comptroller of the State of New York, et al., Respondents [NO NUMBER IN ORIGINAL] Supreme Court of New York, Appellate Division, Third Department 9 A.D.2d 51; 189 N.Y.S.2d 695; 1959 N.Y. App. Div. LEXIS 7391 August 13, 1959, lexis)

Section 83's counterpart with regard to nondisability pensioners, section 84, prescribes a reduction only if the pensioner should again take a public job. The disability pensioner is penalized if he takes any type of employment. The reason for the difference, of course, is that in one case the only reason pension benefits are available is because the pensioner is considered incapable of gainful employment, while in the other he has fully completed his "tour" and is considered as having earned his reward with almost no strings attached. It would be manifestly unfair to the ordinary retiree to accord the disability retiree the benefits of the System to which they both belong when the latter is otherwise capable of earning a living and had not fulfilled his service obligation. If it were to be held that withholdings under section 83 were payable whenever the pensioner died or stopped his other employment the whole purpose of the provision would be defeated, i.e., the System might just as well have continued payments during the other employment since it must later pay it anyway. [\*\*\*13] **The section says "reduced", does not say that monthly payments shall be temporarily suspended; it says that the pension itself shall be reduced. The plain dictionary meaning of the word is to diminish, lower or degrade. The word "reduce" seems adequately to indicate permanency.**

**Impacts:**

**A) Semantics Outweighs – It controls the internal link to any sort of engagement, since it’s the only basis for pre-round prep. B) Jurisdiction – Regardless of pragmatics, if you aren’t debating the res, you aren’t following the pre-set burden for this round.**

**Standards:**

**1) Limits - There are infinite temporary waivers and specific non-reduction changes that you can spec. That gives you a massive prep advantage - it’s impossible for me to prep every single AC out, but you get to frontline just one Aff, so you’ll always be ahead. It’s also uniquely terrible for small-school debaters, which makes debate less accessible.**

**2) Ground - Most of my disads and CPs won’t link to your Aff, which denies me ground. For example, disads relating to the economic need for IP won’t link to an Aff that doesn’t actually “reduce” IP. This moots education and denies the Neg a route to the ballot.**

**Ground controls the internal link to clash, since I can’t engage substantively with a hyper-specific Aff. I’m forced to read generics, which turns any topic education arguments you may have.**

**TVA Solves Your Offense - You can just change your implementation mechanism to be broader and more permanent, and we’ll still learn about the specifics of your Aff.**

**Fairness and Education are voters.**

* Debate is a competition, so if it were unfair, nobody would participate.
* Education is key to funding for the debate space: schools organize debate teams and fund them solely because of debate’s educational value.

**Drop the debater: 1) To rectify time lost running T. 2) To deter future abuse. 3) Drop the arg on T is drop the debater since you lose your advocacy.**

**Competing interps, since the debate over brightline for reasonability collapses into competing interps. Any brightline is arbitrary, and reasonability causes a race to the bottom to see who can be the most abusive.**

**No RVIs:**

1. **Logic** - My opponent should not win simply because they were able to prove that they did not violate any rules.
2. **Chilling Effect** - RVIs disincentivize people to read theory against abuse.
3. **Baiting** - RVIs incentivize good theory debaters to be as abusive as possible in order to bait out theory and win.

#### **Innovation DA**

**Despite economic crises, the biotech industry has remained strong due to continued innovation.**

**Cancherini et al., 21** Laura Cancherini et al. (Engagement Manager @ McKinsey & Company, Joseph Lydon, Associate Partner @ McKinsey & Company, Jorge Santos Da Silva, Senior Partner at McKinsey & Company, and Alexandra Zemp, Partner at McKinsey & Company), “What’s ahead for biotech: Another wave or low tide?“, McKinsey & Company (4-30-2021),<https://www.mckinsey.com/industries/pharmaceuticals-and-medical-products/our-insights/whats-ahead-for-biotech-another-wave-or-low-tide>.

As the pandemic spread across the globe in early 2020, biotech leaders were initially pessimistic, reassessing their cash position and financing constraints. When McKinsey and BioCentury interviewed representatives from 106 biotech companies in May 2020,4 half of those interviewed were expecting delays in financing, and about 80 percent were tight on cash for the next two years and considering trade-offs such as deferring IPOs and acquisitions. Executives feared that valuations would decline because of lower revenue projections and concerns about clinical-trial delays, salesforce-effectiveness gaps, and other operational issues. Belying this downbeat mood, **biotech has in fact had one of its best years so far. By January 2021, venture capitalists had invested some 60 percent more than they had in January 2020**, with more than $3 billion invested worldwide in January 2021 alone.5 IPO activity grew strongly: there were 19 more closures than in the same period in 2020, with an average of $150 million per raise, 17 percent more than in 2020. Other deals have also had a bumper start to 2021, with the average deal size reaching more than $500 million, up by more than 66 percent on the 2020 average (Exhibit 3).6 What about SPACs? The analysis above does not include special-purpose acquisition companies (SPACs), which have recently become significant in IPOs in several industries. Some biotech investors we interviewed believe that SPACs represent a route to an IPO. How SPACs will evolve remains to be seen, but biotechs may be part of their story. Fundamentals continue strong **When we asked executives and investors why the biotech sector had stayed so resilient during the worst economic crisis in decades, they cited innovation as the main reason. The number of assets transitioning to clinical phases is still rising, and further waves of innovation are on the horizon, driven by the convergence of biological and technological advances.** In the present day, many biotechs, along with the wider pharmaceutical industry, are taking steps to address the COVID-19 pandemic. Together, biotechs and pharma companies have more than 250 vaccine candidates in their pipelines, along with a similar number of therapeutics. What’s more, the crisis has shone a spotlight on pharma as the public seeks to understand the roadblocks involved in delivering a vaccine at speed and the measures needed to maintain safety and efficacy standards. To that extent, **the world has been living through a time of mass education in science research and development. Biotech has also benefited from its innate financial resilience. Healthcare as a whole is less dependent on economic cycles** than most other industries. Biotech is an innovator, actively identifying and addressing patients’ unmet needs. In addition, biotechs’ top-line revenues have been less affected by lockdowns than is the case in most other industries. Another factor acting in the sector’s favor is that **larger pharmaceutical companies still rely on biotechs as a source of innovation. With the top dozen pharma companies having more than $170 billion in excess reserves** that could be available for spending on M&A, the prospects for further financing and deal making look promising. For these and other reasons, many **investors regard biotech as a safe haven.** One interviewee felt it had benefited from a halo effect during the pandemic. More innovation on the horizon The investors and executives we interviewed agreed that biotech **innovation continues to increase in quality and quantity despite the macroeconomic environment**

**Intellectual property protections are key for stimulating innovation, keeping biotech profitable, and combatting future pandemics.**

**Paulsen, 21** Erik Paulsen (Represented Minnesota’s 3rd congressional district in the U.S. House of Representatives from 2009-19), “US can save the world with its vaccines,” Daily Journal (Jul 21, 2021), <https://www.daily-journal.com/opinion/columnists/paulsen-us-can-save-the-world-with-its-vaccines/article_16d4de02-e971-11eb-9da8-7fcc05c30dc0.html>.

The Biden administration gave Beijing a gift when it endorsed a petition before the World Trade Organization to force the American developers of COVID-19 vaccines and therapeutics to relinquish their intellectual property rights to these medicines. The Chinese government seeks to take over in biotech, a sector in which U.S. innovators lead. Biotech is included in its “Made in China 2025” plan, which lists 10 sectors China aims to dominate. The government intends to force anyone doing business in China in those spheres to hand over know-how. **Surrendering IP protections on biomedical technology** has dire consequences. Foremost, it **guts the foundation of biomedical innovation, which takes huge investments spanning many years to bear fruit. IP protections assure innovators that they can recover those investments and make a profit. Losing IP protection would have a chilling effect on investments in the sector.** Equally injurious to America, the IP waiver would allow China to become a biotech powerhouse by piggybacking on American innovation. A waiver on IP for COVID-19 vaccines would accelerate the timeline for “Made in China 2025.” The mRNA technology which undergirds the Pfizer-BioNTech and Moderna vaccines has uses beyond this pandemic. It has the potential to take on cancers and other diseases. With the waiver, China and others will be emboldened to use the once-proprietary mRNA know-how for broader research and applications. Is this in America’s interest? Mark Cohen, an expert on Chinese IP theft, recently told the Washington Post that the waiver would deliver “a competitive advantage to countries that are increasingly viewed as our adversaries, at taxpayer expense.” Beyond the damage that an mRNA giveaway will inflict on US R&D investments, **the waiver sends a signal that America could agree to force American innovators to part with trade secrets every time there’s a global crisis.** That attitude will arrest biopharmaceutical innovation. Small biotech firms spearhead 70 percent of the R&D pipeline, relying heavily on private investors to fund that work. **If investors know innovators might have to give away their discoveries in a global crisis, they’ll deploy their money elsewhere. That’ll make it even harder to draw the R&D investments needed to address infectious diseases, including drug-resistant infections and viruses.** America is benefitting greatly from the early access to COVID-19 treatments and vaccines, saving lives and speeding economic recovery. Preserving U.S. leadership in biomedical innovation includes preserving the incentives that helped make it the world’s leader. A final downside of the waiver is the ability for American firms to find a cure for the next pandemic. **Among the greatest threats is bacteria resistant to our current arsenal of antibiotics** that becomes a pandemic-inducing superbug. **Already, the market for new antimicrobials is broken. Only a handful of biotechs have them in development, and many have gone bankrupt trying to commercialize one.** “A lot of people have rightly said **we need to start thinking about preparing for the next pandemic now,**” noted Craig Garthwaite, a healthcare-business professor at Northwestern University. “**Suspending IP for vaccine manufacturers would send exactly the wrong signal for the future.”** For the sake of patients everywhere, American IP rights must stay protected. It’s the only way to keep China at bay and American innovators at work.

**Biopharmaceutical innovation is key to prevent future pandemics and bioterror.**

**Marjanovic and Feijao, 20** Sonja Marjanovic (Ph.D., Judge Business School, University of Cambridge) and Carolina Feijao (Ph.D. in biochemistry, University of Cambridge; M.Sc. in quantitative biology, Imperial College London; B.Sc. in biology, University of Lisbon), "How to Best Enable Pharma Innovation Beyond the COVID-19 Crisis," RAND Corporation (05-2020), <https://www.rand.org/pubs/perspectives/PEA407-1.html>.

As key actors in the healthcare innovation landscape, pharmaceutical and life sciences companies have been called on to develop medicines, vaccines and diagnostics for pressing public health challenges. The COVID-19 crisis is one such challenge, but there are many others. For example, MERS, SARS, Ebola, Zika and avian and swine flu are also infectious diseases that represent public health threats. **Infectious agents such as anthrax, smallpox and tularemia could present threats in a bioterrorism context**.1 The general threat to public health that is posed by antimicrobial resistance is also well-recognised as an area in need of pharmaceutical innovation. Innovating in response to these challenges does not always align well with pharmaceutical industry commercial models, shareholder expectations and competition within the industry. However, **the expertise, networks and infrastructure that industry has within its reach, as well as public expectations and the moral imperative, make pharmaceutical companies and the wider life sciences sector an indispensable partner** in the search for solutions that save lives. This perspective argues for the need to establish more sustainable and scalable ways of incentivising pharmaceutical innovation in response to infectious disease threats to public health. It considers both past and current examples of efforts to mobilise pharmaceutical innovation in high commercial risk areas, including in the context of current efforts to respond to the COVID-19 pandemic. In global pandemic crises like COVID-19, the urgency and scale of the crisis – as well as the spotlight placed on pharmaceutical companies – mean that contributing to the search for effective medicines, vaccines or diagnostics is essential for socially responsible companies in the sector. 2 It is therefore unsurprising that **we are seeing industry-wide efforts unfold at unprecedented scale and pace.** Whereas there is always scope for more activity, industry is currently contributing in a variety of ways. Examples include pharmaceutical companies donating existing compounds to assess their utility in the fight against COVID19; screening existing compound libraries in-house or with partners to see if they can be repurposed; accelerating trials for potentially effective medicine or vaccine candidates; and in some cases **rapidly accelerating in-house research and development** to discover new treatments or vaccine agents and develop diagnostics tests.3,4 Pharmaceutical companies are collaborating with each other in some of these efforts and participating in global R&D partnerships (such as the Innovative Medicines Initiative effort to accelerate the development of potential therapies for COVID-19) and supporting national efforts to expand diagnosis and testing capacity and ensure affordable and ready access to potential solutions.3,5,6 The primary purpose of such innovation is to benefit patients and wider population health. Although there are also reputational benefits from involvement that can be realised across the industry, there are likely to be relatively few companies that are ‘commercial’ winners. Those who might gain substantial revenues will be under pressure not to be seen as profiting from the pandemic. In the United Kingdom for example, GSK has stated that it does not expect to profit from its COVID-19 related activities and that any gains will be invested in supporting research and long-term pandemic preparedness, as well as in developing products that would be affordable in the world’s poorest countries.7 Similarly, in the United States AbbVie has waived intellectual property rights for an existing combination product that is being tested for therapeutic potential against COVID-19, which would support affordability and allow for a supply of generics.8,9 Johnson & Johnson has stated that its potential vaccine – which is expected to begin trials – will be available on a not-for-profit basis during the pandemic.10 Pharma is mobilising substantial efforts to rise to the COVID-19 challenge at hand. However, we need to consider how pharmaceutical innovation for responding to emerging infectious diseases can best be enabled beyond the current crisis. **Many public health threats (including those associated with other infectious diseases, bioterrorism agents and antimicrobial resistance) are urgently in need of pharmaceutical innovation**, even if their impacts are not as visible to society as COVID-19 is in the immediate term. **The pharmaceutical industry has responded to previous public health emergencies associated with infectious disease in recent times – for example those associated with Ebola and Zika** outbreaks.11 However, it has done so to a lesser scale than for COVID-19 and with contributions from fewer companies. Similarly, levels of activity in response to the threat of antimicrobial resistance are still low.12 There are important policy questions as to whether – and how – industry could engage with such public health threats to an even greater extent under improved innovation conditions.

**Bioterror causes extinction.**

**Millett and Snyder-Beattie, 17** Piers Millett (Ph.D., Senior Research Fellow, Future of Humanity Institute, University of Oxford) and Andrew Snyder-Beattie (M.S., Director of Research, Future of Humanity Institute, University of Oxford), "Existential Risk and Cost-Effective Biosecurity," Health Security, 15 4 (08-01-2017), <https://www.liebertpub.com/doi/full/10.1089/hs.2017.0028>.

#### In the decades to come, **advanced bioweapons could threaten human existence**. Although the probability of human extinction from bioweapons may be low, the expected value of reducing the risk could still be large, since such **risks jeopardize the existence of all future generations**. We provide an overview of biotechnological extinction risk, make some rough initial estimates for how severe the risks might be, and compare the cost-effectiveness of reducing these extinction-level risks with existing biosecurity work. We find that reducing human extinction risk can be more cost-effective than reducing smaller-scale risks, even when using conservative estimates. This suggests that the risks are not low enough to ignore and that more ought to be done to prevent the worst-case scenarios. How worthwhile is it spending resources to study and mitigate the chance of human extinction from biological risks? The risks of such a catastrophe are presumably low, so a skeptic might argue that addressing such risks would be a waste of scarce resources. In this article, we investigate this position using a cost-effectiveness approach and ultimately conclude that the expected value of reducing these risks is large, especially since such risks jeopardize the existence of all future human lives. **Historically, disease events have been responsible for the greatest death tolls** **on humanity**. The 1918 flu was responsible for more than 50 million deaths,1 while smallpox killed perhaps 10 times that many in the 20th century alone.2 **The Black Death was responsible for killing over 25% of the European population**,3 while other pandemics, such as the plague of Justinian, are thought to have killed 25 million in the 6th century—constituting over 10% of the world's population at the time.4 It is an open question whether **a future pandemic could result in outright human extinction or the irreversible collapse of civilization**. A skeptic would have many good reasons to think that existential risk from disease is unlikely. Such a disease would need to spread worldwide to remote populations, overcome rare genetic resistances, and evade detection, cures, and countermeasures. Even evolution itself may work in humanity's favor: Virulence and transmission is often a trade-off, and so evolutionary pressures could push against maximally lethal wild-type pathogens.5,6 While these arguments point to a very small risk of human extinction, they do not rule the possibility out entirely. A**lthough rare, there are recorded instances of species going extinct due to disease—primarily in amphibians, but also in 1 mammalian species of rat on Christmas Island.7,8 There are also historical examples of large human populations being almost entirely wiped out by disease, especially when multiple diseases were simultaneously introduced into a population without immunity. The most striking examples of total population collapse include native American tribes exposed to European diseases**, such as the Massachusett (86% loss of population), Quiripi-Unquachog (95% loss of population), and the Western Abenaki (which suffered a staggering 98% loss of population).9 In the modern context, no single disease currently exists that combines the worst-case levels of transmissibility, lethality, resistance to countermeasures, and global reach. But **many diseases are proof of principle that each worst-case attribute can be realized independently. For example, some diseases exhibit nearly a 100% case fatality ratio in the absence of treatment**, such as rabies or septicemic plague. Other diseases have a track record of spreading to virtually every human community worldwide, such as the 1918 flu,10 and seroprevalence studies indicate that other pathogens, such as chickenpox and HSV-1, can successfully reach over 95% of a population.11,12 Under optimal virulence theory, natural evolution would be an unlikely source for pathogens with the highest possible levels of transmissibility, virulence, and global reach. But **advances in biotechnology might allow the creation of diseases that combine such traits. Recent controversy has already emerged over a number of scientific experiments that resulted in viruses with enhanced transmissibility, lethality, and/or the ability to overcome therapeutics**.13-17 Other experiments demonstrated that mousepox could be modified to have a 100% case fatality rate and render a vaccine ineffective.18 In addition to transmissibility and lethality, studies have shown that other disease traits, such as incubation time, environmental survival, and available vectors, could be modified as well.19-21 Although these experiments had scientific merit and were not conducted with malicious intent, their implications are still worrying. **This is especially true given that there is also a long historical track record of state-run bioweapon research applying cutting-edge science and technology to design agents not previously seen in nature**.