Twitter Thread by waittwoweeks

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Allo allo allo what have we here?

1/

Going to the Source to Prevent Viral Disease Outbreaks

OUTREACH@DARPA.MIL
1/4/2018

@jhas5 @rubic3n @BillyBostickson

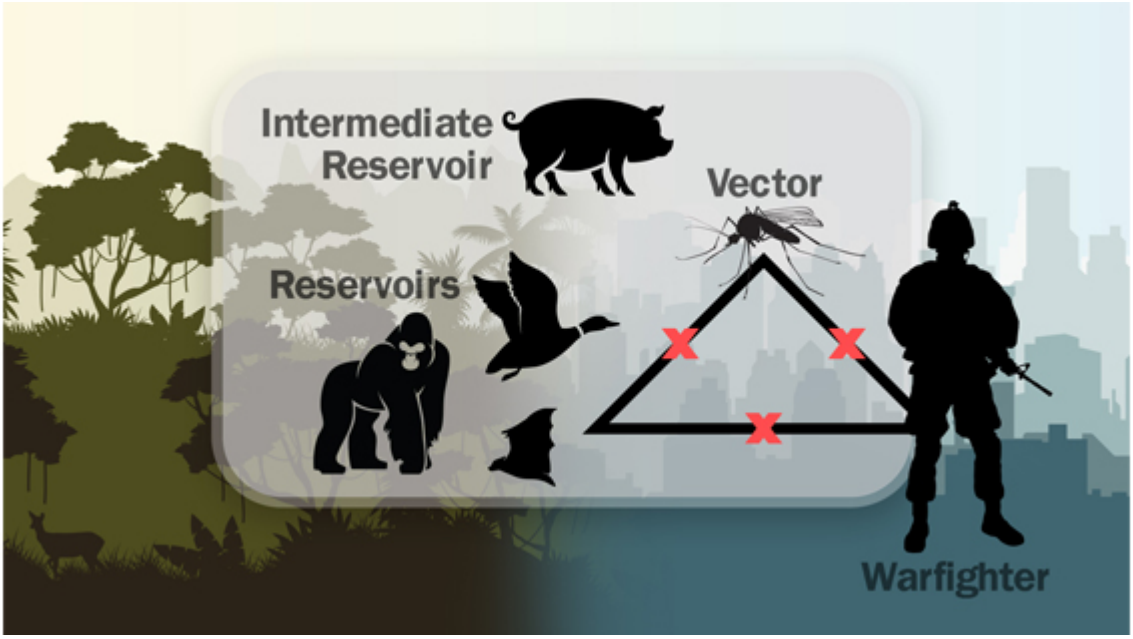
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"When you consider the VIDs that emerged and reemerged around the world in 2017, what many of them have in common is that they originated in animals and spilled over into humans after a series of mutations that enable the pathogens to jump species."

https://t.co/pnu2HUi9ak

3/

PREEMPT aims to advance understanding of viruses and their interaction with animals, insects, and humans, and deliver new, proactive interventions to reduce the risk from emerging and reemerging pathogens.



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“DARPA wants to reorient preparedness efforts to make them more proactive, so that instead of only modeling the trajectory of an epidemic as it spreads from H2H, we contain and suppress diseases in the animal species in which they originate before they can jump into people.”

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PREEMPT will have 2 technical thrusts: development of multiscale models and test beds to quantify the imminent emergence and reemergence of human pathogens; and development of new, scalable approaches to preventing pathogen spillover and transmission from animals and vectors



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PREEMPT will have two technical thrusts: development of multiscale models and test beds to quantify the imminent emergence and reemergence of human pathogens; and development of new, scalable approaches to preventing pathogen spillover and transmission from animals and vectors into humans.

Understanding how viruses evolve within a species will be a core area of research. That evolutionary process contains natural bottlenecks that could be exploited to impede dangerous mutations. PREEMPT will seek to identify these opportunities for intervention by modeling the factors that enable species jump. Researchers on the program will be required to conduct field surveillance of animal and insect species in high-risk areas around the world; generate data in lab testing and sequence viruses as they evolve; analyze the jump risk by weighing factors such as past known jump events, ecology, seasonal variants, and geospatial data; and, finally, validate models using simulated natural environments.

New proactive interventions will center on methods for disarming a virus before it can make a jump across species. PREEMPT aims to prevent transmission of virus from a reservoir species direct to humans, from a reservoir species to traditional vectors, such as mosquitos, that spread disease, and from a reservoir species to a species intermediate to humans—for example, from bats to pigs.

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"The Human Immunity Project - and YOU!" @uacjess



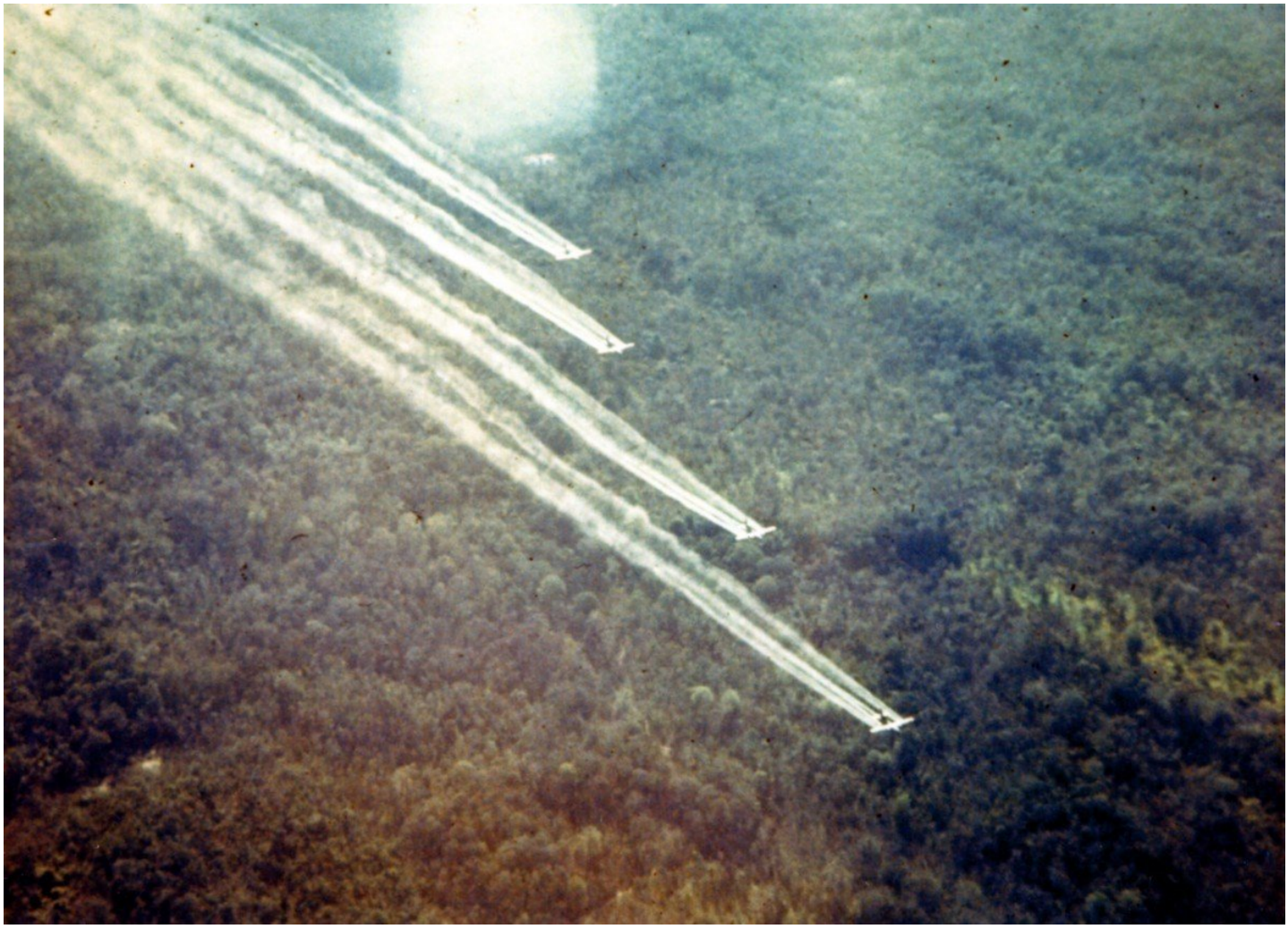
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For instance, if a single mutation is identified by models as high risk, an intervention might seek to prevent its entry into a new species by removing that specific mutation from the reservoir.



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Alternatively, if multiple potential threats are identified, an intervention could involve treating the entire animal reservoir to reduce viral load using tools such as anti-virals, vaccines, and interfering particles



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*When a SARSBAT pisses in your mouth but PREEMPT already vaccinated every single small mammal in the entire world



13/

The Boys about to Win the War on Nature



14/

By the end of the program, DARPA seeks to demonstrate in controlled laboratory conditions the suppression of viral jump to a new species.



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“If we are able to predict how viruses might mutate and spread, and take steps to prevent those mutations from impacting humans, then we’ll vastly diminish the possibility of future viral pandemics,” said Gimlett.



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https://t.co/H1pfRs9dvu

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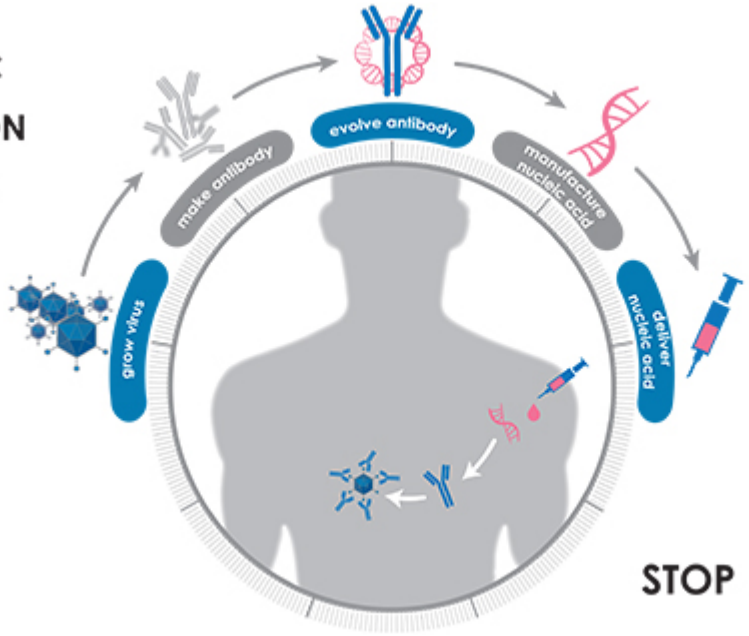
Although PREEMPT is a fundamental research program, DARPA is aware of biosafety and biosecurity sensitivities that could arise.

The agency will work with external bioethics advisors to ensure efforts funded by the program adhere to regulations and ethical best practices.



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PANDEMIC PREVENTION PLATFORM (P3)



60 DAYS TO STOP A PANDEMIC