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## The threat of zoonotic diseases and Ebola virus disease specifically

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Public health systems are not always prepared for outbreaks of infectious diseases. Although in the past several public health institutes, like the French 'Institut Pasteur' and the Dutch 'Tropeninstituut', were prominent surveyors of infectious diseases, the investments in worldwide public health has decreased. Now more attention is given to curative healthcare compared to preventive healthcare. The recent Ebola virus disease outbreak in West Africa initiated a new wave of interest to invest in worldwide public health to prevent outbreaks of highly contagious diseases. Zoonotic diseases are threatening as the population does not have natural nor artificial (from vaccination) immune response to new diseases like in the Ebola virus disease outbreak in 2014. The new strain of the Ebola virus in West Africa was slightly less lethal, compared to other Ebola virus strains, but the threat of spreading was far bigger as it had a longer incubation time. Most public health systems are not trained well enough to mitigate highly infectious and deadly disease outbreaks. NGO's helping to fight the outbreak are often better trained in curative treatments and have less experience with biological (bioweapon) threats for which the military are trained for. The UNMEER mission was unique in this. It was a setting in which military and civilian actors cooperate in fighting a biological threat. Protection is essential for health workers. Smart systems have to be developed to prevent further spreading of the disease, but it is not only the biosafety, which has to be considered, but also the biosecurity, as misuse of extremely dangerous strains of microorganisms cannot be excluded. Several zoonotic infectious diseases, like anthrax, smallpox and hemorrhagic fevers are listed as potential bioweapons. Therefore both biosafety and biosecurity have to be implemented in all measures to fight outbreaks of highly infectious diseases.

### Biography

Stef Stienstra works internationally for several medical and biotech companies as Scientific Advisory Board Member and is also an active Reserve-Officer of the Royal Dutch Navy in his rank as Commander (OF4). For the Dutch Armed Forces, he is CBRNe specialist with focus on (micro) biological and chemical threats and medical and environmental functional specialist within the 1st CMI (Civil Military Interaction) Battalion of the Dutch Armed Forces. For Expertise France, he is now managing an EU CBRN CoE public health project in West Africa. He is visiting Professor at the University of Rome Tor Vergata giving lectures for the CBRN Master study. In his civilian position, at this moment, he is developing with MT-Derm in Berlin (Germany) a novel interdermal vaccination technology as well as a new therapy for cutaneous leishmaniasis for which he has won a Canadian 'Grand Challenge' grant. With Hemanua in Dublin (Ireland) he has developed an innovative blood separation unit, which is also suitable to produce convalescent plasma for Ebola virus disease therapy. He has finished both his studies in Medicine and in Biochemistry in The Netherlands with a Doctorate and has extensive practical experience in cell biology, immuno-hematology, infectious diseases, biodefense and transfusion medicine. His natural business acumen and negotiation competence helps to initiate new successful businesses, often generated from unexpected combinations of technologies.

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