

10th Euro-Global Conference on **Infectious Diseases**
&
5th International Conference on **Histopathology & Cytopathology**

September 27-29, 2018 Rome, Italy



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Zoonotic diseases threat needs sharing of information and new diagnostic systems in less developed countries

Sharing public health threat information is a necessity for governments to prevent outbreaks of infectious diseases. Zoonotic diseases are the most dangerous for outbreaks running out of control, as the population does not have natural nor artificial (from vaccination) immune response to new emerging diseases. The recent Ebola Virus Disease outbreak in West Africa was such an example. New diagnostic methods, which can be performed in developing countries lacking critical infrastructure have to be developed to have an early response on (potential) outbreaks. It must be high tech with high reliability, which can be used in rural areas without proper infrastructure. The mitigation of highly infectious and deadly disease pandemics have to be recognized at the source. Sophisticated diagnostic equipment and good calibration, maintenance and interpretation of the results is essential. To identify pathogens at molecular level new technologies are under development. In developing countries military and civilian actors cooperate fruitfully in fighting potential biological threats. In this civil-military cooperation 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, small pox and also the hemorrhagic fevers like Ebola Virus Disease are listed as potential bioweapons. With this extra threat in mind, both biosafety and biosecurity have to be implemented in all mobile or fixed clinical laboratories. An information/computer network with a cloud in which essential information can be traced, helps in early detection of outbreaks of 'new', mostly zoonotic, infectious diseases. The same technology helps in the forensic aspects in case of a bioterror attack.

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 he is at this moment 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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