

Interactive video game highlights the impact of vaccine decision making

An interactive video game brings to life the spread of viruses and the impact of vaccine decision making in a wholly original way. This interdisciplinary and policy-relevant work, led by a York U PhD student, is designed to spark the public imagination.

To the public, diseases like Ebola seem to emerge from the shadows and then disappear just as mysteriously. Viruses, vaccines and even epidemiologists (who study the spread of disease) are all invisible actors. Often only health officials take the spotlight at the height of an epidemic.

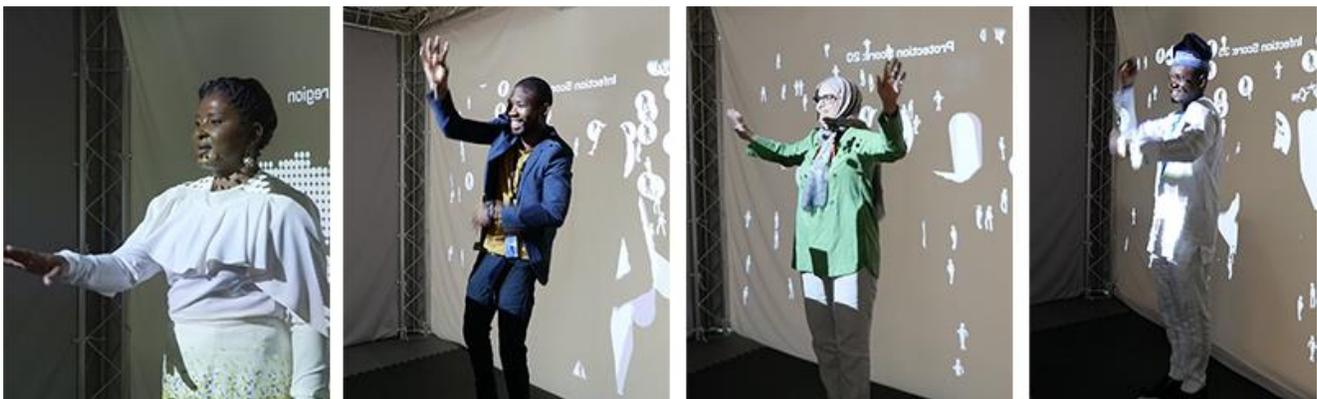
One truly innovative and interdisciplinary project, funded by the Social Sciences and Humanities Research Council (SSHRC) and the Canadian Institutes of Health Research (CIHR), seeks to bring public health into the public eye. *Shadowpox: The Antibody Politic* is a video game (and an art installation) that imagines a deadly new pathogen made of shadows. The game uses live-animated digital effects to projection map viral “shadowpox” onto the players’ bodies.

In this interactive scenario, participants choose to “Get the Vaccine” or “Risk the Virus,” then watch the results of their decision: how many people around them they protect or infect as they fight the disease. At its core, *Shadowpox* is about making visible the invisible consequences of our choices, and revealing the

constructive role that art can play in global political discourse around life-saving vaccines.

“The game is one incarnation of a participatory storyworld with a larger purpose: to expand our civic imagination,” says *Shadowpox* creator Alison Humphrey, a Cinema and Media Arts PhD student and Vanier Canada Graduate Scholar. “It uses ‘co-immunity’ as a metaphor for the power we each have to make choices that will have a destructive or constructive effect on the people and the world around us,” she adds.

To build this bridge between science and fiction, Humphrey collaborated with Professor Caitlin Fisher in the School of the Arts, Media, Performance & Design, whose new Immersive Storytelling Lab won a major Canada Foundation for Innovation award; Professor Steven J. Hoffman of the Faculty of Health and Osgoode Hall Law School, Director of the Global Strategy Lab, and Scientific Director of the Canadian Institutes of Health Research’s Institute of Population & Public Health; and technical director LaLaine Ulit-Destajo, a recent Digital Media alumna.



Shadowpox players at the opening, UNAIDS, May 2017. First image: Monica Geingos, First Lady of Namibia.

By Megan Mueller, senior manager, research communications, Office of the Vice-President Research & Innovation, York University, muellerm@yorku.ca

Game emphasizes voluntary participation for the collective good

Shadowpox illustrates what health researchers call “community immunity,” the level of vaccination at which a disease can no longer find enough unprotected hosts to spread through a population – for polio, this level is 80 to 85 per cent; for measles, it is as high as 95 per cent. Community immunity helps to protect people who cannot get vaccinated, including babies and those with compromised immune systems. Since participation is voluntary, and people are vulnerable to fear and misinformation, vaccination is one of the most complex political dilemmas facing public health.

Hoffman emphasizes that *Shadowpox* gives participants the chance to play out the invisible consequences of choices made daily by millions of people around the world. “The game balances qualitative fun with a quantitative statistical model, developed with the Global Strategy Lab’s Susan Rogers Van Katwyk, based on real-world statistics for vaccination, health spending, education, and wealth in 193 countries,” he explains.



LaLaine Ulit-Destajo infects the lab with *Shadowpox* sprites. Sprite is a computer graphics term for a two-dimensional bitmap that is integrated into a larger scene.

The player’s final score transforms into an “Infection Collection” or “Protection Collection” of virtual trading cards written by Fisher (see shadowpox.org/ZZZ), bringing to life the 99 neighbours who can be touched by a single vaccine decision.

Exhibition premiered in Switzerland, reviewed well in *The Lancet*

Humphrey and Ulit-Destajo play-tested the *Shadowpox* story and digital effects in 2016 at a workshop at the Royal Academy of Dramatic Art in London, and *The Art and Science of Immunization* symposium at the University of Toronto. *Shadowpox: The Antibody Politic* then premiered in the 2017 exhibition <Immune Nations> in Trondheim, Norway, which moved to Geneva, Switzerland, for the 70th World Health Assembly. (Additional funds were provided by the Research Council of Norway.)

<Immune Nations> is an ambitious, multi-year collaboration between artists, scientists and policy-makers, described by curator Natalie Loveless as the first of its kind to “specifically address the issue of vaccines from a collaborative, interdisciplinary perspective, attentive to the arts and its many roles for advocacy and political intervention.”

<Immune Nations>, and *Shadowpox* in particular, received an enthusiastic review in the highly regarded medical journal *The Lancet*, which called the latter “undoubtedly one of the most powerful and playful ways to illustrate both the individual and population-level implications of community immunity.”

Shadowpox will continue to evolve and transform over 2019

Shadowpox: The Antibody Politic had its Canadian premiere at the Robert McLaughlin Gallery in Oshawa from September 2018 to January 2019, where the show *Public Notice* explored how contagious disease throughout history, from the Black Plague to Ebola, has fuelled fear and xenophobia. The show marks the centenary of the 1918-1919 “Spanish” Flu pandemic, whose sweep across the globe killed more people than the First World War.



Steven J. Hoffman, Alison Humphrey and Caitlin Fisher in front of the tent for Shadowpox in Geneva

The next incarnation of Humphrey's doctoral research, *Shadowpox: A Spark in the Firewall*, is a participatory storyworld co-created with young people in Africa, Europe, Asia and North America in 2019. In this science-fiction scenario, young, healthy volunteers test a breakthrough vaccine at the height of a global pandemic. But their commitment to joining the network of co-immunity is itself tested by a battery of modern anxieties and ancient fears, sparking emergent drama from the tensions between feeling and thinking, individual and community, participation and resistance, vigilance and trust.

To learn more, visit shadowpox.org; or see alisonhumphrey.com to explore the evolution of the videogame from York's [Immersive Storytelling Lab and Alice Lab for Computational Worldmaking](#), to [players](#) in action at [<Immune Nations>](#) in [Trondheim](#) and [Geneva](#), to reviews in [The Lancet and Canadian Art](#), and a feature in [UNAIDS Magazine](#).

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