

# THREAT AND RESPONSE

Long-standing concerns about research with potential risks erupted into full-blown controversy late last year. The National Science Advisory Board for Biosecurity (NSABB) has been a central player throughout.

**2001** Australian researchers inadvertently create a highly pathogenic mousepox virus, prompting alarm that the technique could be used to weaponize smallpox.



**2001** Anthrax attacks in the United States show the reality of a bioterror act using sophisticated microbiology.

2001

2002



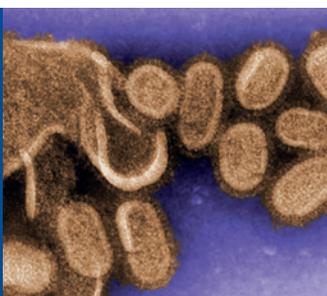
**2003** A highly pathogenic form of H5N1 avian influenza begins to circulate. Several people are infected and as many as half the confirmed cases die from it.

**2003** The National Academies publishes the 'Fink' report (*Biotechnology Research in an Age of Terrorism*) which calls for the creation of the NSABB.

2002

2004

**2005** The NSABB reviews two papers reconstructing the 1918 Spanish influenza virus genome. It recommends full publication of both.



**2006** A blue-ribbon panel publishes a report prioritizing research into H5N1, which leads to funding of controversial work by Ron Fouchier and Yoshihiro Kawaoka.

**2007** The NSABB publishes guidelines entitled *Proposed Framework for the Oversight of Dual Use Life Sciences Research*.

**2005**  
The NSABB is sworn in.

2005

2006

2007



Controversy on mutant avian flu begins

**12 September** Ron Fouchier (pictured) announces that he has created a mammalian-transmissible form of H5N1.

**21 November** The NSABB recommends that papers by Fouchier and Kawaoka be redacted: only certain researchers would gain access to full materials and methods.

**20 January** Fouchier, Kawaoka and 37 other flu researchers agree to a 60-day moratorium on research with the mutant strains.

**17 February** Experts convened by the World Health Organization conclude that the research should be published in full.

**30 March** After a two-day meeting, the NSABB recommends full publication of both papers, but the decision is not unanimous.

**2 May** Kawaoka's paper is published.

2011

2012

P. SCHNEIDER, THE CHARLOTTE OBSERVER/AP; GETTY IMAGES; T. TUMPEY/CDC; D.-J. VISSER/THE NEW YORK TIMES/REDUX/EYEVINE