Scientists cannot create data out of thin air every time there is an outbreak.

In pursuit of the smoking pig

The hunt for the smoking pig

Interest in the pandemic waned after cases fell during 2010. But the question of the virus’s origins remained a topic of discussion among a small group of pathogen hunters and evolutionary biologists who met informally in Leuven, Belgium, a small Flemish city renowned for its beer, chocolate, and one of Europe’s leading universities. In a building marked for demolition, we sketched out on a whiteboard possible scenarios for the pandemic’s origins, each of which seemed far-fetched. Could “patient zero” be a Chinese hog farmer who flew to Mexico? Exactly how many people from China’s swine-farming regions fly to Mexico each day? Or did an infected Asian pig make its way to Mexico some time before the pandemic? Did pigs ever fly from China to Mexico? No one knew.

One silver lining of the 2009 H1N1 pandemic was an increase in funding for research and surveillance of influenza viruses in pigs on a global scale, allowing myself and other scientists to dig deeper into the many unknowns about influenza in pigs. During the pandemic, the US Department of Agriculture (USDA) established routine surveillance and genomic sequencing of flu viruses collected in US herds. The UK Animal and Plant Health Agency established a research consortium to characterize virus diversity in European swine herds. Numerous research groups published their countries’ first surveillance reports for influenza in swine, even in Brazil and Australia where the herds were considered influenza-naïve. It turned out that anywhere there were pigs, there was flu. Swine veterinarians in many countries suddenly became interested in teaming up with me and my collaborators to figure out the genetic makeup of these newly discovered viruses and to develop custom vaccines.

Some of the flu viruses identified by these efforts were genetically similar to the Eurasian viruses found in Europe or the triple- reassortant and classical virus lineages circulating in the US, indicating that the viruses had traveled from centers of swine production in Europe and the US to other countries that regularly imported their live swine. Transporting live pigs across oceans is expensive and cumbersome, but many countries were rapidly