ISSN 1466-2523

Animal Health Research Reviews **12**(2); 131–132
doi:10.1017/S1466252311000168

Opinion: lessons learned from the eradication of rinderpest

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First published online 28 November 2011

People often say that you should learn all that you can from the experiences of others. Some believe that this applies to institutions too. In 1980, the global eradication of smallpox was proof that the conquest of a disease was not just mere happenstance. With determination, funding and the right approach, a disease could be eradicated. In June, two intergovernmental organizations declared global freedom from rinderpest (or cattle plague), a contagious viral disease.

The importance of this victory is all the more remarkable because eradicating a disease is extremely difficult. For instance, smallpox eradication took 11 years of intensive efforts; eradication of rinderpest took almost 17 years. Not all initiatives are successful. Malaria eradication in the 1950s failed spectacularly and the efforts to eradicate polio, initiated in 1988, have proved arduous. Recognition of these timeframes is important when designing eradication campaigns for diseases.

One of the central pillars of eradication is a reliable vaccine. The modern eradication campaign against rinderpest became feasible only as vaccines improved. Thanks to the development of a heat-stable vaccine in the 1950s and further advancements in application technologies – in parallel to effective control and immunization programs – huge steps toward eradication were made. Adaptation plays a role too, as massive vaccination campaigns are more practicable when no refrigeration is required.

There are, however, notable differences in vaccine-based eradication campaigns for animals and humans. The rinderpest campaign had a salient feature that made it easier when compared with the smallpox campaign: when it came down to vaccination time, cattle did not have a choice whereas human beings did. This stresses the importance of raising public awareness not only of noxious diseases affecting living species but also about prevention and control measures.

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The eradication of rinderpest could effectively be attained with a single, low-cost injection of a reliable vaccine conferring life-long immunity but, say for foot-and-mouth disease, vaccination must be strain-specific and repeated frequently. It is only recently that an effort to develop a Rift Valley fever vaccine was launched, so there is not much potential for eradicating this disease at present. For African swine fever, no vaccine currently exists to build an eradication campaign.

Funding is pivotal to disease eradication, and selling benefits and costs to donors at early stages helps secure support. For example, a recent study on the control and eventual eradication of rinderpest in Chad between 1963, when international efforts to eradicate rinderpest from sub-Saharan Africa began, and 2002 concluded that for every dollar spent on rinderpest control and eradication the country's cattle industry enjoyed at least $16 dollars in benefits.

Local empowerment goes a long way in accomplishing desired results. With rinderpest, rural herders and community practitioners were given vaccines and encouraged to do their own vaccinating. This initiative was supplemented with education campaigns on best practices, using comic books, flip charts and lecturers who spoke local languages. The eradication of rinderpest demonstrates what can be done when people in communities and the field combine novel tactics with scientific advances.

Embracing practical technologies is crucial too. In fighting rinderpest, the development of a rapid diagnostic test played a key role in confirming cases quickly. A portable diagnostic test that used an eye swab instead of urine was critical. Local veterinary officials have more control of evolving disease situations as they can make better decisions based on evidence. And with international support, reference laboratories around the world provided free diagnostic service for all countries.

Additionally, careful monitoring of cross border trade pays dividends. For instance, in 1920, there was a major rinderpest outbreak in Europe. A ship carrying cattle was sailing from India to Brazil. It stopped in Belgium's

Antwerp harbor for a few days. The infected animals were offloaded and in a matter of days cattle on 300 farms were infected with rinderpest. So testing and surveillance is warranted on large numbers of animals moving through trade.

In the end, rinderpest eradication became possible and successful through a combination of one of the world's most effective vaccines, close international coordination, and the commitment of people at the local, national, regional and international levels. Also, ongoing surveillance, continued training of personnel, and raising public awareness were fundamental. The relentless fight against animal diseases aids in combating poverty in many developing countries – this too is a major lesson learned.

https://doi.org/10.1017/S1466252311000168 Published online by Cambridge University Press