



Mitigating disease spread: Could public health learn from the livestock and poultry sectors?

By: Tim Nelson, President and CEO, Farm Health Guardian

Intensive farming brings challenges and risks with respect to disease management and control. As a result of decades of innovation in the sector, standards for the prevention and containment of contagion have been developed that in many respects put human health to shame. I am sure many colleagues in the livestock and poultry sector have been astonished to see how basic approaches to preventing disease outbreaks among high risk animal populations appear to be absent in the human health care industry and public health.

Here are some basic disease management principles that the livestock and poultry sectors follow in most jurisdictions, but which appeared to be lacking in Covid-19.

1. Biosecurity (or management protocols designed to protect vulnerable populations)

It's been a long time since I visited a pig farm where it was not, at the very least, a requirement to shower in and shower out of the premises. In some cases, shower in and out is also necessary when moving between buildings/areas within those premises. Nowadays this level of biosecurity is increasingly a requirement on poultry farms, as it should be. And as more and more older poultry facilities are replaced and effective human Cleaning & Disinfection (C&D) stations are added, it will soon become standard in the poultry sector as well. Where no shower facilities exist it is generally accepted that there should be a method of safely and 'cleanly' entering the barn area, such as the [Danish entry](#) system. This system is designed to ensure that the contamination from the outside world does not enter into the protected confines of the barn area where **very vulnerable, highly valued populations are housed** and conversely, to ensure that pathogens circulating in the barn area are not carried back out to the outside world.

So, could Public Health learn something about **Biosecurity** from the livestock and poultry sectors? Certainly in some areas it appears that it could. In nearly every jurisdiction throughout the Covid-19 outbreak the mortality in long-term care and nursing homes has been reported as disproportionately high compared with that of the general population. Sweden probably has the worst numbers, but the rest of Europe and the UK are not far behind where it is estimated by the WHO that [50% of all Covid-19 related deaths have occurred in long-term care homes](#). Long-term care homes are where **very vulnerable, highly valued populations are housed**. During the Covid outbreak families were excluded from visiting loved ones in long-term care homes due to the high risk of pathogen transmission. It seems counterintuitive that medical and ancillary staff are not required to shower in and shower out when entering and leaving long term care homes – where often these facilities exist. Or, at the very least be required to enter and exit through a Danish Entry type system wherein all 'outside' clothes and equipment (including smartphones) remain on the 'dirty' side of whatever entry barrier is set up. It actually doesn't take much to implement, and cost should not be the prime consideration where protecting vulnerable populations is concerned.

2. Preparedness?

Despite some who claim otherwise, it appears that no jurisdiction was well prepared for Covid-19. In everyone's defense Covid is a big one. But this is not the first pandemic the global community has had to manage and whilst many jurisdictions claim to have had plans in place to manage pandemics, and once the 'finger pointing' stops, history will decide whether or not Covid-19 was actually managed well.

But what seemed to be missing are agreed upon plans to manage the disease, essential PPE supply and mechanisms to ensure that health workers were well protected. From a complete outsider perspective, it appeared that much of the time jurisdictions were making decisions on the fly, and, with the one available finger, plugging a dyke which in fact turned out to be a sieve. So, could Public Health learn something about **Preparedness** from the livestock and poultry sectors? Canada and many EU jurisdictions such as Denmark, Eire and the Netherlands have very well-established livestock disease management systems as do Australia, New Zealand and Korea. In Canada, Ontario and Alberta particularly, have developed clear plans to deal with outbreaks of infectious poultry diseases. Both have established and adequately resourced Command and Control (C&C) systems and centres which follow strict protocols and have provided training to those responsible for disease management in how C&C systems work.

During Covid-19 (I may have missed it), I can't recall hearing the term Command and Control being used once. And yet a pandemic is exactly the time when knowledgeable, highly trained and empowered C&C experts are needed. All political and internal differences of opinion should be put to one side and all deliberations and decisions on how to handle an outbreak as devastating as Covid-19 should be managed by single, national organizations empowered to make all the management decisions and require implementation of the same. The control of a disease that is spreading throughout a population and across the global human network should not under any circumstances be managed by our habitual approaches to policy making which in a democracy involve consensus building and are slow and high politicized. Nor should it be in the hands of politicians with no idea of what they're talking about. It's essentially war time. Treat it that way. The Ontario and Alberta poultry industries do.

Don't forget about PPE. If jurisdictions were as prepared as some claimed they were, why was there not adequate PPE for essential workers let alone the rest of us? After running many outbreak simulations and determining objectively how much and what type of PPE would be required to protect humans from zoonoses and valuable livestock from inadvertent transmission from infected sites during an outbreak, Ontario established a huge stockpile of PPE. Established in 2012, this PPE stockpile is proactively maintained by the industry at a warehouse close to transport routes ready for fast deployment provincially and even nationally if required. The perishable PPE stock is renewed regularly and inventory is checked annually. During Covid-19 when the dire shortage of PPE became abundantly clear, the PPE was donated to regional public health services. The cost of establishing and maintaining adequate stocks of PPE pales into insignificance against the cost of a disease such as Covid-19.

3. Contact Tracing

The cornerstone of outbreak containment, contact tracing, has become a platform for international posturing. Enter Boris Johnson touting the UK as having “the best system in the world!” Seriously? Read on.

On 13 April at a [WHO Covid-19 media briefing](#) Director-General of WHO Dr. Tedros Adhanom Ghebreyesus made the following (paraphrased) observations:

- We know that early case-finding, testing, isolating caring for every case *and tracing every contact is essential for stopping transmission,*
- Control measures can only be lifted if the right public health measures are in place *including significant capacity for contact tracing,*
- There are many other basic public health measures and health system capacities that need to be put in place to detect, test, isolate and treat every case *and trace every contact,*
- Our global connectedness means the risk of re-introduction and resurgence of the disease will continue.

On 1 May 2020, the headline in the British Medical Journal [BMJOpinion](#) blogpost read “*We urgently need to start Contact Tracing to stop the spread of covid-19.*” The author of the blog Associate Professor of Public Health Nisreen A Alwan goes on to say, “*Extensive contact tracing is something which has been called for repeatedly by many public health experts, and the World Health Organization (WHO) since the start of the epidemic.*” The experts she refers to are 640 highly respected epidemiologists, public health specialists, scientists and healthcare professionals who in early April 2020, wrote an open letter urging the UK government to implement a number of control measures that had already been implemented in other jurisdictions in order to curb the progress of the outbreak. One of these measures was Contact Tracing. She goes on to say “*Tracing contacts of known cases is a fundamental part of all outbreak management, alongside testing, case finding, isolation and quarantine.*” Too little too late Mr. Johnson.

So, could Public Health learn something about **Contact Tracing** from the livestock and poultry sector? We are protecting confined animals, not humans in close proximity to one another. So it’s a little bit different from human health, but there are parallels. The livestock and poultry sectors have continuous (24/7/365) streams of physical contact between humans and animals as vehicles move between properties every day carrying feed, picking up and delivering stock, milk, eggs, chickens, pigs, workers and so forth. One large Canadian organization for example, records over 100,000 visits to and between its properties every 12 months. That’s more than 275 physical contacts per day. We know about contact!

FACT: The livestock and poultry sectors have been practising contact tracing in some form or another for over a decade. Visits to farm properties are recorded voluntarily (mandated in many jurisdictions) and audits are performed to ensure they are being completed according to whatever sector/company rules apply. When an outbreak occurs, starting with the “Index-property” (the first property on which confirmed diagnosis of a disease is made), company or sector reps or in extreme cases officers from the regulatory authority overseeing diseases that fall into high risk categories, collect and collate the visitor records from all properties which have had any physical connection regardless of how far removed, with the Index-property. It’s like peeling the layers off an onion from

the inside. If the records are paper (and they usually are), the job is laborious, the records often inaccurate and regularly illegible. So industry is moving to automated visitor record keeping. Systems already exist which track and trace movement on and off properties in real time and instantly pull these records together.

One such system is Farm Health Guardian, a sophisticated track and trace system that uses cutting edge technology to not only record movement in order to be able to instantly alert everyone who needs to be alerted during an outbreak, but also manages a plethora of property entry criteria, critical to quality (CTQ) parameters for keeping disease out. These CTQ's set by the company or sector or government, barring entry to those who fail to meet the criteria.

The point I'm trying to make here is that the livestock and poultry sectors have been developing and further refining track and trace systems for years. The press has been quick to jump on the rationale for not using cell phone deployed track and trace systems as the fear of 'Big Brother' knowing our every movement. And for some this is a real issue. But if being located by third parties truly concerns you, then you should throw away your cell phone, tablet and laptop computer. You should never use a cash machine, never use your credit card or other bank cards in stores – in fact don't go to stores, definitely don't drive a car and stay away from public events, sporting fixtures, airports and other transit hubs. Because all of these activities are a data feed.....on you.

It is possible to remain 'out of sight' but getting harder all the time. However, if you object to 'being seen' in order to keep vulnerable populations safe, whether human or livestock and poultry, perhaps it's time to rethink your priorities or change professions.

So, back to my original question, could Public Health learn anything about managing disease from the Livestock and Poultry sectors? I will leave you to think about this and to draw your own conclusions. I have tried to provide some obvious examples to stimulate your thinking about the similarities and I'm sure if you are reading this, you are in a position to think of many more. Finally, the question I posed in my first article was what could the livestock and poultry industries learn from Covid-19? I believe the answer to that question and the question in this article is that **we could learn a lot from each other in relation to disease management** and its imperative as we huddle in the shadow of Covid-19, that we start now. If you are not convinced as to why it's important that we work together on this, then think about this. According to the US [Centre for Disease Control](#) (CDC) *"Scientists estimate that more than 6 out of every 10 known infectious diseases in people can be spread from animals, and 3 out of every 4 new or emerging infectious diseases in people come from animals."* And please, don't try to infer from the CDC statement, because I'm a livestock guy, that the animals responsible for these statistics are farmed livestock and poultry in modern farming systems. Because nothing could be further from the truth.

In summary: Neither public health nor livestock and poultry industries manage disease perfectly. It's not a perfect world and our best endeavours can be undone in an instant when we face crises as big as the 2001 outbreak of Foot & Mouth Disease in the UK or the 2020 world outbreak of Covid-19. Our future relies on our recognizing that animals and humans are inextricably linked and totally dependent on each other. We have to learn to nurture the human health industry /livestock health industry relationship, learn from each other and act accordingly to protect each other for our mutual benefit.