

OAHN – Collaboration and Challenges in Disease Surveillance in Ontario



Who is involved:

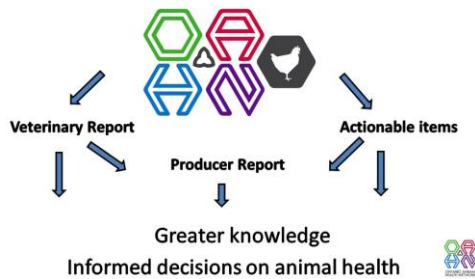
Veterinary practitioner	OMAFRA Co-lead	Veterinary practitioner or industry co-lead
AHL species pathologist		OVC species specialist
Veterinary practitioner	Animal Health Network Coordinator	OMAFRA Provincial epidemiologist



Plan for Collaboration:

1. Survey distributed
2. Lab data compiled
3. MEETING/CALL
4. Reports generated quarterly

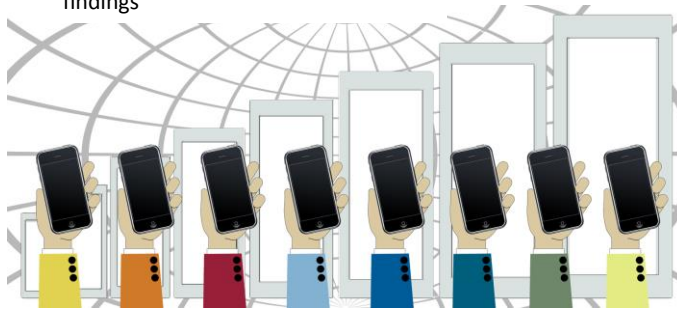
**Survey + Condemnation Data + Lab Data
+ Updates + Research**



Collaboration in Action

OAHN Swine network:

- **Disease Trend Identification:**
 - Erysipelas identified to be increasing in observation frequency during consecutive quarters from 2017 into 2018
- **Network Call:** To review and discuss findings





Collaboration in Action

Taking Action:

- **OAHN producer/industry and veterinary reports created** – emphasis on prevention, detection and treatment
- **Producer reports shared** via listservs
- **Network project developed to:**
 - 1) Confirm presence of Erysipelas in carcasses condemned at abattoirs in Ontario
 - 2) Characterize the isolates through whole genome sequencing



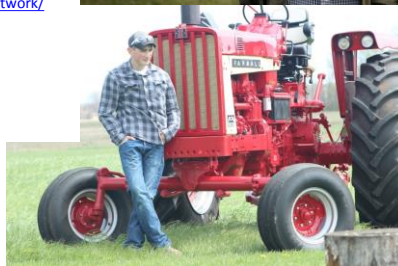
Throughout the Process:

Collaboration between OAHN swine network members, private practicing veterinarians, pork producers, Ontario Pork, Swine Health Ontario, Ontario Pork Industry Council, provincial abattoirs, federal abattoirs, pathologists, bacteriologists



Challenges along the way





Challenge 1: Relevance and Information Sharing

- Podcasts <https://oahn.ca/?s=podcast>
- Facebook posts <https://www.facebook.com/OntarioAnimalHealthNetwork/>
- Twitter posts <https://twitter.com/OntAnHealthNet>
- Infographics
- Projects



Powerful Products of Collaboration

Common Myths About Aquaculture

Avian Influenza

Anti-Parasitics for Dogs and Cats (Canada, 2018)

Brush Up on Managing Lepto Patients

ASF Prevention - Simple Steps

OAHN Companion Animal Network:

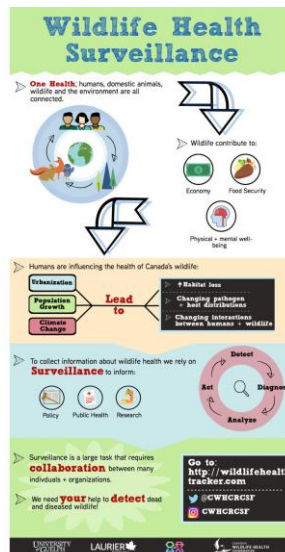
- Produced several successful infographics
- High uptake on social media – recent FB posts on influenza have strong public interest
- Reach to 28800 people, 2900 clicks/comments, 412 shares – 3700 hits on OAHN Canine Influenza page



Project Collaboration – Citizen Reporting

OAHN Wildlife network: *The Wildlife Tracker*

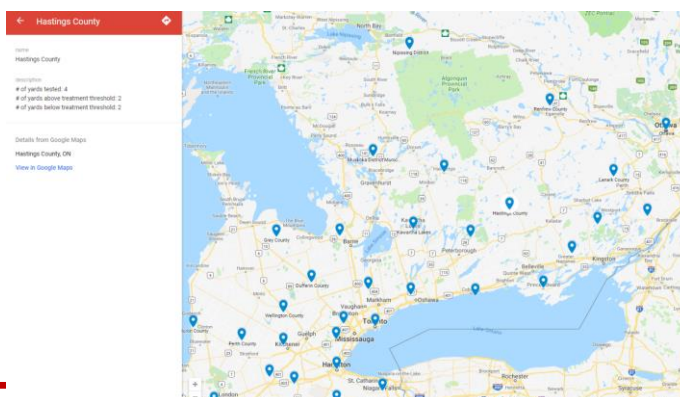
- **Planning session** at OAHN general meeting identified niche for augmentation of wildlife disease observation
- **Idea:** Involve the public
- **OAHN project:** proposed by OVC network member Claire Jardine
- **Website creation:** Mark Reist, MPH student at OVC, with CWHC, developed website to enable citizen reporting of dead/diseased wildlife



Collaboration Success – Disease Mapping

OAHN Bee network – tiny livestock!

- Mapping is a valuable tool for monitoring spread of pathogens
- **Varroa mite workshops organized** for public demonstrating testing methods, treatment
- **Producers tested hives**, submitted results
- **Map produced** of these results to monitor spread of pathogen





Challenge 2: Group Diversity



Integrating collaborators from multiple sectors:

- Veterinarians, Industry, Government



Creating multiple endpoint products



Collaboration to Provide Training

OAHN Small Ruminant network:

- **Recognized deficit** in training in appropriate on farm euthanasia methods using a captive bolt gun
- **Petitioned OAHN** to support Ontario Goat and OSMA in funding a hands-on training session for producers
- **6 courses held**, and 122 producers trained
- Course provided additional education on culling decisions, timing, and welfare concerns
- **Opened up broader discussion** and consideration of welfare and condemnation at slaughter





Building Trust Between Contributors

OAHN Aquatic Animal Network:

- Building productive relationships between industry, regulated parties, and regulators in disease surveillance can be challenging
- MNR, OMAFRA, and CFIA collaborated through OAHN to develop an agreement regarding roles and responsibilities when reportable aquatic diseases are identified
- Significant as farmed and wild fish often in mixed populations



Challenge 3: Maintaining Momentum

OAHN Bovine Network:

- Chronic diseases, few dramatic outbreaks
- Need observed for clarity in sample submissions to AHL
- Hope for improved diagnostic detail and results to veterinarians
- Ultimately improved diagnostic data for producers
- Templates developed with vets and AHL members of network to guide practitioners through appropriate sample collection for specific disease work up (ie abortion, pneumonia)



HISTOLOGY SAMPLES (FORMALIN)

Placenta	Heart	Adrenal
Placenta	Thyroid	Abomasum
Eyeball	Thymus	Small Intestine
Heart	Lung	Spiral Colon
Liver	Lung	Skeletal Muscle
Spleen	Kidney	Brain

BOVINE POSTMORTEM – ABORTION

- Samples:**
- Screw top formalin jar (large)
 - Whirlpool bags (one per tissue type)
 - Sterile screw top tubes for fluids
 - Sharps marker to label
- Important history to include:** age, commodity, treatments given, differential, history seen on PM
- Contact a pathologist:** 519-824-4229 x 54530
Get post-mortem samples: 519-824-4229 x 54530
 ahn.uptm@ontarioah.net
 Send to photos: ahnl@ontarioah.net

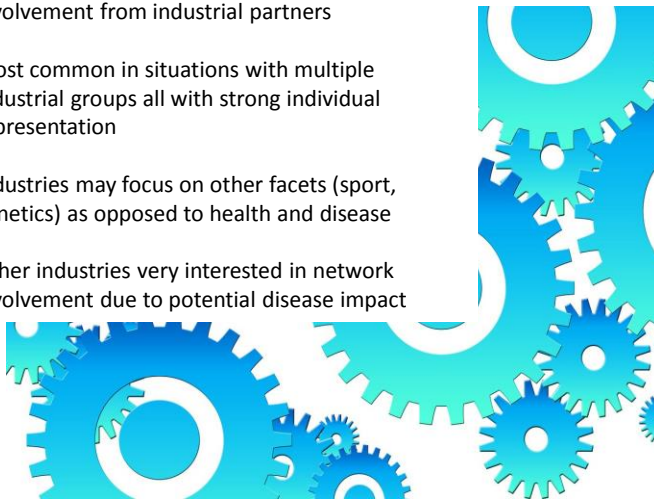
MICROBIOLOGY (FRESH TISSUE)

Placenta Bacteriology	Stomach Content Bacteriology	Lung Bacteriology
Placenta	Liver	Stomach Content
Placenta	Liver	Stomach Content
Lung	Thoracic Fluid	Stomach Content



Challenge 4: Industry Involvement

- Some networks struggle to encourage involvement from industrial partners
- Most common in situations with multiple industrial groups all with strong individual representation
- Industries may focus on other facets (sport, genetics) as opposed to health and disease
- Other industries very interested in network involvement due to potential disease impact



Invitation to Collaboration

OAHN Equine network:

- **Equine Guelph Biosecurity students invited** to submit questions on strangles
- **Questions divided** amongst network members
- **Podcasts created** to provide answers to these common horse-owner queries

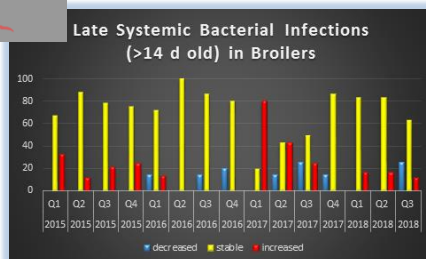
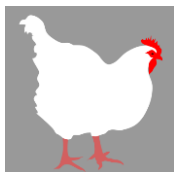
A screenshot of a webpage titled "Ontario Animal Health Network Veterinary Podcasts". The page features a dark header with the network's name and a "Home" link. Below the header, there is a section for a podcast episode dated "October 11, 2017" with the title "Special Horseman / Horsewoman series: Debunking Myths about Strangles - Part 1 with Dr. Memo Arroyo". The episode description states: "This is part 1 of a 5-part podcast series, where our OAHN Equine Network veterinarians answer top equine professionals' questions about equine strangles. Today we are joined by Dr. Memo Arroyo, from the Ontario Veterinary College. Dr. Arroyo answers many questions, including: 'If my horse has recovered from strangles, can I assume that he has cleared the organisms and will never get it again?' and 'How does a horse become a carrier and how would it be identified?'". The page also shows a play button, a progress bar, and a "Download (174)" link. On the right side, there is a sidebar with the OAHN logo, the text "24,993 Downloads" and "77 Episodes", and a "Follow" button. At the bottom, there is a "SEARCH" button.



Potential for Industry Impact - AMR

OAHN Poultry network:

- **Trend noted** in evaluation data for *E. coli* as an infection of chickens of all ages
- **OAHN funded** research project
- **Evaluated virulence genes and antimicrobial resistance (AMR)** of avian pathogenic *Escherichia coli* in Ontario broiler and broiler breeder flocks.



- **Identified high frequencies of resistance** to many antimicrobials that are frequently used to treat colibacillosis in broilers
- **Significant associations noted** between virulence-associated genes and resistance to antimicrobials
- **Provided a benchmark** for reduced anti-microbial use in future

Summary

- 1) **Relevancy:** Development and distribution of information across platforms
- 2) **Group diversity:** Open collaboration of group to form consensus
- 3) **Maintaining momentum:** in cases of chronic disease or slow monitoring process
- 4) **Industry involvement:** Building trust with all parties, encouraging participation for broad impact, inviting contributions

Challenges will evolve as the network develops.

Flexibility and willingness of contributors helpful to rise to these challenges and achieve successful outcomes in disease surveillance.





Thanks to all of my new network colleagues:
Alison Moore, Csaba Varga, Christa Arsenault, Jim Fairles, Alexandra Reid, Jocelyn Jansen, Wael Haddad, Maureen Anderson for contributions to this presentation

Additional thanks to Grant Maxie of the AHL, and Michael Deane, OAHN Communications Administrator, for support in this endeavor

www.oahn.ca
<http://www.oahn.podbean.com/>
<https://www.facebook.com/OntarioAnimalHealthNetwork>
<https://twitter.com/OntAnHealthNet/>