



*multidisciplinary perspectives
to generate anticipatory
intelligence to provide early
warning for emerging
and zoonotic diseases*

Collaboration Across Disciplines and Networking Options

March 21, 2019

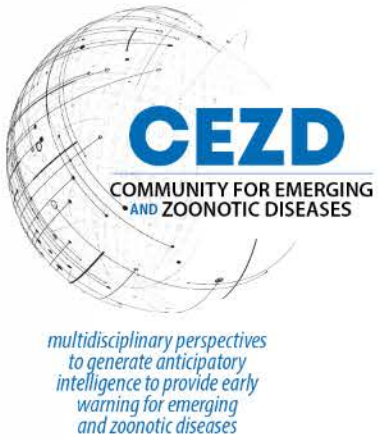
Presenters: Andrea Osborn B.Sc. DVM, Megan Bergman DVM



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Outline

- Brief Background on CEZD
- Multidisciplinary Community
- Initial Intelligence Processes and Evolution
- Vector Borne Diseases and CEZD
- Networking Synergies



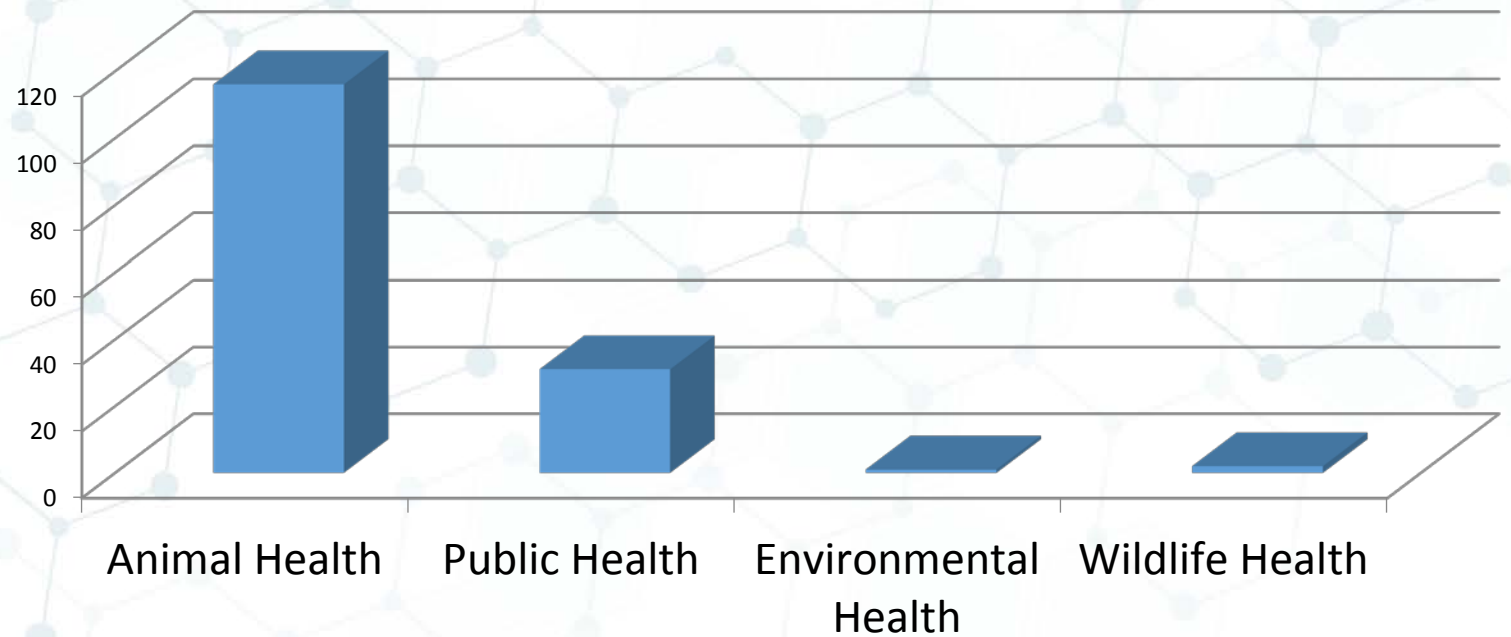
Brief Background

- CEZD was initiated as a project in 2013-16
- A two year implementation phase is complete 2016-18
- Now in our 'achieving sustainability' phase
- CFIA funding core team
- PHAC funding CNPHI platform and support
- Partners funding their own members
 - All giving time, effort and support
- Consistently produced a weekly intelligence report since 2016
- **WHY:** to create a multidisciplinary community to generate anticipatory intelligence that provides early warning of emerging and zoonotic diseases

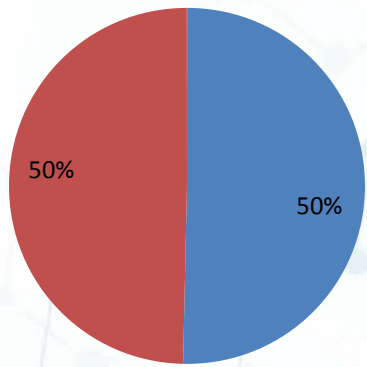


Multidisciplinary Who is part of CEZD?

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294 CEZD Members

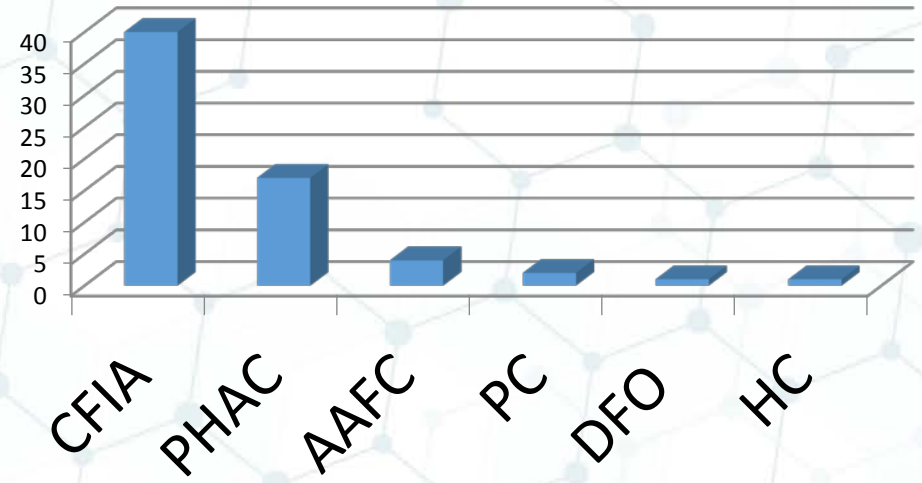
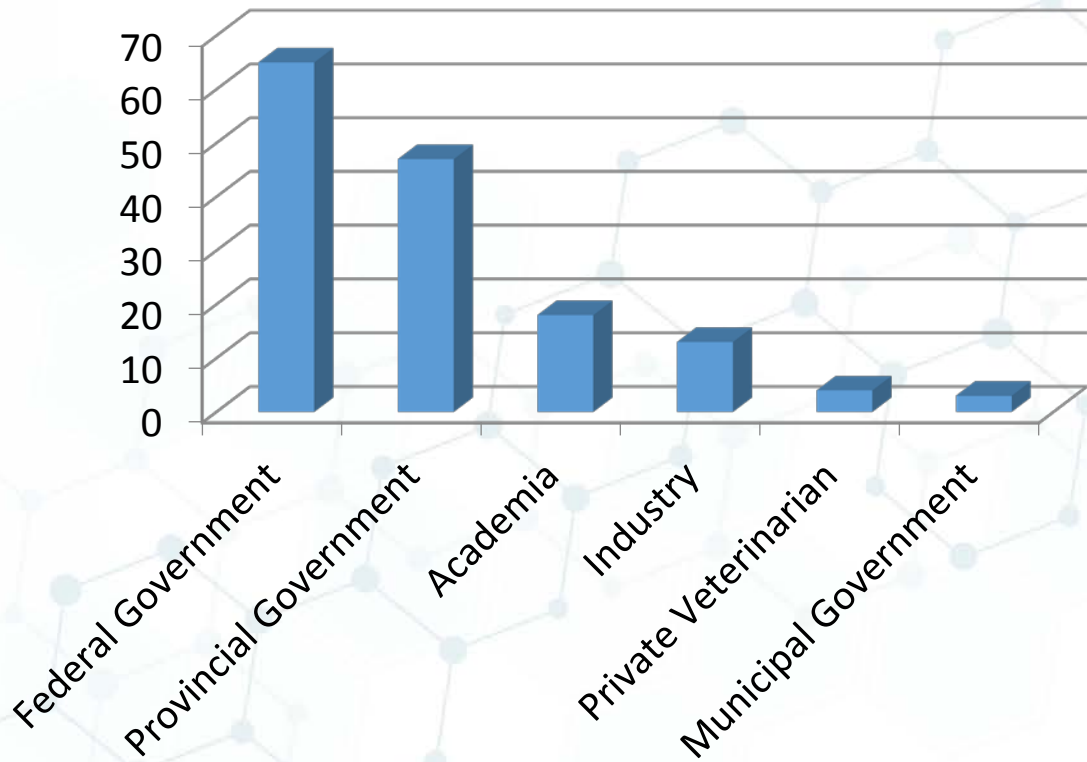


- CNPHI Member - receive all communications, participate in activities
- Passive Members - Receive Intel Reports

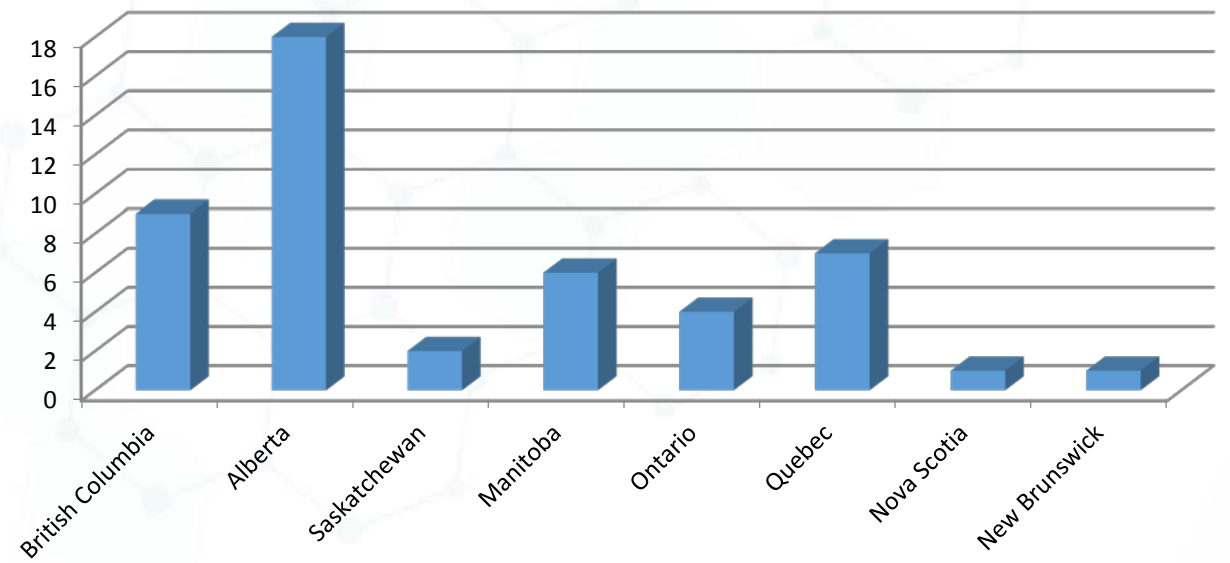


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Organization Type



Fed/Prov Government representation

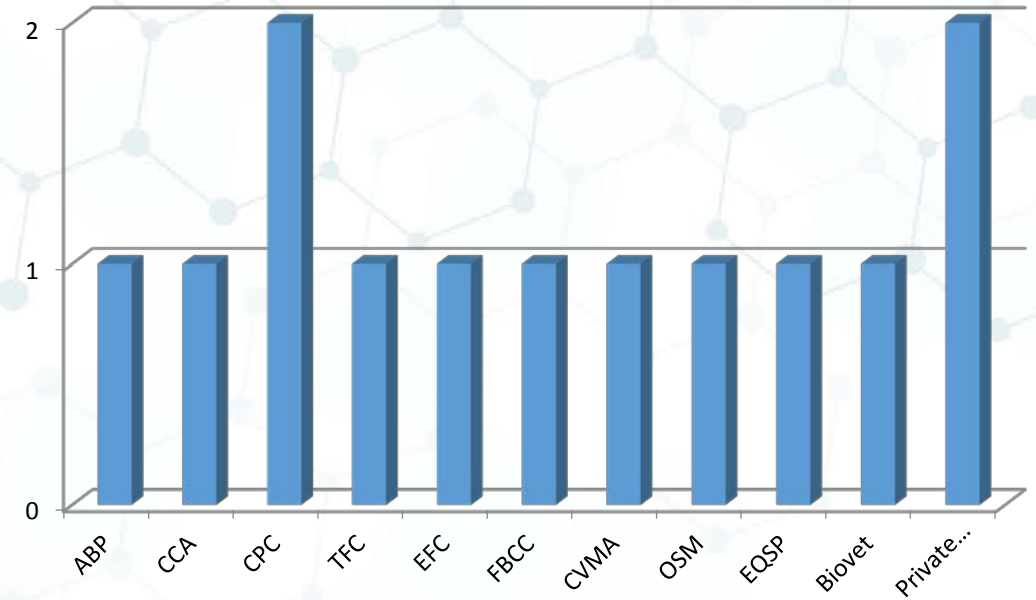
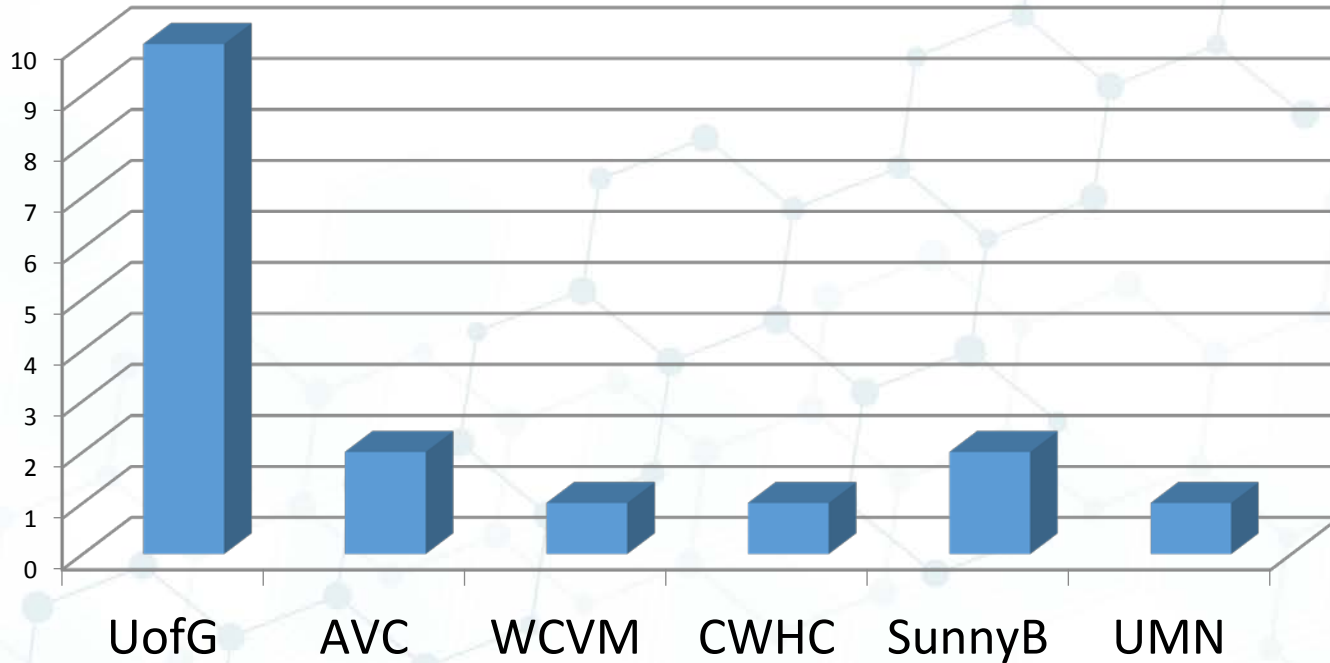




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Industry/ Service Providers

Academia/Research



Job Titles



- Industry Development Officer
- Beef Production Specialist
- Avian Pathologist
- Veterinary Virologist
- Laboratory Liaison technical officer
- Emergency Program Officer
- Communications and Policy Officer
- Agrologist
- Computer Scientist
- Food Safety Co-ordinator
- Biosecurity Program Specialist
- Livestock Disease/Regulatory Programs
- Policy Analyst
- National Swine Health Initiative
- Foreign Animal Disease Control Specialist
- Medical Officer of Health
- Communicable Disease Prevention and Control Specialist
- Biologics Evaluator

Job Titles



15 Directors

- Chief Engineer – Director of CNPHI
- 3 “Director”
- Director – emergency program
- Director of Virology
- Director of Animal Health Science
- 2 Director/CVO
- R&D Director

3 Executive Directors

7 Manager/General Manager

- 10 Research Scientist
- 20 Epidemiologist
- 17 Veterinarian
- 6 Risk Analyst/ Assessment/Advisor
- 5 Public Health Epidemiologist/Veterinarian
- 2 Assistant Professor/1 Professor
- 2 Wildlife health specialist/technician
- 1 Environmental Health Manager
- 2 medical doctors
- 21 no job title



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Multidisciplinary Community

- We have a broad-based multi-disciplinary community, still have some gaps to fill
- Have built a strong foundation to take the next steps in community development, particularly on domestic early warning



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CEZD Initial Intelligence Process

Disease Intelligence Process of CEZD has five stages:
a real time virtual network using today's technology to provide early warning of emerging and zoonotic diseases





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Process Works

April 1, 2017 – March 31, 2018

16,670 signals
received

3435 filtered by
the system

155 considered
relevant to Canada

- Information volume is effectively decreased
- Weekly Intelligence reports reliably since 2016



Evolution of Activities

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- Weekly Intelligence Reports
 - Enhanced weekly intelligence report currently being created
- Pings
 - Information collection/discussion via Ping
 - [Ticks on suids](#) in Canada
 - [Longhorn tick](#) in Arkansas
 - [Culicoides](#) in Ontario
 - Ping follow up notifications with references further info
 - Follow up discussions on the monthly calls
- Group notifications
 - Interesting findings , information distribution
 - e.g. Longhorned tick summary document
- Situation Scoping Meeting
 - SADS CoV, Newcastle disease
- Risk Profile
 - e.g. [SADS CoV](#)
- Weekly evolving situation report
 - e.g. [ASF](#)
- Hazard Risk Pathway Analysis
- Rapid Risk Assessment



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Evolution of Activities

Monthly calls

- Community management and development
- Ping question discussions
- Multidisciplinary discussions - Long horned tick

Working Groups

- Reporting and Analysis
- Engagement

Webinars

- Climate change modelling
- Wildlife health information platform
- Simulation of Classical Swine Fever spread in Ontario
- Risk mapping with GIS for Whirling Disease in Fish
- African Swine Fever
 - What do we know, what has been done and are there unknown risks?
 - Clinical disease recognition



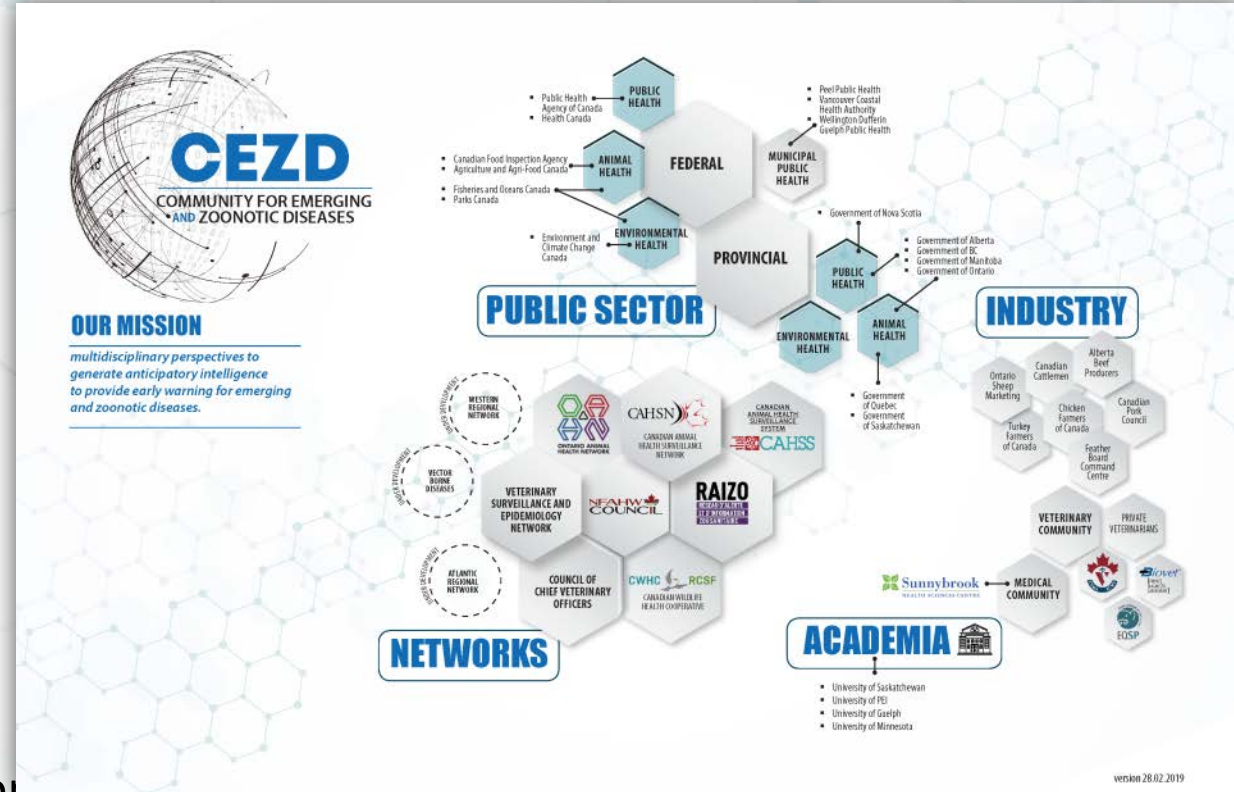
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Evolution – Domestic Early Warning

Domestic Network Pilot Project

- Groundwork for this is underway:
 - Terms of Reference are being defined
 - Community network evaluation to identify linkages and expertise
 - Which signals actually give ‘early warning’ from a domestic perspective
 - Not yet in the public realm
 - What is early warning vs early detection
 - How we disseminate signals, when, to whom...

- What is Early Warning for Vector Borne Diseases?



Draft map of our community



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Vector Borne Diseases and CEZD

- Vector-borne diseases are emerging diseases
- CEZD shares information on vector-borne diseases and vectors
 - *Aedes albopictus* in Windsor, *Culicoides* in Ontario, Mayaro, Powassan and Usutu viruses
- Welcome to join our community – passive or active
- If you see something unusual in your work; want to ask a question to the community; or make linkages with other networks we can help to enable that
- Increasing connections nationally by linking to other networks





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Want to join CEZD?

Contact core team CFIA.CEZD-CMEZ.ACIA@Canada.ca

Check out the CAHSS website

<https://www.cahss.ca/surveillance/emerging/>

<https://www.cahss.ca/groups/CEZD/>

Contact one of our engagement team:

- ana.ulmer-franco@gov.ab.ca
- andrea.osborn@canada.ca
- kathtodd@uoguelph.ca
- eempringham@xplornet.com
- hernan.ortegon@gov.ab.ca
- harold.kloeze@canada.ca
- julia.keenlside@gov.ab.ca
- keith.murch@canada.ca

The screenshot shows the CAHSS website interface. At the top, there is a navigation bar with links for 'ABOUT', 'SURVEILLANCE IN CANADA', 'CALENDAR', 'CONTACT US', 'MEMBER DIRECTORY', and 'MY ACCOUNT'. The main header features the CAHSS logo and the text 'EMERGING AND ZOO NOTIC DISEASES' with the subtitle 'Surveillance of changing risks to protect Canadians' and a 'CONTACT NETWORK' button. Below this, the 'CANADIAN SURVEILLANCE NETWORKS' section lists the 'Community for Emerging and Zoonotic Disease' with a link to weekly intelligence reports, and the 'National Collaborating Centre for Infectious Diseases - Emerging Diseases' with a note that it is one of six National Collaborating Centres for Public Health funded by the Public Health Agency of Canada. The 'INTERNATIONAL NETWORKS' section lists 'GLEWS - FAO-OIE-WHO Global Early Warning System for health threats and emerging risks at the human-animal-ecosystems interface'. On the right side, there is a 'GROUPS' section with a box for 'Community for Emerging and Zoonotic Diseases' and a photograph of a mosquito.

Network Synergy



Canadian
Animal
Health
Surveillance
System



CAHSS

Système
canadien
de surveillance
de la santé
animale

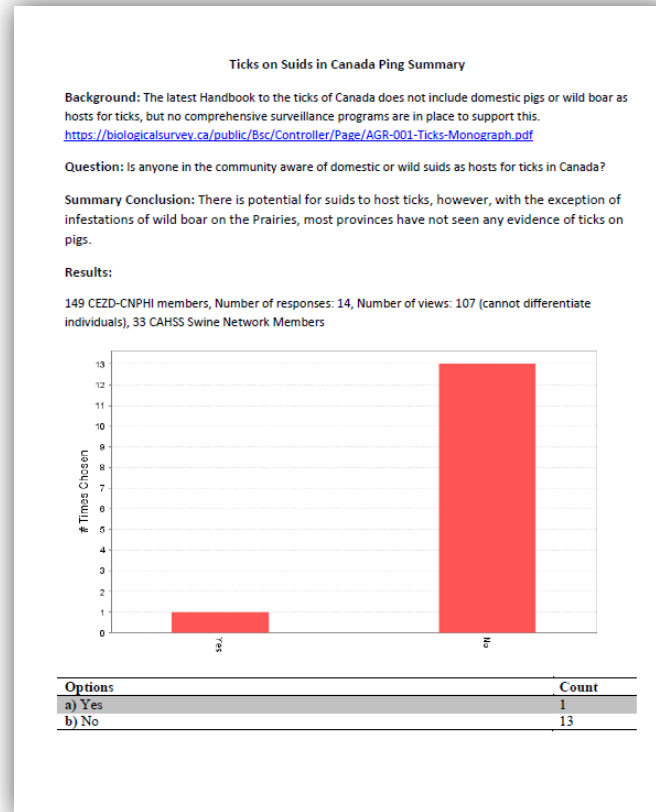


SCSSA



Synergy between CAHSS and CEZD

- Interactions between networks offers powerful reach across the country
- CEZD Ping question on ticks on suids in Canada was also sent to [CAHSS Swine Sector](#) networks
- Responses from practicing veterinarians and their linked networks



- Comments from both the CEZD Ping and Survey of the CAHSS Swine Network Members:
- Ryan Brook (U of S) has documented captures of wild pigs completely covered in ticks
 - I am not aware of this in Canada, but on the other hand am also not aware of any reason why pigs would NOT be a host. This study in Florida (different climate) found 1023 adult ticks on 316 wild pigs. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6032497/>
 - I checked with our parasitology team and although they acknowledged that suids are potential hosts for ticks they have not come across any findings in AB.
 - I agree that there is potential.
 - I checked with two swine practitioners in Quebec recently including one dealing with organic pigs and they have never seen ticks on swine and never heard about it either.
 - Wild pigs in summer on the Canadian prairies are often loaded with ticks. Most of our handling work is done in winter but animals we have dealt with in summer especially in SW Manitoba have massive numbers. One of the hunters I work with shot one of our collared animals last summer and he just left it in the bush and I had to beg him to go back and pull samples as he was horrified by the number of ticks all over, especially around the ears.
 - I think the findings here are really interesting, and perhaps a little scary. The expansion of wild boar could serve as a reservoir of ticks for outdoor animals. Just speculation, but in areas with a lot of wild boar, maybe those outdoor animals are at more risk than we might know today.
 - It is interesting that no one notices them but I am not very surprised. In the fall I reached out to small pig farmers of Canada as well as Pork producers and swine veterinarians from across the country. No one has recalled seeing hard ticks ever on pigs in Canada. No one was really aware of soft ticks at all. It would be interesting to get into some provincial processors that are more likely to work with outdoor pigs and look at a couple benchmarks like tick attachments and potentially using serology as a tool to understand tick borne disease surveillance
 - I'm not aware of any tick issues in pigs in Canada. I think the question has arisen because there is concern about African swine fever.
 - I asked the question about ticks on suids in Canada during SW practice rounds this morning and none of the vets recalls seeing evidence of ticks on pigs. Practice experience going back 38+ years.

What is the Canadian Animal Health Surveillance System ?

- A network of animal health surveillance networks with representation from government, industry, academia, and other animal health and public health professionals
- An initiative of the National Farmed Animal Health and Welfare Council with broad based collaborative support of industry and government

DRAFT New Website Image

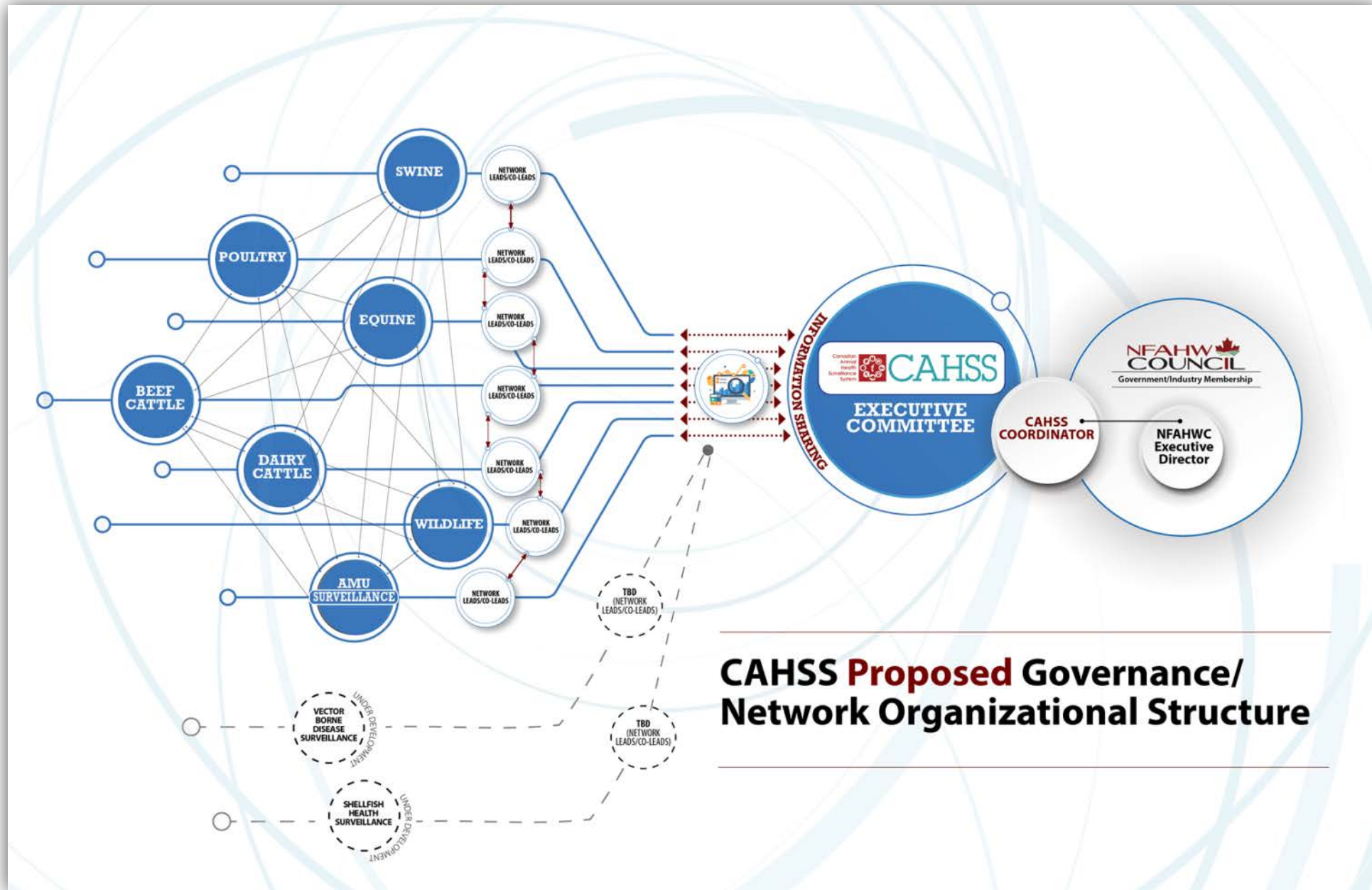




CAHSS offers:

- Networks collaborating on issues and activities of common interest aligned with the purpose and principles of CAHSS
- Information and intelligence exchange
- Website for public or private information collection, cataloging, sharing, and notifications
- A forum of broad based representation from all facets of industry, government, academia
- The Council is incorporated and can provide support for funding applications
- Opportunities arising to engage in CAHSS new organizational structure as network leads and co-leads





**CAHSS Proposed Governance/
Network Organizational Structure**

To join CAHSS go to our website www.cahss.ca fill out a membership declaration and send it to info@cahss.ca

Workshop in Next Day and a Half



- Vector borne diseases network probably has the greatest interdisciplinary collaborative needs
- What networks already exist within VBD?
- What networks to you need to connect to?
- What is early warning for VBD = how does it fit with CEZD
- What is the foundational structure that produces early warning for VBD?
- What are the Vector Borne Disease Networks Priorities?

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