



# Woven Together: The Power of Networks in Canadian Animal Health Surveillance

**Doris Leung** BSc, DVM, MPH

Director

Canadian Animal Health Surveillance System (CAHSS)



## Land Acknowledgement

I would like to begin by acknowledging that the land I work and play on – which is the unceded and unsurrendered land of the **Halkomelem (Halqeméylem) speaking peoples**.

A good resource is <http://native-land.ca> where non-Indigenous individuals are invited and challenged to learn more about the lands they inhabit, the history of the lands, and how to actively be a part of a future moving forward together.



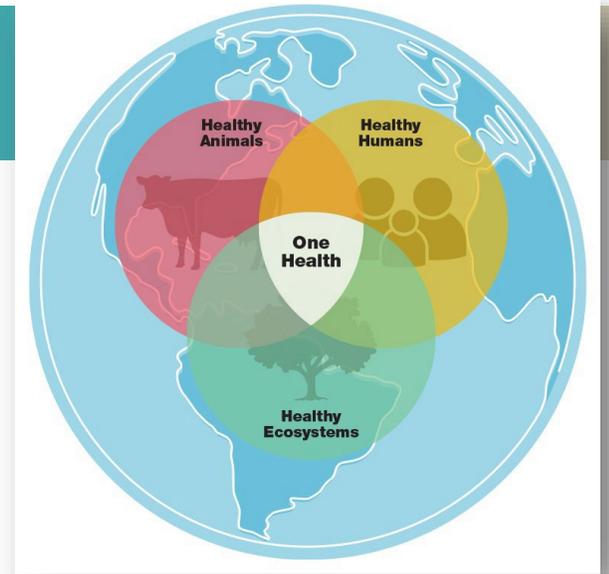
*Source: Doris Leung*



## Woven Together



Source: William Karesh



Source: Government of Canada

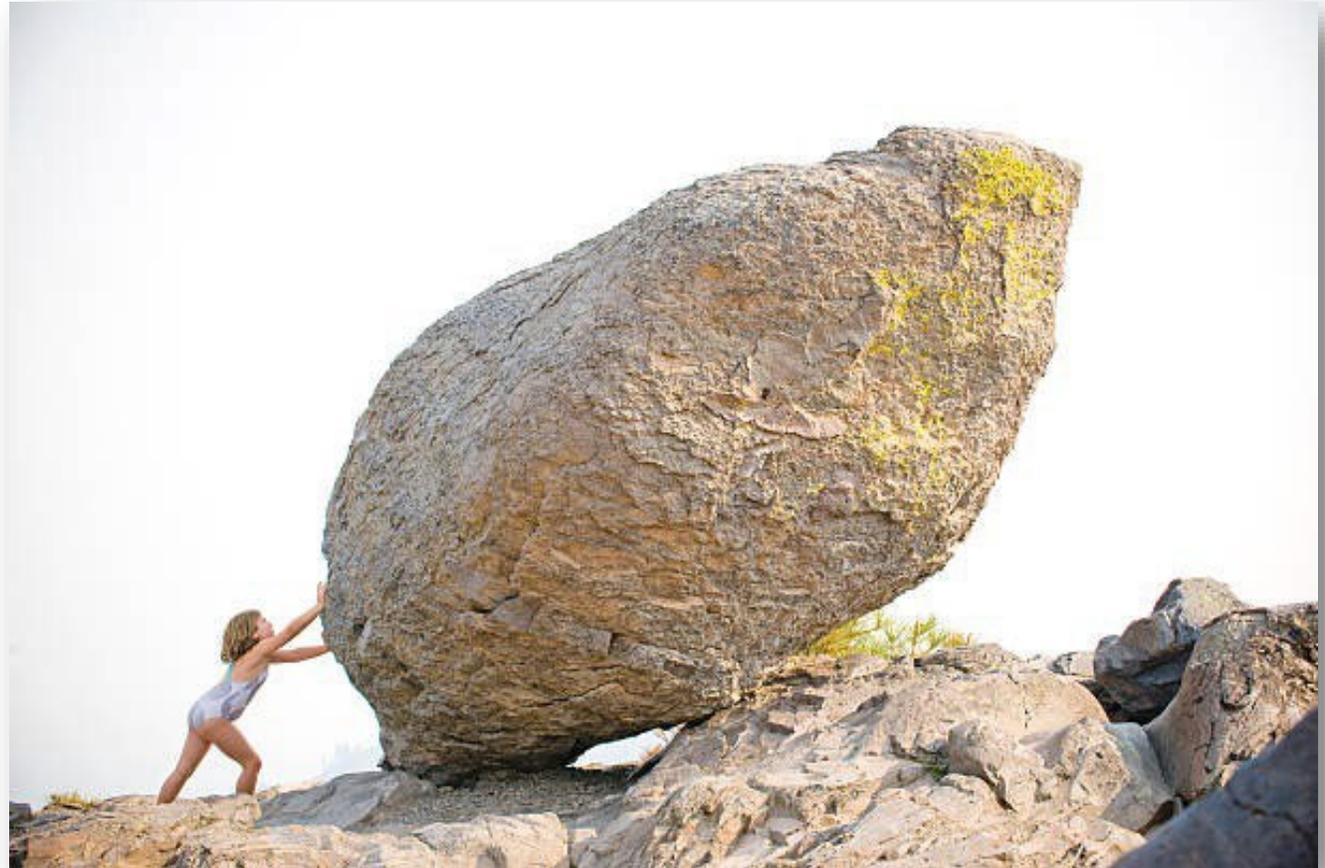


Source: Great Scot



## Challenges

- Disparate data
- Lack of standardization
- Newly emerging or re-emerging diseases
- Siloed approaches
- Limited resources
- .... *And more!*



Source: Getty Images



## Opportunities

- Advancement in technology
- Data analytics, machine learning
- One Health collaboration & integration
- Public-private partnerships
- Community science
- Capacity building
- *...Leading to a coordinated national surveillance!*



Source: How Stuff Works



## ANIMAL HEALTH CANADA

### PROJECTS

In addition to hosting our annual animal health and welfare FORUM we are proud to support five exceptional multi-year initiatives:



Advancing  
Animal Welfare  
and Public Trust  
Through Codes of  
Practice (NFACC)

**AHEM**  
Animal Health Emergency Management Project

Animal Health  
Emergency  
Management  
Project (AHEM)

**ASF** 

African Swine  
Fever (ASF)  
Project

Canadian  
Animal  
Health  
Surveillance  
System  **CAHSS**

Enhance  
Collaboration,  
Data Integration,  
Analysis and  
Reporting (CAHSS)



Canadian  
Livestock  
Transport  
Program (CLT)

Source: Animal Health Canada



Source:  
Great Scot

## CAHSS Network of Networks



### RAIZO

RÉSEAU D'ALERTE ET D'INFORMATION ZOOSANITAIRE



Source: CAHSS



Source:  
Great Scot

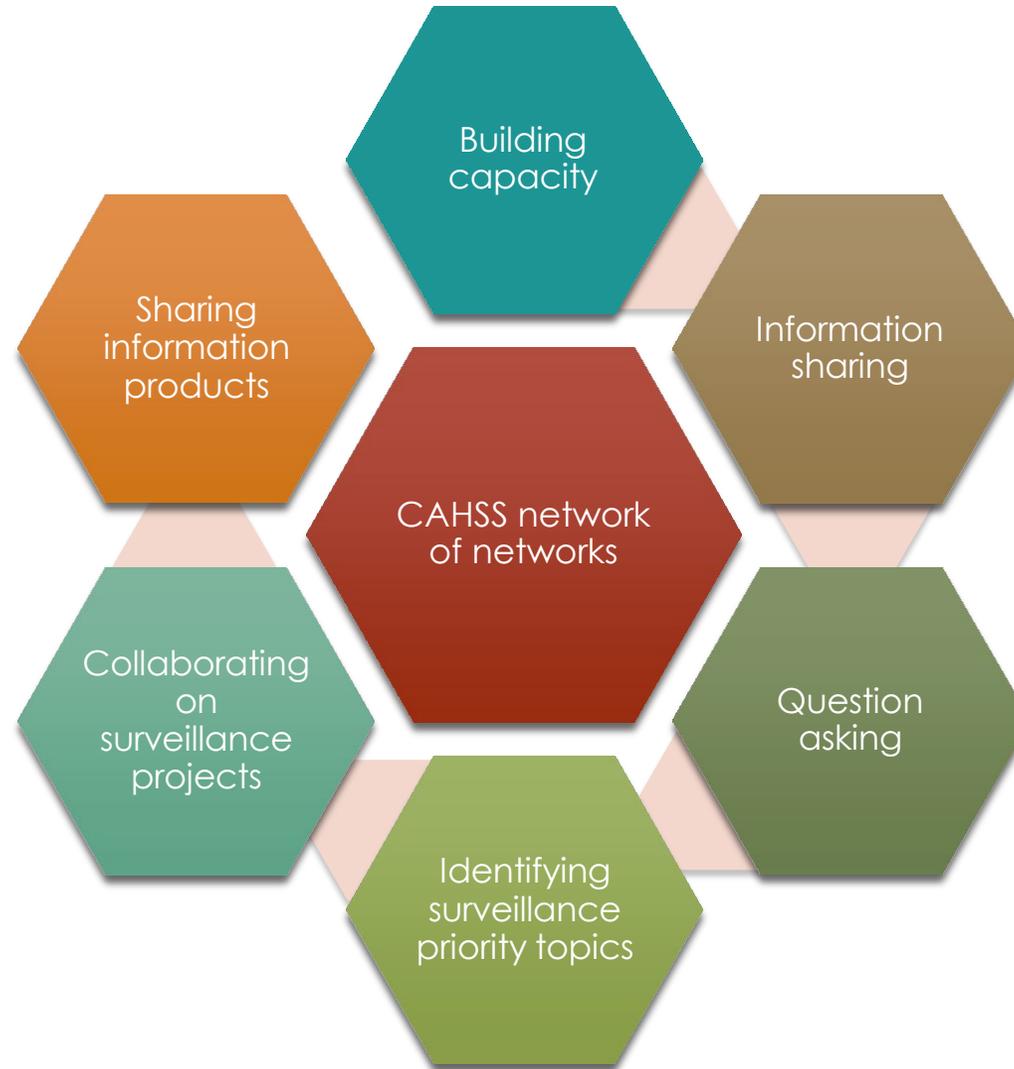
Source: CAHSS





Source:  
Great Scot

## Network of Networks





## Weaving Stories

### DISEASE ALERT



[HTTPS://CAHSS.CA/CAHSS-TOOLS/DISEASE-ALERTS](https://cahss.ca/cahss-tools/disease-alerts)



Canadian Animal Health S...  
@CahssCanada

(1/2) Disease alert - equine infectious anemia (EIA) in #Alberta. View disease alert on our website here: [cahss.ca/cahss-tools/di...](https://cahss.ca/cahss-tools/di...) Thank you @InspectionCan for providing the case information and updating the CAHSS equine disease dashboard.

3:28 PM · Sep 28, 2022 · Twitter Web App

View Tweet analytics

1 Retweet 2 Likes

### EQUINE DISEASES

Year: 2023

Disease: All

Province: All

Result Date: 7/19/2011 - 11/30/2023

Clear Filters

EEE and West Nile Data Updated: 2023-11-22  
EHV-1 Data Updated: 2023-08-07  
EIA Data Updated: 2023-11-07

### Disease Cases by Census Division

Disease: EEE, EIA, WNV

### 2016 Horse Population by Census Division

### Cases by Disease and Province

Province	EEE	EIA	WNV
British Columbia	7	0	0
New Brunswick	2	0	0
Alberta	4	24	10
Saskatchewan	0	0	11
Manitoba	0	0	0
Ontario	0	0	18
Quebec	0	0	6
Atlantic	0	0	2
Other	0	0	6

### Cases by Disease and Year

Disease	2023
WNV (West Nile Virus)	47
EEE (Eastern equine encephalomyelitis)	22
EIA (Equine Infectious Anemia)	12

2020 Ontario: One WNV case likely travel related

2016 Census # of Farms Reported: 39K  
2016 Census # of Horses Reported: 288K  
# of Cases: 81

### PROTECTING YOUR HORSE FROM EQUINE INFECTIOUS ANEMIA (EIA)

Thinking of bringing a new horse into your herd or taking your horse to an event? **Make sure you know what to do to keep your horses protected from equine infectious anemia (EIA).** This is a disease of serious consequence, and a positive case must be reported to the Canadian Food Inspection Agency (CFIA). EIA does not affect humans.

**THERE IS NO VACCINE OR TREATMENT FOR EIA. THE BEST WAY TO PROTECT YOUR HORSE IS THROUGH REGULAR TESTING AND BIOSECURITY.**

**WHAT IS EIA?**  
EIA is a disease caused by a virus that affects horses, donkeys, and mules. Since 2021, there have been more than 190 EIA cases reported across western Canada (in BC, AB, SK, MB, YK). EIA has been detected in sick horses, as well as seemingly healthy horses being tested for sales, export or events.

**HOW DOES THIS HAPPEN?**  
The virus that causes EIA is transmitted by:  

- Contaminated/reused hypodermic needles, syringes, dental, or surgical instruments or any other equipment contaminated by blood
- Bites from biting flies (horseflies, stable flies, and deerflies)

**WHAT DOES IT LOOK LIKE?**  
Horses with EIA can show the following signs:  

- Off feed
- Depression
- Weakness
- Fever
- Pale gums
- Swelling of the legs
- Weight loss

**ALTHOUGH SOME HORSES INFECTED WITH THE EIA VIRUS MAY SHOW FEW SIGNS OF ILLNESS, THEY ARE LIFELONG CARRIERS OF THE VIRUS AND CAN INFECT OTHER HORSES**

### COMMON PROBLEMS IN HORSES... DO YOU NEED ANTIBIOTICS?

Another day, another scrape - as all horse owners know, minor wounds are very common in horses.

Another common problem horse owners may face is a horse suffering from a runny nose and cough.

**What do both these common problems have in common?**  
Most of the time, these common problems do not need antibiotics.

**BE WISE ABOUT USING ANTIBIOTICS IN YOUR HORSE TO PREVENT ANTIBIOTIC RESISTANCE!**

**WHAT ARE ANTIBIOTICS?**  
Antibiotics are used to treat infections caused by bacteria.

**WHAT IS ANTIBIOTIC RESISTANCE?**  
Antibiotic resistance is when bacteria develop the ability to resist and defend themselves against the effects of antibiotics.

**WHY DOES THIS HAPPEN?**  
This is a growing problem in many different types of animals, including horses. Misuse and overuse of antibiotics leads to resistance, and eventually antibiotics may stop working. Once bacteria become resistant to an antibiotic, the ability to resist antibiotics can be transmitted to other bacteria.

**WHY SHOULD WE BE WORRIED?**  
Resistant bacteria can transmit from one animal to another, including between horses and people. The spread of antibiotic resistant bacteria can quickly result in treatment failure in cases where antibiotics are needed to treat serious bacterial infections.

**EVERYONE HAS AN IMPORTANT ROLE TO PLAY IN ANTIMICROBIAL STEWARDSHIP, INCLUDING HORSE OWNERS!**

Source: CAHSS



## Weaving Stories



### Update on Highly Pathogenic Avian Influenza and Small Flock Poultry



#### Small Flock Poultry

Small flock poultry producers have access to many Canadian focused resources and services. A few are highlighted here. More can be found in the CAHSS tools by selecting the production system 'smallholding'. Veterinarians or other animal health professionals can join CAHSS to access even more information.

#### Manuals and information

[Small Flock Poultry: Raising Health Birds- Ontario Ministry of Agriculture, Food and Rural Affairs](#)

[Small Flock Poultry Health and Egg Handling- British Columbia Ministry of Agriculture](#)

[Small Flock Poultry- Manitoba Agriculture](#)

[Small Flock Poultry Resource Page- Quebec Ministry of Agriculture, Fisheries and Food](#)

### Small Flock Poultry Course for Veterinarians & Veterinary Staff

*This course will prepare veterinary professionals that provide health services to small flock owners. Topics include: general health and production practices, managing the sick flock, performing a comprehensive diagnostic workup, vaccination strategies, and more.*

**Online Webinar:** Available upon registration

**Date:** April 4, 11, 18, 25, and May 2, 9, 2023

**Time:** 4:00 to 6:00pm PT

**RACE-approved CE:** 1.5 hours per seminar

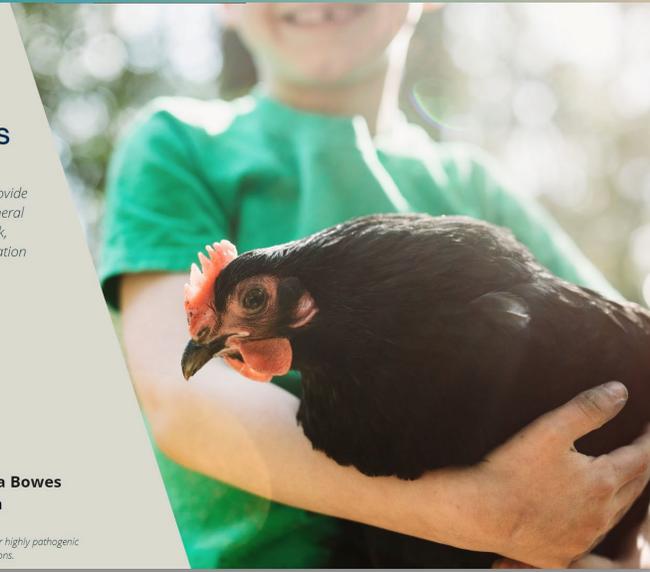
**Cost:** FREE

**Register:** Click [here](#) to register for the webinar



**Speakers**  
Dr. Victoria Bowes  
Dr. Gigi Lin

This course is provided as a component of strengthening Canada's preparedness for highly pathogenic avian influenza (HPAI). Email [cahssinfo@animalhealthcanada.ca](mailto:cahssinfo@animalhealthcanada.ca) if you have questions.



#### The Oral Cavity & Beaks

- Beak – check for cracks/rigidity
  - Soft beak, crossed-beak (chicks)
  - Trauma
- Oral cavity – keep it open by placing a thumb on the commissure
  - Color of the mucous membrane
  - Odor
  - Excessive mucus = abnormal
  - Abnormal swelling, ulceration, plaques
- Glottis (caudal to the base of the tongue)
  - Check for swelling, plaques
  - Listen for wheezing, crackles
- Choana (connect to the nasal cavity)
  - Pinkish color, no discharge or plaques

**Vicki Bowes**

Vicki Bowes



Doris Leung



Gigi Lin

**Barb Wilhelm**

Barb Wilhelm

Source: CAHSS/WeCAHN



## Weaving Stories

### Where we are at: Updated minimum dataset for animal health surveillance

#### 2011 Data Elements

- Unique ID
- Premises ID
- Date submitted
- Geographic location
- Specimen
- Species (multi-level)
- Test(s) performed
- Disease agent
- Test result
- Final laboratory diagnosis

#### New Data Elements

- Identification (appropriate level)
- Date collected
- Sample type
- Management system
- Animal age
- Reason for test

### Updated minimum dataset for animal health surveillance



Source: CAHSS

ORIGINAL ARTICLE

### A Minimum Data Set of Animal Health Laboratory Data to allow for Collation and Analysis across Jurisdictions for the Purpose of Surveillance

H. Kloeze<sup>1</sup>, J. Berzewski<sup>2</sup>, L. Bergeron<sup>3</sup>, N. de Wit<sup>4</sup>, G. Duizer<sup>5</sup>, C. Green<sup>5</sup>, B. McNab<sup>5</sup> and M. VanderKop<sup>7</sup>

- <sup>1</sup> Canadian Food Inspection Agency, Owen Sound, ON, Canada
- <sup>2</sup> Alberta Agriculture Food and Rural Development, Edmonton, AB, Canada
- <sup>3</sup> Ministère de l'Agriculture, des Pêches et de l'Alimentation du Québec, Québec City, QC, Canada
- <sup>4</sup> British Columbia Ministry of Agriculture, Abbotsford BC, Canada
- <sup>5</sup> Manitoba Agriculture, Food and Rural Initiatives, Winnipeg, MB, Canada
- <sup>6</sup> Ontario Ministry of Agriculture, Food and Rural Affairs, Guelph, ON, Canada
- <sup>7</sup> Chief Veterinary Officer, Environment Yukon, Whitehorse, YT, Canada

**Keywords:**  
data sharing; collaboration; surveillance; animal health; disease detection; veterinary epidemiology

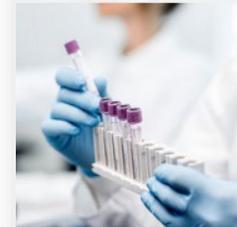
**Correspondence:**  
H. Kloeze, Canadian Food Inspection Agency, Tower 1, Floor 1, Room 262, 1403 Menzies Road, Ottawa, ON, K1A 0Y9, Canada.  
Tel.: 519 372 0361;  
Fax: 519 376 6901;  
E-mail: harold.kloeze@inspection.gc.ca

Received for publication July 13, 2011  
doi:10.1111/j.1865-1682.2011.01264.x

Summary

## MINIMUM DATA SET FOR ANIMAL HEALTH SURVEILLANCE (MDSA) PROJECT

Led by the Canadian Animal Health Surveillance System, this project will update the minimum data set work with considerations of a changing surveillance environment in Canada.



#### BACKGROUND

In Canada, animal health laboratories are critical sources of data and information for animal health surveillance. The minimum data set project for animal health (MDSA) will update the work completed in 2011 to develop a recommended minimum set of animal health laboratory data elements required for surveillance in Canada.

The 2011 project resulted in publication of a minimum dataset anticipated to allow meaningful analysis of collated results from the various public sector provincial, academic and federal animal health laboratories for the purposes of disease detection and characterization, syndromic surveillance, and disease control. The original project was directed by public sector animal health epidemiologists from the F/P/T community in Canada, with input from laboratorians and decision makers.



#### CORE ELEMENTS OF MINIMUM DATA SET FOR ANIMAL HEALTH SURVEILLANCE

- Unique identifier
- Premises identification
- Date submitted
- Geographic location
- Species
- Farm type
- Group type
- Total population of tested species
- Number sick
- Number dead
- Test(s) performed
- Disease agent
- Test result
- Disease classification by submitter
- Final laboratory diagnosis

(Kloeze et al., 2011)



#### WHAT IS NEW ABOUT THE MDSA PROJECT

- The project will leverage new collaborations within the expanded animal health surveillance community to gain focussed input from current users and producers of animal health surveillance data and information about what should be included in a current minimum dataset.
- The project will engage an expert technical group to gain insight on how genomics data is produced by diagnostic laboratories and how it might be effectively used for animal health surveillance.

#### ANTICIPATED RESULTS

- An updated recommended minimum data set for animal health surveillance
- A preliminary report examining how to incorporate genomics data into animal health surveillance
- The project will run from May 2021 to March 2022.

For more information about the project, please contact us at [cahssinfo@ahccouncil.ca](mailto:cahssinfo@ahccouncil.ca). For more information on the Canadian Animal Health Surveillance System, visit [cahss.ca](http://cahss.ca).



## Weaving Stories



Source: Canva

CFIA-ACIA  
CAHSS  
CANADIAN WILDLIFE HEALTH COOPERATIVE

SCAN QR CODE

Start reporting by scanning this QR code.

WEBSITE LINK

Start reporting by clicking on the website link here

DOWNLOAD APP

Download the Wildlife Health Tracker app on the Apple App store or Google Play Store for free

**WANT TO PROTECT FISH SPECIES IN CANADA?**

Become part of a community science program now! Participate by reporting your sightings through our website and mobile app! We encourage reports on both normal and abnormal sightings! You can start by either scanning the QR code, clicking the website link or downloading the app.

**YOU OBSERVE  
YOU REPORT  
WE RESPOND!**

More information on the community science program can be found on the CAHSS website. Finfish page.

Source: CAHSS



## Navigating Challenges



Source: AIMultiple

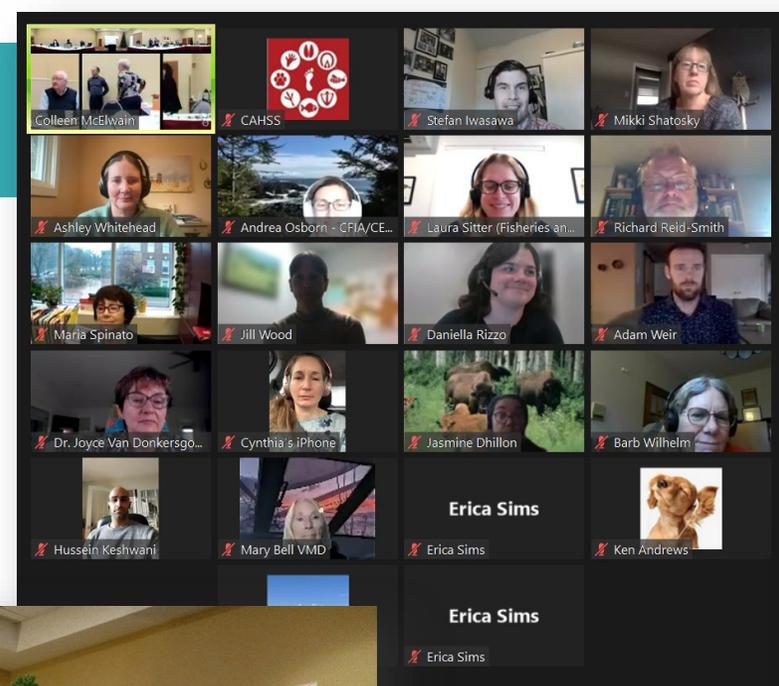
2019 Priority	Subcategory	Initiative	Lead organization	Status
1. AMU/AMR		Canadian Feedlot AMU AMR Surveillance Program (CFAASP)	Beef Industry/CIPARS/Feedlot Vets	On schedule
		SAVI	CVMA	On schedule
2. Cattle health and productivity	Respiratory disease	C3SN -> C3H/PEN	WCVM	On schedule
		Genome project	WCVM	On schedule
	Vaccine use	Infographics and supporting research	WeCAHN/C3SN	Completed
3. Gathering & sharing information	Count outbreak investigations	Document outbreak investigation services across Canada	CAHSS	On schedule
		CFIA Investigations	CFIA	Update required
	Count syndrome cases	WeCAHN/OAHN/RAIZO practitioner surveys	WeCAHN/OAHN/RAIZO	On schedule
		Data platform -enhanced access to lab and abattoir condemnation data	CAHSS	On schedule
		Case definition framework	VSEN/CAHSS	On schedule
	Practitioners Network	WeCAHN/OAHN/RAIZO networks	WeCAHN/OAHN/RAIZO	On schedule
	Count laboratory confirmed cases	WeCAHN/OAHN/RAIZO quarterly data compilation	WeCAHN/OAHN/RAIZO	On schedule
		Data platform -enhanced access to lab and abattoir condemnation data	CAHSS	On schedule
		Case definition framework	VSEN/CAHSS	On schedule
	Track feedlot mortality	Western Canadian Animal Health Surveillance System	Beef Industry/CIPARS/WeCAHN/WCVM	Proposed initiative
4. Public health pathogens (VTEC, Salmonella)	General	Identified as priority 1 and 2- CAHSS Strategic plan	CAHSS	Completed
			PHAC/FoodNet/CFIA	Update required

Source: CAHSS



## Acknowledgement

- Agriculture and AgriFood Canada, AgriAssurance Program
- CAHSS Surveillance Network Chairs + members
- CAHSS Steering Group members
- Animal Health Canada
- Community For Emerging and Zoonotic Diseases
- Regional surveillance partners (WeCAHN, OAHN, RAIZO, AtCAHN)



Source: Ken Andrews



## Keep in touch with CAHSS!

**WEBSITE:** <http://cahss.ca>

**PODBEAN:** <http://cahss.podbean.com>

**TWITTER:** <http://twitter.com/CahssCanada>

**LINKEDIN:** <https://www.linkedin.com/company/canadian-animal-health-surveillance-system>





## Questions?

Doris Leung

[dleung@animalhealthcanada.ca](mailto:dleung@animalhealthcanada.ca)

<http://cahss.ca>



Source: Things In Squares