Community for Emerging and Zoonotic Diseases (CEZD) Annual Performance Report

April 2022 - March 2023

Executive Summary

This annual performance report covers the period from 1 April 2022 – 31 March 2023 and provides statistics on: Knowledge Integration using Web-based Intelligence (KIWI) technology signal filtration, information source signal production, signal relevancy, community development, and disease trends. The report is provided to all Community for Emerging and Zoonotic Diseases (CEZD) members in an effort to promote awareness on system performance, community engagement, notable disease events, and future direction.

The following highlights provide a quick overview of CEZD's growth and development over the last year, as well as any notable events that occurred.

Highlights:

- As of April 24, 2023, CEZD consists of 590 members, a total growth of ~21% (28.8% increase in new members, 7.9% member loss to retirement/job change)
- CEZD members are located in 9/10 provinces and 1/3 territories
- All respondents to the annual survey (51) indicated that CEZD provided them value in their work
- From 1 April 2022 to 31 March 2023, the KIWI technology filtered through 47,233 Individual Information Pieces and produced a total of 311 Early Warning Signals in 51 weekly intelligence reports
- Throughout 2022-2023, 23 ping questions were sent out to community members
- 25 quarterly discipline specific intelligence reports were produced for Canadian Animal Health Surveillance System network group meetings and Canadian Swine Health Intelligence Network meetings
- 29 highly pathogenic avian influenza environmental scanning reports/presentation were produced this year
- A One Health Initiatives tool was launched on the CEZD website with support from the Canadian Animal Health Surveillance System
- CREs accounted for the largest amount of relevant signals, followed by Avian Flu Diary, Outbreak News Today, Poultry Med, The Poultry Site, and EMPRES-i
- The number of submitted CRE's has more than doubled, averaging around 250 signals per month, due to the removal and deactivation of certain RSS feeds (i.e. ProMED)
- From April 2022 to March 2023 KIWI received Anticipatory Intelligence Signals from 168 different countries; the majority of which occurred within the USA(1327), followed by Canada (381), China (176), the UK (149), India (138), the Philippines (109), and Germany (101)
- Highly pathogenic avian influenza was the most reported health condition followed by Mpox and African Swine Fever
- The most notable events from 2022-2023 included: human cases of Influenza A (H5, H3N8, H5N1), Highly Pathogenic Avian Influenza in birds and mammals in Canada, the USA, and South America, Mpox spread worldwide and cases in animals (dogs and pigs), African Swine Fever in domestic swine in Italy and Germany, and White-nose Syndrome in Canada
- Developing a priority list of emerging and zoonotic diseases in Canada was identified as the top priority for CEZD going forward into 2023-2024

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Definitions

Anticipatory Intelligence Signal (AIS)
A disease event that originates from the list of Individual Information Pieces and is to be rated by the community.

Automatic AIS
A disease event automatically selected by KIWI's sense-making algorithm from the list of Individual Information Pieces.

Manual AIS
A disease event that was not identified automatically by KIWI's sense-making algorithm from the list of Individual Information Pieces but rather by analysts.

CEZD CNPHI-account member
A CEZD member who has signed up for CNPHI and has access to the KIWI technology and CEZD Collaboration Centre.

CEZD consumers
A CEZD member who has not signed up for CNPHI and only receives the CEZD Weekly Intelligence Reports.

Community Reported Event (CRE)
A disease event submitted into the KIWI technology from an outside information source by a member, to be rated by the community.

Early Warning Signal (EWS)
An anticipatory intelligence signal that achieves an average community rating equal to or greater than 3.0.

False-negative
An individual information piece that was not identified as an anticipatory intelligence signal by KIWI's sense making algorithm but is relevant to emerging and zoonotic disease.

False-positive
An anticipatory intelligence signal that achieves an average rating of 1 "not relevant".

Individual Information Piece (IIP)
A disease event that enters the KIWI technology via RSS feeds from a subscribed information source, which has yet to be filtered through the KIWI algorithm.

Information Source
An open website that provides disease event news.

Knowledge Integration using Web-based Intelligence (KIWI) Technology
The Knowledge Integration using Web-based Intelligence technology within CNPHI filters through the vast amount of open disease event information on the web by applying a sense making algorithm. KIWI enables users to monitor global disease events and evaluate their relevance to Canada.

Introduction

The Community for Emerging and Zoonotic Diseases (CEZD) is a virtual network that integrates automated information-mining tools with professional multidisciplinary perspectives. CEZD's disease intelligence process is designed to provide early identification and warning of threats. Timely and effective intelligence reports are provided back to the communities at risk to help enable them to prevent, avoid or reduce their risk and prepare for an effective response.

CEZD utilizes the Public Health Agency of Canada's (PHAC) Canadian Network for Public Health Intelligence (CNPHI) platform for its day-to-day operations. Within CNPHI, the community uses the Knowledge Integration Using Web-based Intelligence (KIWI) technology and the CEZD Collaboration Centre. The KIWI Emerging and Zoonotic program collects and filters disease signals from open information sources. Then the members analyze the information and the core team disseminates the results in the form of Weekly Intelligence Reports.

This annual report covers the period from April 1 2022 – March 31 2023, and provides information on current CEZD efforts as well as: demographics, stakeholder engagement efforts, KIWI technology, Anticipatory Intelligence Signal trends, and the CEZD Collaboration Centre. It concludes with CEZD's key priorities and action items going forward.

CEZD Demographics

As of April 24, 2023, the CEZD consists of 590 members, 4 of which are in the core team. Over the last year, 140 new members joined the community, a growth of ~29%. However, the community also lost 39(~8%) of its members due to retirement or occupational change. Hence, the overall growth for the fiscal year was ~21%. **Figure 1: CEZD Member Composition** displays the percentage of CEZD members who hold CNPHI accounts and consumers who only receive the intelligence reports. The membership growth this year occurred mostly in the consumers group (120 new members), which makes up 67% of CEZD

Figure 1: CEZD Member Composition

67%
33%

■ Consumer   ■ CNPHI Account Member

membership, with CNPHI account members occupying 33%.
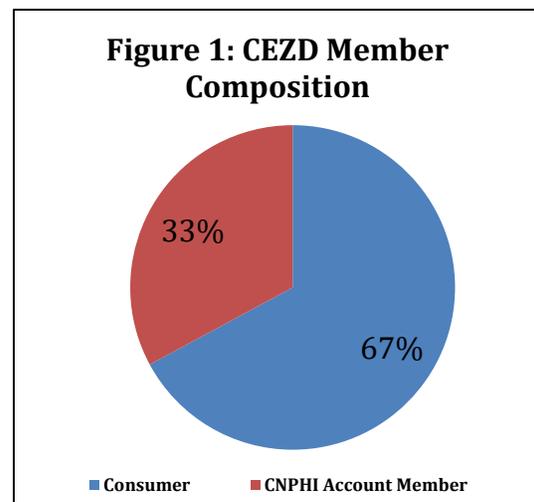
CEZD members belong to a variety of fields, including: federal, provincial, and municipal government, industry, academia, veterinary practice and other service provision, as well as retirees who wish to remain involved. **Figure 2: CEZD Community Demographics** displays the percentage of individuals belonging to each of these demographic groups. The majority of the community members belong to government organizations, however participation from industry and academia has been increasing. Over the last year, all

demographic groups, with the exception of industry, experienced increases in membership. Significant increases in membership were observed in municipal and provincial governments as well as international membership and veterinary practitioners/private service provision. A new demographic group was also added to account for indigenous representation, for which there is one member now.

Figure 2: CEZD Community Demographics
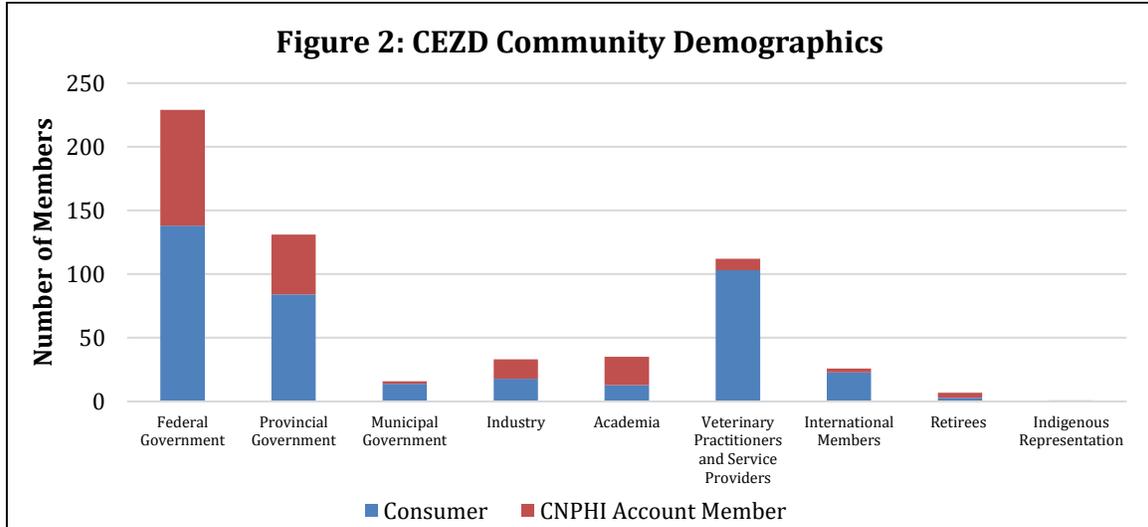
Figures 3 and 4 provide a more detailed make-up of the federal and provincial government categories. **Figure 3: Federal Government Representation** displays the proportion of members belonging to each of the federal government organizations involved in CEZD. As in previous years, the majority of federal government members are from the CFIA, followed by the Public Health Agency of Canada (PHAC) and Agriculture and Agri-Food Canada (AAFC). Health Canada (HC), Environment and Climate Change Canada (ECCC), and Fisheries and Oceans Canada (DFO) have between two to four members representatives in CEZD. Meanwhile, Parks Canada (PC), Global Affairs Canada (GAC), and the Canadian Nuclear Safety Commission (CNSC), have one member representative each.

Figure 3: Federal Government Representation
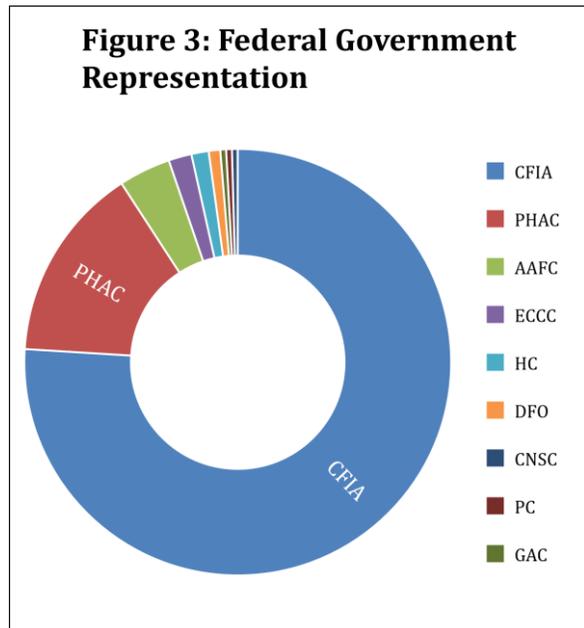
Figure 4: Provincial Government Representation depicts the number of members from provincial government organizations. Provincial representation has grown this past year by ~60% (50 members), with the most significant increases noted in British Columbia (due to membership from BC Centers for Disease Control) and Quebec. In 2023, CEZD also received its first territorial representation with professionals from the Yukon joining the community's distribution list.

Figure 4: CEZD Provincial Government Representation
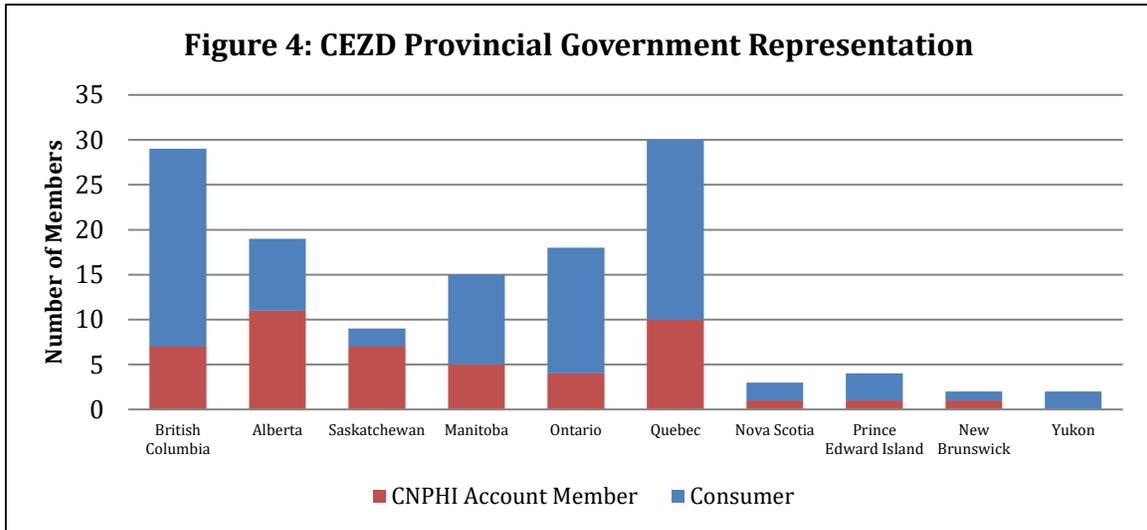
CEZD Activity Update

In an effort to engage members within the CEZD and apply the community's collective intelligence to emerging disease issues, a variety of community activities are conducted throughout the year.

Reporting:

CEZD's weekly intelligence report is the most utilized product CEZD generates. Fifty-one weekly intelligence reports were produced and distributed in the past fiscal year. Twenty-nine HPAI presentations/reports were also completed to provide continuous updates on the evolving HPAI situation (internationally and nationally) to the CFIA/ECCC led One Health HPAI meetings. Twenty-five quarterly discipline specific intelligence reports were also produced for Canadian Animal Health Surveillance System network group meetings and Canadian Swine Health Intelligence Network meetings

Ping Questions:

Ping questions are sent to the community on a weekly/bi-weekly basis to obtain feedback on signals of particular interest. Ping questions remain very successful and are a great way to collect timely feedback on specific issues of concern/interest. Over the last year, 24 ping questions were sent out to community members. **Table 1: CEZD Ping Topics 2022-2023** displays all ping questions (links to results) and their distribution dates from 2022-2023.

Table 1: CEZD Ping Topics 2022-2023	
Topic	**Date (MM/DD/YYYY)**
Considerations for Highly Pathogenic Avian Influenza poultry vaccination	04/07/2022
Egg drop syndrome in the US	04/13/2022
Increase in hepatitis (liver inflammation) cases in children	04/21/2022
Equine influenza H3N8 mortality event in Colorado	04/29/2022
Mpox cases in Europe (UK, Portugal, Spain)	05/18/2022
Necrotizing fasciitis in a dog in British Columbia	05/25/2022
Brucellosis in feral swine and hunting dogs in Australia	06/08/2022
Susceptibility of beavers to Chronic Wasting Disease	06/09/2022
Mpox detected in San Francisco waste water	06/28/2022
Refusal to depopulate after Chronic Wasting Disease cases	07/21/2022
Burkholderia pseudomallei in soil and water samples in Mississippi	07/28/2022
Zoonotic Henipavirus in China	08/09/2022
African Swine Fever partial depopulation	09/28/2022
Sudan Ebola virus in Uganda	10/07/2022
Mpox in piglets in the Democratic Republic of Congo	10/18/2022
Transmission of Lumpy Skin Disease via indirect contact	11/14/2022
Influenza D exposure among US cattle workers	11/23/2022
Avian and canine influenza in North America	12/15/2022
Novel species of Brucella in French Guiana	01/19/2023
Coccidiomycosis expansion in the US	02/09/2023
Getah virus in pigs in China	02/20/2023
First three reported cases of Sporothrix brasiliensis outside South America	03/02/2023
Plasticosis in seabirds	03/09/2023
Mycobacterium caprae causing human tuberculosis in Spain	03/29/2023

Notifications:

The CEZD Core team uses group notifications to connect with the broader CEZD community. Throughout 2022-2023, 177 group notifications were sent to the community. As mentioned above, 24 notifications were relating to ping questions and 51 were the distribution of weekly intelligence reports. Thirty-four specific "disease" notifications were sent to the community, primarily regarding outbreaks of HPAI H5N1, but also ASF, FMD, Influenza H3N8, Seneca Valley Virus, Mpox, and Marburg virus. Similarly, 34 "for interest" notifications were sent to the community to inform them of new research or publications as well as any relevant webinars or conferences. Other notification topics also included ping follow-up information, the distribution of other intelligence reports/products, and community management.

Monthly Community Teleconferences:

The monthly community teleconferences assist with community management and bring together partners across federal and provincial governments, industry, and academia. Ten monthly teleconferences were held during the last fiscal year. Monthly teleconferences are also used to discuss relevant ping questions and gather feedback on future direction/priorities.

Introductory Demonstration Sessions:

Introductory demonstration sessions are intended to familiarize new members with the KIWI technology and CEZD Collaboration Centre. Throughout the 2022-2023 fiscal year, two introductory sessions were held, one in June and the other in January.

Working Groups:

No working group meetings were held this year.

Domestic Pilot:

No additional work was carried out regarding the CEZD domestic pilot and associated scenarios. While scenario templates are ready, there is a need for volunteer members/organizations to participate in leading scenarios.

Scoping Meetings:

Scoping meetings are held as a result of high ratings from ping questions, or by request from CEZD members. The meetings bring together a small group of subject matter experts to determine CEZD's next steps in relation to a specific disease event. No scoping meeting were held during this fiscal year. However, a discussion at one of our monthly community teleconferences initiated the development of a Getah virus info sheet.

Joint Rapid Qualitative Risk Assessment (RQRA):

No additional work was carried out regarding the RQRA.

Face-to-face Engagement Meeting:

Due to resource limitations a face-to-face meeting of the larger community did not occur this year. Instead, a monthly community teleconference was used to gather feedback on CEZD activities and identify priorities for the coming year.

CEZD's Online Presence:

The [CEZD website](#) had 3235 unique users accessing the site over the course of the past fiscal year, which is an increase of ~46% from the previous reporting period. As displayed in **Figure 5: CEZD Website Interaction,** the website interactions during that time identified 88.9% of visitors as new users, and 11.1% as returning visitors.

Figure 6: CEZD Website User Location Data shows that users from 78 different countries visited the website throughout the year, with the majority being from Canada and the US**.**

Figure 7: CEZD Website Traffic illustrates that traffic remains steady, with small peaks noted during weekly report postings. There were 16,178 page views of the site over the course of the year. The most popular/viewed pages on the website were the landing page (2,396 views), the reports pages in English (997 views) and French (874 views), and the One Health Initiatives Tool developed this year (628 views).

CEZD has reduced its utilization of twitter/x due to changes in ownership along with accompanying website policies and content approval. The CEZD core team considers it no longer an efficient method for relaying our weekly intelligence reports to relevant demographics groups.

Figure 5: CEZD Website Interaction

Figure 6: CEZD Website User Location Data

Figure 7: CEZD Website Traffic
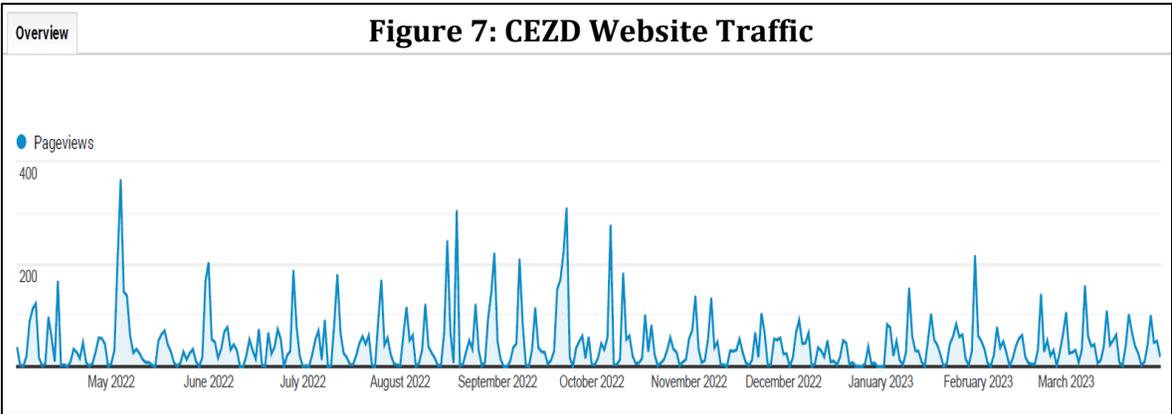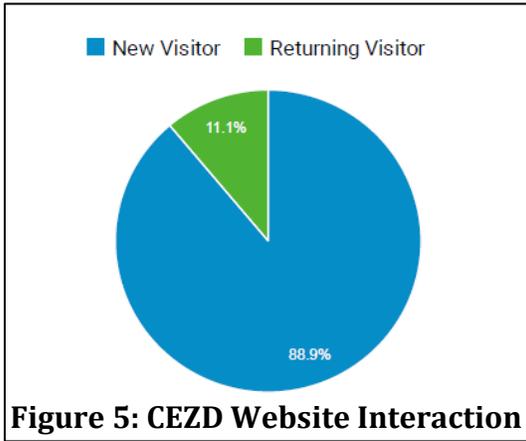
In the fall of 2022, with the support of the Canadian Animal Health Surveillance System, a One Health Initiatives tool was created on the CEZD Website. The tool allows searching for One Health Initiatives in Canada, along with the ability to filter the initiatives by name, topic, scope, species, region, lead organization, and group type as well as by date range. A .csv download function is available, so the information is more readily useable.

A fillable form is available for the addition of initiatives that may not yet be included.

Annual Member Survey

Respondent Demographics:

This year's annual member survey was completed in April 2023. The survey was made available to all members in both English and French and received a response rate of 8.6% (51 respondents). Survey respondents belong to a variety of organizations, 18 of which were identified, including:

- Canadian Food Inspection Agency
- Canadian Poultry Consultants
- Canadian Western Swine Health Intelligence Network
- Canadian Sheep Federation
- Ontario Ministry of Agriculture, Food and Rural Affairs
- Prince Edward Island Department of Agriculture and Land

- Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec
- Ontario Animal Health Network
- University of British Columbia
- Western University
- Dufferin County
- Essex County
- Ministère de l'Environnement, de la Lutte contre les

changements climatiques, de la Faune et des Parcs
- British Columbia Society for the Prevention of Cruelty to Animals
- Government of New Brunswick – Animal Health Services Branch
- Ceva Animal Health
- WorkSafe BC
- Washington Department of Fish and Wildlife

Respondents membership length was almost equally distributed across categories, with 17 respondents indicating they were CEZD members for less than 1 year, 18 were members for 1 to 3 years, and 16 were long standing members for 4 to 6 years. This gives us comprehensive coverage of different users' feedback/experiences with CEZD. Recent members also identified word of mouth, place of employment, and/or meetings/webinars as the ways by which they heard about CEZD.

CEZD Value & Support:

When evaluating CEZD's value, all respondents (51) indicated that CEZD provided them with valuable information relevant to their current position. Fifty respondents indicated that CEZD meets their early warning signal needs.

Figure 8: CEZD Participation Motivation displays the reasons why members participate in the community. The motivation to participate in the community was mainly attributed to learning about new emerging diseases/issues (49), receiving timely disease notifications/reports (45), and having access to multidisciplinary expertise (39).

Twenty respondents also indicated a willingness to participate in signal relevance reviews on the CNPHI platform, while, eleven respondents were willing to lead the development of future CEZD intelligence products (dependent on expertise).
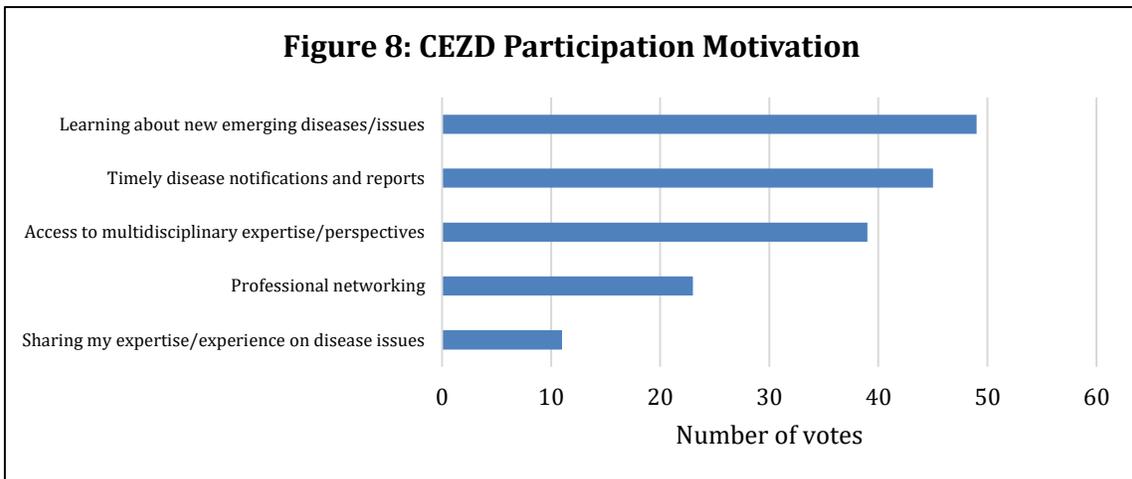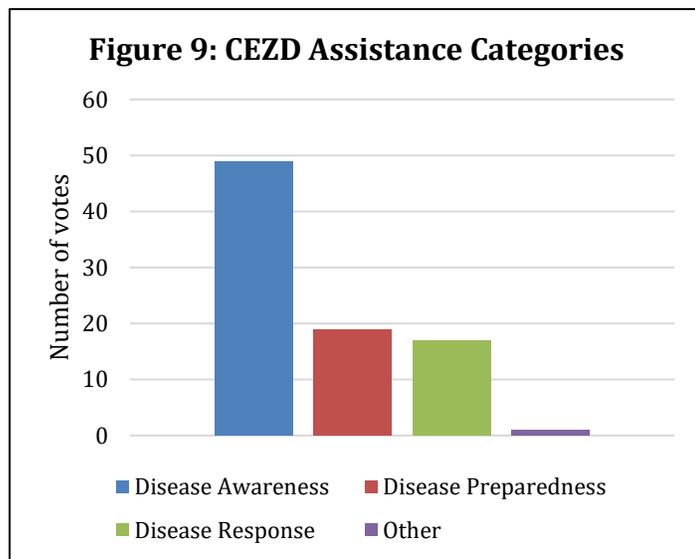

Figure 8: CEZD Participation Motivation

Figure 9: CEZD Assistance Categories displays three disease categories in which CEZD assisted its members. Results were identical to those reported last year, with the majority of respondents indicating CEZD assists in raising disease awareness. The categories of disease preparedness and response were selected less often, however both have been increasing slowly over the years, due to the inclusion and exploration of other analytical activities and reports. Members utilized the CEZD reports to: raise awareness (via discussions, educational messaging, communications/media lines, and other outreach activities); assist in preparedness (expand diagnostic differentials, develop resources, and update testing recommendations); and assist with response (transition to emergency management with avian influenza).

Figure 9: CEZD Assistance Categories

Finally, overall satisfaction in CEZD has increased with members indicating that they are either very satisfied (30), satisfied (20), or neutral (1).

KIWI Technology

From April 2022 to March 2023, a total of 18 different individuals representing 10 different organizations logged into KIWI and rated signals within the zoonotic and emerging disease program. **Figure 10: KIWI Information Filtration Process** reveals that during this period, the KIWI technology filtered through 47,223 Individual Information Pieces (IIPs) from CEZD's 15 automatic information sources. It provided a total of 6,634 Anticipatory Intelligence Signals (AISs) to the community for rating, with the community selecting 311 signals as relevant Early Warning Signals (EWSs). The average number of individuals rating a signal was 4, but ranged anywhere from 1 to 8. For a detailed monthly breakdown of the signal filtration process please review **Table 2: April 2022 – March 2023 KIWI Signal Filtration.**
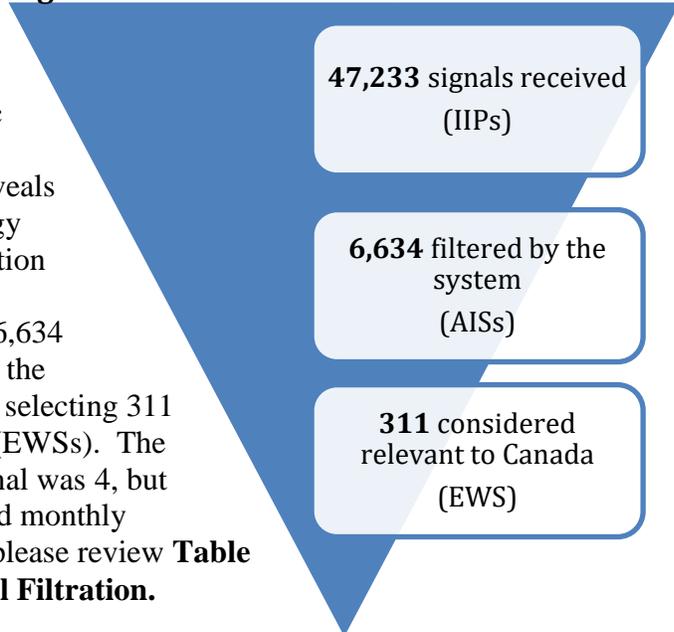
Figure 10: KIWI Information Filtration Process

47,233 signals received (IIPs)

6,634 filtered by the system (AISs)

311 considered relevant to Canada (EWS)

Table 2: April 2022 – March 2023 KIWI Signal Filtration					
Month	Number of AISs	Automatic AISs	Manual AISs	CRE's	Number of EWSs
April 2022	523	155	147	221	67
May 2022	587	198	117	272	63
June 2022	551	184	126	241	17
July 2022	612	187	185	240	25
August 2022	599	163	145	291	26
September 2022	552	164	129	259	14
October 2022	558	162	165	231	11
November 2022	502	107	148	247	7
December 2022	476	135	141	200	17
January 2023	496	132	124	240	13
February 2023	554	160	157	237	24
March 2023	624	163	155	306	27
Total	**6,634**	**1910**	**1739**	**2985**	**311**

Information Source Anticipatory Intelligence Signal Production

The CEZD emerging and zoonotic program within the KIWI technology currently subscribes to 15 open disease information sources. A list of these sources is available in Appendix I – CEZD Information Sources. Additionally, the KIWI technology also gathers disease incident information from outside sources (also listed in Appendix I) in the form of Community Reported Events (CREs). **Figure 11: Information Sources by Percentage of Relevant Anticipatory Intelligence Signals** displays the percentage of relevant AISs coming from CEZDs information sources. Information sources that did not provide relevant signals, as rated by the community, are not listed in this figure. This year, CREs

accounted for the largest amount of relevant signals, followed by: Avian Flu Diary, Outbreak News Today, Poultry Med, The Poultry Site, and EMPRES-i. Each of the other sources identified had less than 10 relevant signals. Due to the removal of certain RSS feeds (i.e. ProMed) there is a need for more manual signal entry. Thus CRE's now make up more the 50% of the relevant signals. The number of submitted CRE's (regardless of relevance) has more than doubled, averaging around 250 signals per month.

Figure 11: Information Sources by Percentage of Relevant Anticipatory Intelligence Signals
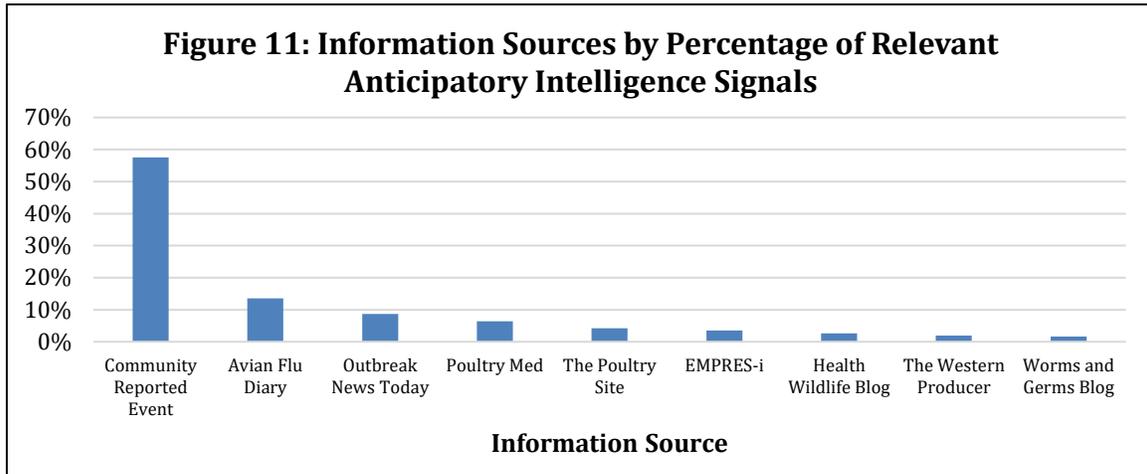
Anticipatory Intelligence Signal Specificity & Sensitivity

Figure 12: Monthly False-negative & False-positive Anticipatory Intelligence Signals displays the percentage of false-negative and -positive signals coming into KIWI each month. False-positives are automatic signals that achieve an average rating of 1 (not relevant), while false-negatives are IIPs that were not identified by the algorithm, but by analysts, and achieve an average rating greater than 1. From April 2022 to March 2023, 5.6% of signals coming in for community rating were classified as false-positives, while 26.2% were false-negatives. The percent of false-negatives has remained steady over the past few years, however, this year the percent of false-positives has significantly decreased due to the removal/loss of multiple information sources that must now be filtered and entered manually.

Figure 12: Monthly False-negative & False-positive Anticipatory Intelligence Signal Production
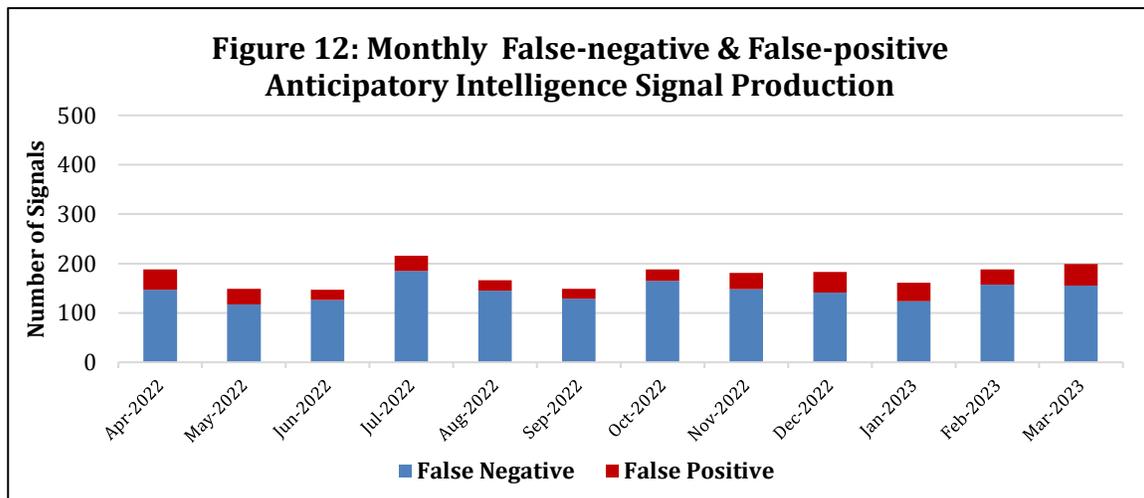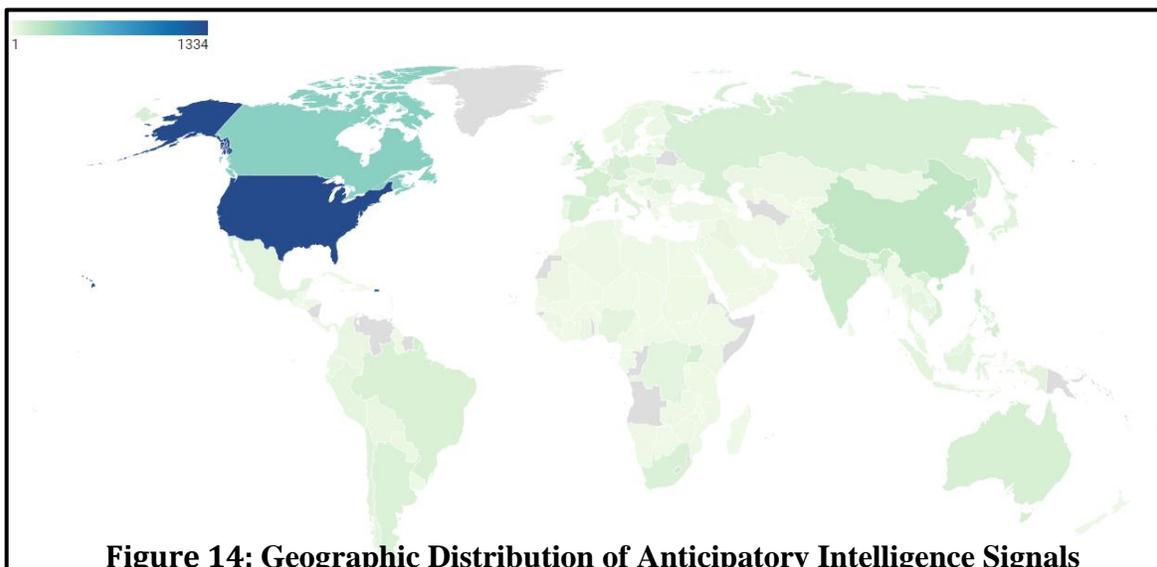
Anticipatory Intelligence Signal Relevancy

Figure 13: Anticipatory Intelligence Signal Ratings April 2022 – March 2023 outlines the percentage of signals falling into KIWI's relevance categories. Within KIWI, the CEZD rates AISs on a scale of 1 to 5, 1 being not relevant and 5 being extremely relevant. A relevancy assessment tool is provided to assist with the rating process. For the purpose of this categorization, middle range values were used (i.e. a signal would be of some relevance if it was rated between 1.5-2.4). This year, no signals achieved a rating of extremely relevant (5). The majority of signals (76.9%) were rated as somewhat relevant, with 10.8% rated as not relevant, 11.9% as relevant, and 0.4% (29 signals) as very relevant.

Figure 13: Anticipatory Intelligence Signal Ratings April 2022 – March 2023

- Not Relevant
- Some Relevance
- Relevant
- Very Relevant
- Extremely Relevant

0%   0%   12%   11%   77%
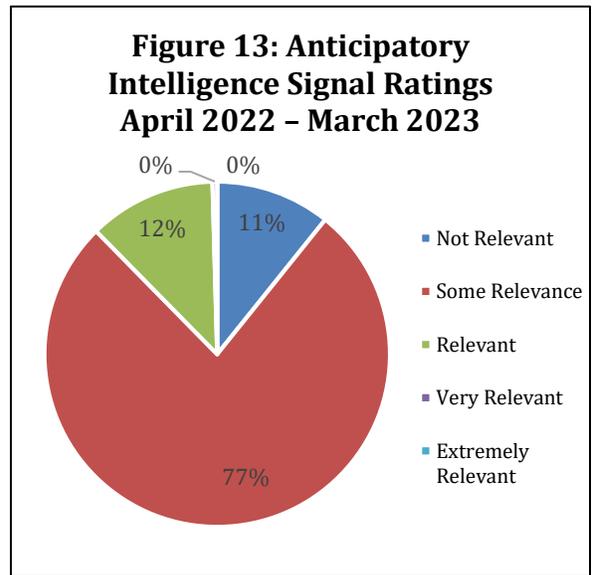
Geographic Distribution of Anticipatory Intelligence Signals

From April 2022 to March 2023, KIWI has received AISs from 168 different countries. **Figure 14: Geographic Distribution of Anticipatory Intelligence Signals** presents the density of KIWI signals across the world. The highest frequency of signals (rated >1) occurred within the USA (1327), followed by Canada (381), China (176), the UK (149), India (138), the Philippines (109), and Germany (101). The number of signals coming from Canada has almost doubled this year and is mainly attributed to the outbreaks of HPAI in domestic poultry and wild birds across the country. Other countries >50 signals include: France, Spain, Uganda, Australia, Russia, Vietnam, Brazil, Hungary, South Africa, Argentina, Romania, Italy, Poland, Japan, and Chile. The high prevalence of USA-based signals is mainly due to the information sources used, as the majority of them are based in the USA, and therefore relay disease events from their location more frequently.

Figure 14: Geographic Distribution of Anticipatory Intelligence Signals

Anticipatory Intelligence Signal Trends

The top 5 most frequent health conditions from April 2022 – March 2023 were highly pathogenic avian influenza (HPAI), Mpox, African Swine Fever (ASF), influenza (including: low pathogenic avian influenza, swine influenza, equine influenza, human influenza...etc.), and Dengue. **Table 3: KIWI Most Frequent Health Conditions** lists the AIS frequency counts of the top ten most frequent KIWI Health Conditions of the year.

Table 3: KIWI Most Frequent Health Conditions		
Rank	**Health Condition**	**Number of Signals**
1	Highly Pathogenic Avian Influenza	1391
2	Mpox	661
3	African Swine Fever	614
4	Influenza	541
5	Dengue	273
6	Novel Coronavirus	271
7	Foot and mouth Disease	185
8	West Nile Virus	139
9	Rabies	123
10	Anthrax	116

Similarly, **Figure 15: Top Ten Health Condition Frequencies by Month** plots these most frequent health conditions by month to show specific time periods where these conditions occurred.

Figure 15: Top Ten Health Condition Frequencies by Month
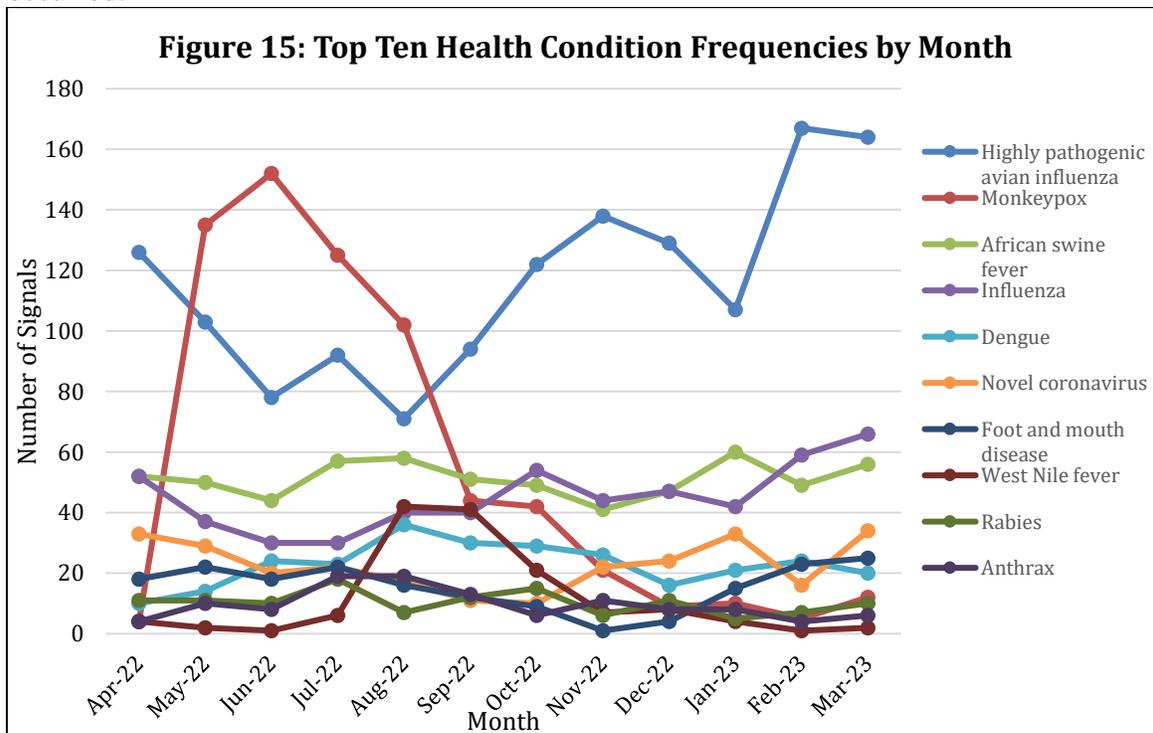
Disease Frequency Trends

KIWI disease trends provide valuable information in the form of disease signal frequency counts over time. While the trends do not represent case counts, one may infer seasonal patterns or an increase in a particular disease based on the frequency counts and constant number of information sources. For example, in **Figure 16: Mpox KIWI Hazard Trends,** the weekly frequency counts for Mpox are provided from September 2015 (when the KIWI system was initiated) to April 2023. A total of 844 Mpox signals came into the system during this time, 663 of which occurred during the 2022-2023 fiscal year. In 2022, the world experienced an unprecedented outbreak of Mpox outside of Africa, primarily in men who have sex with men. The outbreak initiated in the UK, in a traveler from Nigeria, and quickly spread into multiple European countries and then to the rest of the world. The WHO declared the outbreak a public health emergency of international concern in July 2022 and declared it over in May 2023. Approximately 90,000 cases of Mpox were reported worldwide during the outbreak, with 1,496 cases reported from Canada. During the outbreak, a few cases of Mpox were also reported in dogs in Europe and South America as well as in pigs in Africa. However, some of these findings were questionable and require further investigation. Prior to the outbreak, CEZD shared a systematic review on the changing epidemiology of Mpox, which identified it as a future threat due to the rise in cases since the 1970's, a change in the median age of infected individual from young children (4) to young adults (21 years-old), and a waning population immunity due to smallpox vaccine cessation. CEZD members also participated in and shared the results of a multidisciplinary Mpox hazard pathway analysis that occurred during the fiscal year and was led by the CFIA.

Figure 16: Mpox KIWI Hazard Trends
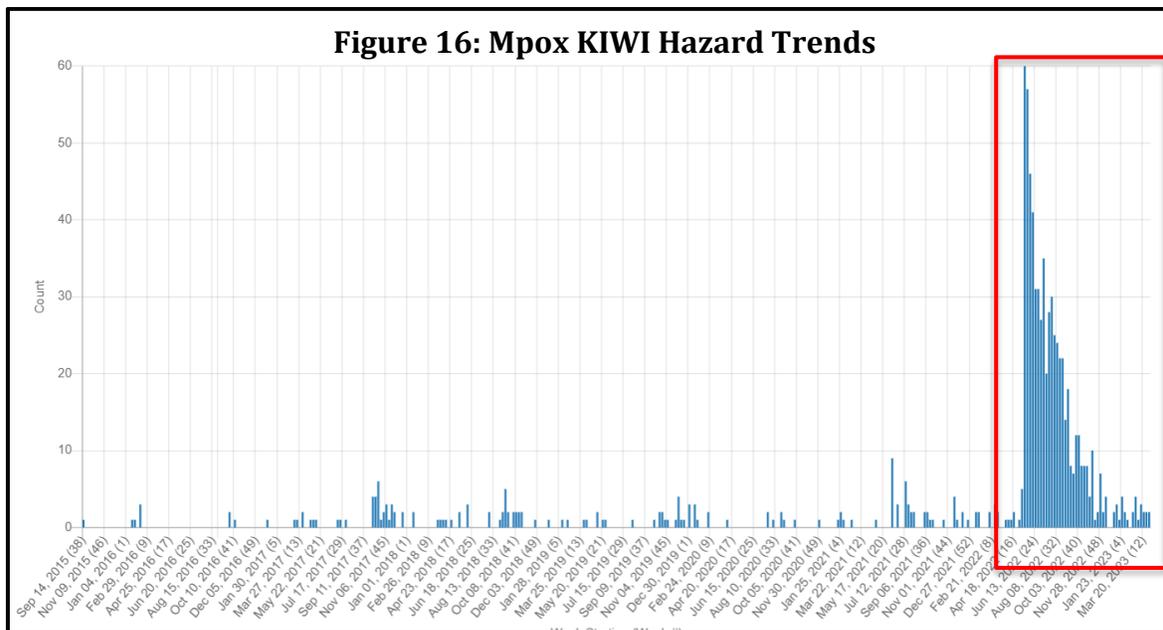
Notable Disease Events of the Year

Over the course of the year, the following events received the highest relevance ratings from the community:

- human cases of influenza A (H5, H3N8, H5N1),
- highly pathogenic avian influenza in birds and mammals in Canada, the USA, and South America,
- Mpox spread worldwide and cases in animals (dogs and pigs),
- African swine fever in domestic swine in Italy and Germany, and
- White-nose syndrome in Canada.

Table 4: Notable Events of the Year lists these events, the month they occurred, and their average rating. Other notable events not on the list include: Foot and mouth disease in Indonesia, Foot and mouth disease SAT – 2 spread in the Middle East, and equine influenza H3N8 mortality event in Colorado.

Table 4: Notable Events of the Year		
Event	**Month Reported**	**Average Rating**
Influenza A		
2 human cases of influenza A H5N1 in Cambodia (identified as clade 2.3.2.1c)	February 2022	4.0
1 human case of influenza A H5 in the USA	May 2022	3.5
2 human cases of H3N8 in China	April 2022 – May 2022	3.0 - 3.3
1 human case of H5 in Ecuador	January 2023	3.2
Highly pathogenic avian influenza		
HPAI H5N1 in Canada	April 2022 – ongoing	1.7 - 4.0
HPAI H5N1 in the USA	April 2022 – ongoing	1.2 – 3.5
HPAI H5N1 in Peru sea lion mortality	February 2023 – ongoing	3.3 – 3.5
HPAI H5N4 in the USA	October 2022	3.2
Mpox		
Mpox in Canada & worldwide	May 2022 – September 2022	1.8 – 4.0
Mpox transmission human to dog France	August 2022	3.3
Mpox in piglets in the Democratic Republic of Congo	January 2023	3.0
Mpox in dog in Brazil	August 2022	3.0
African Swine Fever		
ASF in domestic swine in Italy	June 2022 – ongoing	3.3
ASF in domestic swine in Germany	ongoing	2. 0 - 3.0
White-nose syndrome		
White-nose syndrome case in Saskatchewan	July 2022	3.0
Pseudogymnoascus destructans (white-nose syndrome causing fungus) in Alberta	January 2023	3.0

CEZD Going Forward

Going forward, the following items have been identified by the community as the top priorities for 2023-2024:

Risk Products & Reporting
- Develop a priority list of emerging and zoonotic disease risks to Canada
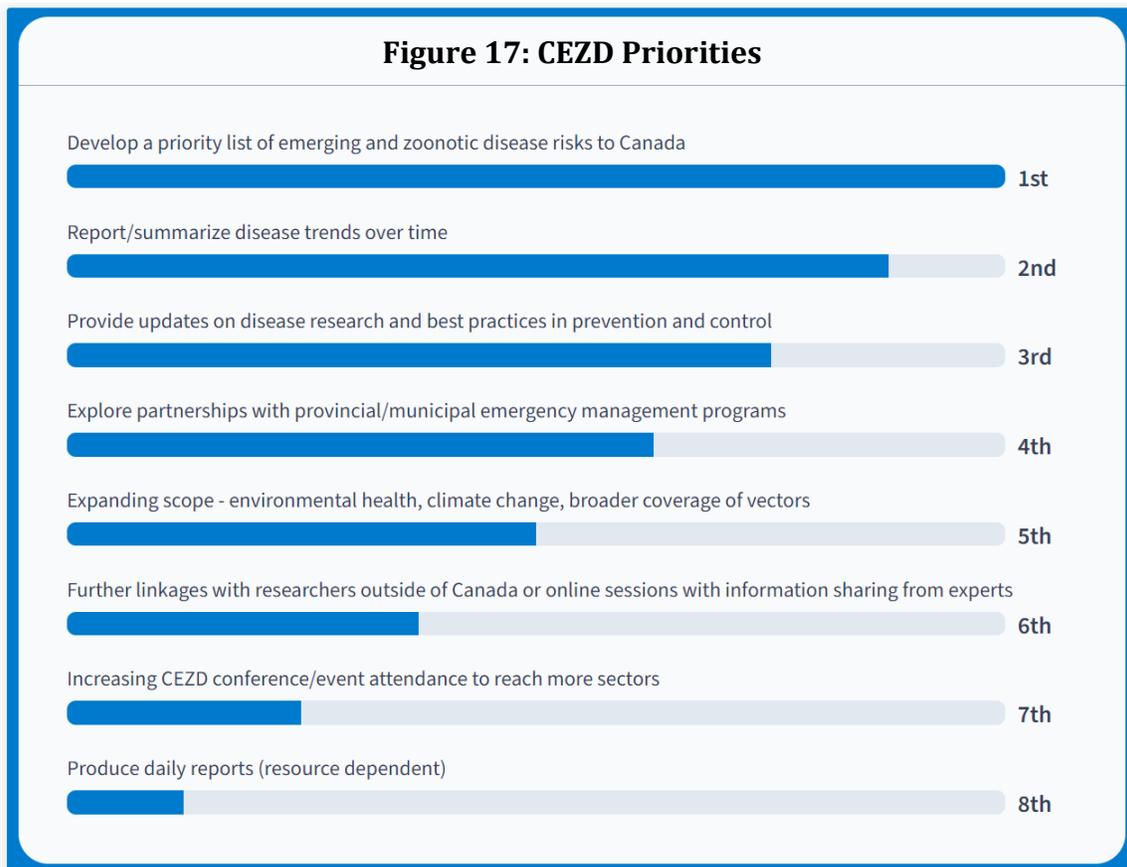- Reporting/summarizing trends over time

Research
- Provide updates on relevant research, guidance, and best practices

CEZD Engagement
- Explore partnerships with provincial/municipal emergency management programs

Figure 17: CEZD Priorities displays the results of a voting poll identifying the top priorities for CEZD in 2023-2024. The poll was sent to all actively engaged CEZD members (those with and without CNPHI access) and 19 responses were received. While all of the priorities identified by the community are important, due to limited resources, CEZD will attempt to complete those highest rated and within its resource capabilities.

Figure 17: CEZD Priorities

Develop a priority list of emerging and zoonotic disease risks to Canada — 1st

Report/summarize disease trends over time — 2nd

Provide updates on disease research and best practices in prevention and control — 3rd

Explore partnerships with provincial/municipal emergency management programs — 4th

Expanding scope - environmental health, climate change, broader coverage of vectors — 5th

Further linkages with researchers outside of Canada or online sessions with information sharing from experts — 6th

Increasing CEZD conference/event attendance to reach more sectors — 7th

Produce daily reports (resource dependent) — 8th

Appendix I: CEZD Information Sources

CEZD INFORMATION SOURCES

AUTOMATIC SOURCES (WITH RSS FEED)
OUTBREAK NEWS TODAY
THE POULTRY SITE
AVIAN FLU DIARY
CONTAGION LIVE
ECDC
EMPRESS-I
SWINE HEALTH INFORMATION CENTRE
FARMSCAPE
HEALTHY WILDLIFE BLOG
POULTRY MED
SWINE HEALTH INFORMATION CENTRE
THE WESTERN PRODUCER
THE HORSE SITE
WORMS & GERMS BLOG
CENTRE FOR INFECTIOUS DISEASE RESEARCH AND POLICY
MANUAL SEARCHED SOURCES (NO RSS FEED)
FOOD INSPECTION ENIVORNMENTAL SCANNING CANADA (FIESCA)
GOOGLE NEWS
FEEDSTUFFS
FLUTRACKERS
UNITED STATES ANIMAL HEALTH ASSOCIATION
ONTARIO FARMER
PROMED
PIG PROGRESS
GLOBAL INCIDENTS MAP
WORLD ANIMAL HEALTH INFORMATION SYSTEM
ONTARIO ANIMAL HEALTH NETWORK
THE CATTLE SITE