- Prioritization of zoonotic infectious diseases in Canada to inform capacity building for health professionals using multi-criteria decision-analysis — *Julie Thériault*
- Research in support of community-led wastewater surveillance and respiratory virus testing in remote Canadian communities — *Michael Becker*
- Protocol for a One Health Approach to Risk Assessment in Canada — *Melanie Cousins*
- Review of the Canadian Notifiable Disease Surveillance System — *Tracey Russnak-Redden*
- Knowledge mobilization pathways for wastewater-based surveillance to support public health — *Talia Glickman*

Prioritization of Zoonotic Infectious Diseases in Canada to Inform Capacity Building for Health Professionals Using Multi-Criteria Decision-Analysis (MCDA) - Julie Thériault

Introduction/background:
Approximately 60% of known infectious diseases in humans are zoonotic, and these diseases pose a significant threat to the health of Canadians, the healthcare system, and the economy. Health professionals need to have the resources to respond to zoonotic infectious disease (ZID) events as they play a crucial role on the frontlines. The objective of this work is to identify high priority emerging/re-emerging non-enteric ZIDs of greatest importance in terms of impact on human health, for subsequent capacity building and resource development for health professionals.

Methods:
A multi-criteria decision-analysis (MCDA) approach was used for prioritization. The following steps were used:
1) Identified diseases for prioritization.
2) Identified criteria to assess each disease.
3) Collected relevant data and used this information to score diseases against the criteria.
4) Developed an MCDA tool which uses the inputted data/scores to automate the MCDA ranking.
5) Weighted criteria according to importance with multiple scenarios including input from national health professional organizations.
6) Ranked diseases based on weighted scores.

Results and analysis:
A total of 52 diseases were identified and scored across 11 criteria (572 scores total). In the intial or baseline scenario, the top five diseases were: (1) bovine tuberculosis, (2) murine typhus, (3) MERS-CoV, (4) alveolar echinoccosis and (5) Nipah virus. This presentation will share the resulting final ranked diseases based on the health professionals capacity building scenario, and reflect lessons and considerations from this prioritization to inform action.

Conclusions and implications for policy, practice or additional research:
These findings identify which ZIDs ought to be a priority when developing and disseminating resources for Canadian health professionals. Future research will focus on examining the current resource landscape and identifying health professional resource needs and learning preferences so that capacity building activities for high priority diseases are evidence-based and appropriate.
(Current word count: 286)

Research in support of community-led wastewater surveillance and respiratory virus testing in remote Canadian communities — *Michael Becker*

Introduction/background:
Northern, Remote, and Isolated (NRI) communities in Canada, predominantly consisting of indigenous populations, face significant challenges accessing diagnostic testing. These challenges, largely exasperated by the COVID-19 pandemic, can include limited access to testing resources and healthcare infrastructure as well as logistical barriers to testing services. To address these issues, community-led initiatives have focused on decentralized COVID-19 testing and wastewater surveillance programs. This talk focuses on the validation of technologies that facilitate disease surveillance at NRI sites, including the development of solutions for in-community wastewater testing.

Methods:
The National Microbiology Laboratory Branch (NMLB) has validated multiple commercial point-of-care tests (POCTs) for use in NRI communities, including limit of detection experiments and post-market surveillance. Approaches for community-based wastewater testing were developed at NMLB to support SARS-CoV-2, Influenza A and B, and RSV surveillance. For communities leading wastewater surveillance initiatives, the NMLB's National Wastewater Surveillance Program provided side-by-side testing of wastewater samples collected and tested in community.

Results and analysis:
The molecular POCTs deployed to NRI communities produce results comparable to laboratory-developed tests and, to date, have shown no sensitivity loss when tested against any circulating SARS-CoV-2 variants. Wastewater surveillance data produced in community is consistent with data produced by NMLB's National Wastewater Surveillance Program, with several communities conducting on-site monitoring for SARS-CoV-2 and other respiratory pathogens since April 2020.

Conclusions and implications for policy, practice or additional research:
Community-led initiatives enable communities to improve their public health outcomes through the generation of high-quality clinical and wastewater surveillance data. These initiatives empower communities to take charge of their own health services and exercise their rights to self-determination. Presence of robust surveillance systems enables community leadership and public health officials to take timely action to prevent disease transmission. Ideally, this strategy can be extended to other pathogens affecting NRI communities in Canada, working towards more equitable and accessible public health tools.

Protocol for a One Health Approach to Risk Assessment in Canada (OHARA) - *Melanie Cousins*

Introduction/background:
Canada needs the capability for early detection, understanding and action to address One Health threats and reduce their potential wide-reaching impact. To fill this need, the Public Health Agency of Canada, in collaboration with partners across sectors, developed a protocol for a One Health Approach to Risk Assessment (OHARA). The goal of this protocol is to unify efforts for multi-sector risk assessments on One Health hazards.

Methods:
The protocol was developed using extensive consultation with Federal-Provincial-Territorial departments and agencies for public health, agriculture, and the environment from August 2022 to November 2023. This included an advisory committee, international workshop, technical session, environmental focus session, survey, literature review, and collaborative lexicon.

Results and analysis:
The OHARA protocol includes components related to a foundation (i.e., guiding principles and different perspectives), people (i.e., roles and responsibilities from strategic to project levels), system (i.e., generic risk assessment steps), and information (i.e., inputs and how they are shared). Generic steps follow a project management framework of initiation, execution, and closure phases. These steps can be scaled up or down to be applicable to a variety of risk assessment methods. Within each step, guidance and best practices are provided for working collaboratively across sectors.

The assessment of public health risks associated with avian influenza provided a learning opportunity to inform protocol development. For example, a key lesson learned was the importance of framing the risk with a multi-sectoral steering committee during the initiation phase. The protocol also proposes a process for escalating an issue where no clear lead is evident.

Conclusions and implications for policy, practice or additional research:
The development of the OHARA protocol brought together risk assessors from multiple sectors to understand roles and responsibilities, establish core principles, share methodologies, and strengthen networks. The protocol will be evaluated and updated on a regular basis, and a Scientific Secretariat will continue advancing collaboration through strategic activities.

Review of the Canadian Notifiable Disease Surveillance System (CNDSS) - *Tracey Russnak-Redden*

Introduction/background:
Nationally notifiable diseases (NNDs) are infectious diseases prioritized by federal, provincial and territorial (P/T) consensus for monitoring and control at the national level. In 2024, the Canadian Notifiable Disease Surveillance System (CNDSS) will mark 100 years of data collection and collaboration in this long-running, national public health surveillance program. There have been few changes in the operation of the CNDSS program over the past decade, thus warranting a program review with the goal of further strengthening the CNDSS.

Methods:
The CNDSS review consists of two components: 1) an internal technical assessment using well-established evaluation guidelines for surveillance systems, focussed on attributes of most relevance to CNDSS (e.g. usefulness, simplicity, stability, flexibility, data quality, acceptability, representativeness, and timeliness); 2) a survey of internal and external stakeholders to assess perceptions of CNDSS, including its objectives, usefulness, and unmet data needs.

Results and analysis:
CNDSS collates national-level epidemiological information of NND in one system, publicly accessible via the interactive website, Notifiable Diseases Online. The strengths include a stable historical record, well-established case definitions, simplicity, stability, representativeness and general acceptability. Its key challenges are the lack of flexibility to adapt and respond to changing informational needs and timeliness. CNDSS operations have not changed measurably in the past decade.

Conclusions and implications for policy, practice or additional research:
CNDSS has considerable scope, monitoring trends of approximately 60 NNDs, thus providing reliable data as far back as 1924. CNDSS data enhances the basic understanding of the epidemiology of these priority infectious diseases in the Canadian population, thus providing valuable information that aids in communicable disease prevention and control. Improvements in timeliness and responsiveness would greatly enhance this national surveillance system.

Knowledge mobilization pathways for wastewater-based surveillance (WBS) to support public health - *Talia Glickman*

Introduction/program need and objectives:
In the fall of 2022, the National Collaborating Centre for Infectious Diseases (NCCID) and Canadian Water Network (CWN) began a strategic and innovative partnership to build awareness among, and to offer opportunities for shared learning for public health audiences on the value and breadth of evidence from WBS. Program participants include representatives from regional, provincial, and federal public health authorities, and health authorities working in consultation with Indigenous communities.

Program methods, activities, and evaluation:
This project provides a mutual learning opportunity for knowledge producers and users through a strategic sharing group (SSG) that engages public health practitioners in monthly, virtual meetings to facilitate peer learning and knowledge sharing among members. An Expert Advisory Group (EAG) was assembled to provide ongoing guidance to develop comprehensive learning modules for the SSG. This presentation will share the KT activities developed based on SSG program participants identified WBS learning needs, such as sampling, data interpretation, communication, ethical considerations in rural and remote sites, and community engagement.

Program result or outcome:
This presentation will highlight case studies of promising practices on data visualization and integration of clinical and wastewater surveillance data, based on WBS programs including Kingston, Frontenac and Lennox & Addington Public Health, British Columbia Centre for Disease Control, Ottawa Public Health, and Toronto Public Health. Resources will also be developed based on the outcome of an online workshop on ethical considerations around WBS for rural and remote settings in the context of the Ownership, Control, Access, Possession principles (OCAP).

Recommendation and implication for practice:
This holistic KT strategy will inform and engage the public health audience at all levels. These KT products will offer an opportunity for demonstration project participants, government officials, and researchers to delve deeper into discussions and themes related to the application of WBS to support public health.