

In Collaboration with the University of Manitoba  
the Health Sciences Centre Winnipeg presents

# THE 27<sup>th</sup> ANNUAL BUG DAY Abstracts

## Overall Program Objectives:

By attending this program, the attendee will be able to:

1. State the names of the key pathogens that have been clinically and socially relevant over the past 27 years.
2. State how the determinants of health influence a person's risk for infection
3. State how to modify risk factors for the acquisition of infection

**Tuesday, October 17, 2023**



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## Bug Day Agenda

0753 - 0755	<b>Land Acknowledgment</b> Lanette Siragusa, RN, Shared Health	1200 - 1215	<b>Questions and Answers</b>
0755 - 0800	<b>Introduction to Bug Day / Grand Rounds</b> John Embil, MD, Winnipeg Regional Health Authority	1215 - 1245	<b>Lunch Break</b>
0800 - 0900	<b>Medical Grand Rounds: The Immunocompromised Host: A Call to Action</b> Armelle Villalobos, MD, University of Manitoba	1245 - 1300	<b>The Major Accomplishments of Public Health</b> Tim Hilderman, MD, Manitoba Health
0900 - 0915	<b>Harm Reduction in First Nations</b> Barry Lavallee, MD, Keewatinohk Inniniw Minoayawin Inc.	1300 - 1315	<b>What did COVID Teach Us?</b> Brent Roussin, MD, Manitoba Health
0915 - 0930	<b>Controlling Human Papilloma Virus: Closing the Gaps in the Screening and Treatment of Cervical Cancer through Self-Sampling</b> Patricia Garcia, MD, Cayetano Heredia University (UPCH), Peru	1315 - 1330	<b>Antimicrobial Household Products: The Good, The Bad, The Unknown</b> Ayush Kumar, MD, University of Manitoba
0930 - 0945	<b>New Therapies for the Management of Sepsis</b> Ryan Zarychanski, MD, University of Manitoba	1330 - 1345	<b>Questions and Answers</b>
0945 - 1000	<b>Questions and Answers</b>	1345 - 1400	<b>Infection with the Human Immunodeficiency Virus in Manitoba: The Current Crisis and Path Forward</b> Ken Kasper, MD, University of Manitoba Kimberly Templeton, MSc, Manitoba HIV Program
1000 - 1015	<b>Break</b>	1400 - 1415	<b>HIV, Hepatitis C and Syphilis Outbreaks in Saskatchewan: What Can Manitoba Learn from the Saskatchewan Experience</b> Stu Skinner, MD, University of Saskatchewan
1015 - 1030	<b>Breastfeeding in Women Infected with the Human Immunodeficiency Virus</b> Vanessa Poliquin, MD, University of Manitoba	1415 - 1430	<b>Changing Polices for Assessment of Sexual Risk Behaviours in Canadian Blood Donors</b> Mindy Goldman, MD, Canadian Blood Services
1030 - 1045	<b>Vaccine Preventable Diseases in the Aftermath of the Pandemic</b> Santina Lee, MD, University of Manitoba	1430 - 1445	<b>Questions and Answers</b>
1045 - 1100	<b>An Update on Congenital Syphilis</b> Jared Bullard, MD, University of Manitoba	1445 - 1500	<b>Break</b>
1100 - 1115	<b>Questions and Answers</b>	1500 - 1515	<b>Echinococcus multilocularis: A Deadly Tapeworm in Winnipeg?</b> Pierre Plourde, MD, Winnipeg Regional Health Authority
1115 - 1130	<b>The Persistent Threat of Filoviruses</b> Logan Banadyga, PhD, Public Health Agency of Canada	1515 - 1530	<b>An Unwanted Souvenir: Chagas on the Prairies</b> Philippe Lagacé-Wiens, MD, University of Manitoba
1130 - 1145	<b>The Global Public Health Information Network (GPHIN): An Essential Tool for Early Warning</b> Cas Taylor, MSc, Public Health Agency of Canada	1530 - 1545	<b>Manitoba's Most Unwanted: Frequently Recovered Parasites</b> Paul Van Caesele, MD, Cadham Provincial Laboratory
1145 - 1200	<b>Canada's Approach to Monitoring Infectious Diseases through Wastewater Surveillance</b> Chand Mangat, PhD, Public Health Agency of Canada	1545 - 1600	<b>Questions and Answers</b>

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This program has received in-kind support from the University of Manitoba

**The Immunocompromised Host: A Call to Action**  
Armelle Villalobos, MD  
Department of Medicine, University of Manitoba

**Abstract:**

The number of immunosuppressed patients has risen in recent decades. Complications arising from infections are common in these patients and can present diagnostic and therapeutic challenges. Immunosuppression can arise from a variety of causes, including specific diseases or drugs that improve and/or extend life. Depending on the nature of their immunosuppression, patients may be at risk for a variety of infectious complications, both common and rare. Immunosuppressed patients may not have typical symptoms of infection, which can delay care and present a diagnostic challenge. This talk will highlight the more common causes of immunosuppression, each of the causes will be discussed with regard to the pathophysiology of immunosuppression, infectious risks and other considerations, appropriate prophylaxis and/or treatment, and vaccinations.

**Objectives**

By attending this session, the attendee will be able to:

1. State the pathophysiology of immunosuppression from the most common immunocompromised states.
2. State the specific infectious risks and considerations for affected patients and how to manage them.
3. List the preventive measures that can be implemented to prevent infectious complications in immunocompromised individuals.

**Multiple Choice Questions (Select the best answer)**

1. What is the mechanism of action by which steroids cause immunosuppression?
  - a. They have effects on gene expression.
  - b. Inhibition of the synthesis of inflammatory cytokines.
  - c. They reduce the ability of leukocytes to adhere to vascular endothelium.
  - d. All of the above
2. Which of the following vaccines is indicated in adult patients who are considered asplenic?
  - a. Pneumococcal and Meningococcal vaccine
  - b. Measles, Mumps and Rubella vaccine booster
  - c. BCG booster.
  - d. Influenza and Respiratory Syncytial Virus vaccine
3. What laboratory study can we use to determine the risk of opportunistic infections in patients living with the Human Immunodeficiency Virus (HIV)?
  - a. Viral Load.
  - b. Number of years since the diagnosis of HIV
  - c. CD4 count
  - d. Lymphocyte count

**Harm Reduction in First Nations**  
Barry Lavallee, MD  
Keewatinohk Inniniw Minoayawin (KIM) Inc.

**Abstract:**

The need for differing approaches to address the escalated trauma associated with colonization in many First Nation communities heightened during the pandemic. The substantive barriers rest within the health services funding bodies (Government of Canada and Province of Manitoba). Their unpreparedness to bring service innovations, beyond the abstinence model, to meet the unprecedented needs of Manitobans (Indigenous and non-Indigenous) who use substances or alcohol to address their personal traumas is evident.

Keewatinohk Inniniw Minoayawin Inc. in partnership with Dispension Inc. with funding from Innovations Solutions Canada to create dispensing machines to be used as a platform to bring harm reduction needs to community. This is a one-year project and with evaluations to examine its utility as a new technology and a patient-centred analysis vis a vis bringing low level harm reduction services to a community in need. The Manitoba partnerships involve five service delivery organizations with KIM Inc. as lead.

This fifteen-minute presentation will discuss the implementation of eight such dispensing machines in urban, rural and remote areas of Manitoba.

**Objectives**

By attending this session, the attendee will be able to:

1. Differentiate between an abstinence model of care versus a harm reduction approach.
2. State three points to strengthen the use of harm reduction approaches for First Nation communities.
3. Design a model of harm reduction reflective of your patient's needs.

**Multiple Choice Questions (Select the best answer)**

1. Which of the following are essential to harm reduction?
  - a. Safer use
  - b. Managed use
  - c. Abstinence
  - d. Meeting people who use drugs "where they are at" see addressing conditions of use
  - e. All of the above
2. Which of the following statements is correct?
  - a. Harm reduction is a set of practical strategies and ideas aimed at reducing negative consequences associated with drug use.
  - b. Harm reduction is also a movement for social justice built on a belief in, and respect for, the rights of people who use drugs.
  - c. Does not attempt to minimize or ignore the real and tragic harm and danger that can be associated with illicit drug use.
  - d. All of the above
3. An indigenous led harm reduction strategy includes all of the following:
  - a. Increase access to, and inclusion in, cultural activities
  - b. Directly provide and work with partners to expand access to substitution therapies
  - c. Provide indigenous harm reduction services and promote the expansion of related strategies, practices and services
  - d. All of the above

# **Controlling Human Papilloma Virus: Closing the Gaps in the Screening and Treatment of Cervical Cancer through Self-Sampling**

Patricia Garcia, MD  
Cayetano Heredia University, Lima, Peru

## **Abstract:**

Our experience on implementation, research, and redesigning health systems to improve the screening and management of cervical cancer will be shared with the audience. These measures include utilizing women from the community and community health workers promoting Human Papilloma Virus (HPV) self-sampling, introducing tele-colposcopy and thermoablation for the management of precancerous cervical lesions in an Andean region of Peru. The goal is to reach the most vulnerable women, quechua indigenous women.

## **Objectives**

By attending this session, the attendee will be able to:

1. Describe the value of HPV self sampling to improve coverage of cervical screening especially in most vulnerable populations
2. Describe and operationalize the concept of Health systems redesign in relation to cervical cancer screening
3. Discuss the value of appropriate technology to improve the quality of health services and the importance of implementation research.

## **Multiple Choice Questions (Select the best answer)**

1. Mark those statements which are correct
  - a. HPV can cause cervical and other cancers
  - b. One of the advantages of HPV testing is that it is the only screening test that can be done with a vaginal sample taken by the woman herself
  - c. An advantage of HPV self-sampling is that it can increase screening coverage since it does not require women to go to a health service and can be done in the convenience of a woman's home, or in community settings that offer sufficient privacy.
  - d. The World Health Organization (WHO) recommends start HPV testing at 30 years and every 5 years if test is negative
  - e. All of the above
2. Mark the incorrect answer
  - a. It is necessary to develop appropriate strategies to inform women about their HPV test result in a timely manner.
  - b. If the HPV test result is positive, the woman will need to go to the health center for further follow-up care.
  - c. Redesigning systems using appropriate technologies could be used to build in systems to ensure all women with positive HPV test results will receive the management needed.
  - d. With appropriate counseling and education, we assure the adequate management of all HPV positive women, especially working with vulnerable populations.
3. Mark some new technologies that could improve the screening and management of cervical cancer?
  - a. Molecular HPV testing
  - b. New ablation techniques e.g. thermoablation
  - c. Connected colposcopy devices (e.g. pocket colposcope)
  - d. Artificial Intelligence (AI)
  - e. All of the above

## **New Therapies for the Management of Sepsis**

Ryan Zarychanski, MD

Department of Medicine, University of Manitoba

### **Abstract:**

Sepsis is life-threatening organ dysfunction caused by a dysregulated host response to infection. Worldwide, sepsis affects ~50 million people per year and represents the most preventable cause of death. Most infections, including viral and bacterial can result in sepsis. The cornerstones of sepsis management remains appropriate antimicrobials and supportive care and, with refinements in both of these domains, sepsis mortality has decreased. In this session we will discuss novel or evolving therapies of sepsis including an update on corticosteroids and the role of immunomodulatory, anti-inflammatory, anticoagulant therapies in sepsis and septic shock.

### **Objectives:**

By attending this session, the attendee will be able to:

1. Be familiar with current definitions and the presentation of sepsis
2. State what constitutes appropriate initial therapies for patients with sepsis
3. Understand current evidence for the use corticosteroids in sepsis
4. Identify adjunctive or emerging therapies in sepsis beyond antimicrobials

### **Multiple Choice Questions (Select the best answer)**

1. Which sepsis screening tool is NOT recommended for use in clinical practice
  - a. SIRS – Systemic Inflammatory Response Syndrome criteria
  - b. NEWS - National Early Warning Score
  - c. MEWS - Modified Early Warning Score
  - d. qSOFA – Quick Sequential Organ Failure Assessment Score
2. In cases of suspected/probable with signs of impaired tissue perfusion, what prescription of initial fluid resuscitation is recommended?
  - a. 30 mL/kg in 6 hours
  - b. 30 mL/kg in 3 hours
  - c. 30 mL/kg/hr for 6 hours
  - d. 30 mL/kg/hr for 3 hours
3. What is the hemoglobin goal in patients with sepsis and septic shock?
  - a. 100 g/L
  - b. 80 g/L
  - c. 70 g/L
  - d. There is no established goal

## **Breastfeeding in Women Infected with the Human Immunodeficiency Virus**

Vanessa Poliquin, MD

Department of Obstetrics, Gynecology and Reproductive Health

University of Manitoba

### **Abstract:**

Generally speaking, breastfeeding is regarded by health professionals as the optimal method of infant feeding, conferring multiple health benefits to the parent-infant dyad. In the context of infection with the Human Deficiency Virus (HIV), however, breastfeeding continues to carry a risk of transmitting the virus to the infant, even when the breastfeeding parent has a suppressed viral load. Depending on access to safe infant feeding alternatives, *not* breastfeeding also carries significant risk to infant health. Infant feeding practices and guidelines are varied throughout the world and pregnant patients living with HIV of find conflicting guidance from medical, community and social media outlets. Herein, we develop an approach to counselling patients living with HIV about infant feeding in the Canadian context.

### **Objectives**

By attending this session, the attendee will be able to:

1. Describe why parents living with HIV are motivated to consider breastfeeding their infants
2. List risks associated with breastfeeding in the context of HIV
3. State an approach to counselling about infant feeding for a parent living with HIV

### **Multiple Choice Questions (Select the best answer)**

1. What is the risk of transmitting HIV to an infant through breastfeeding if the breastfeeding parent has an undetectable viral load?
  - a. 0%
  - b. 1-2%
  - c. 5-10%
  - d. 15-20%
2. For most parents living with HIV in Manitoba, what is the recommended method of infant feeding?
  - a. Exclusive breastfeeding, with infant receiving zidovudine prophylaxis
  - b. Exclusive breastfeeding, with infant receiving combination antiretrovirals as prophylaxis
  - c. Mixed feeding
  - d. Exclusive bottle-feeding with alternative to HIV-infected parent's breastmilk
3. Where a breastmilk alternative cannot be safely prepared or reliably accessed, what is the recommended infant feeding strategy?
  - a. Exclusive breastfeeding, regardless of viral load in parent living with HIV
  - b. Exclusive bottle-feeding with whatever alternative is available
  - c. Bottle feeding when alternative is available and breastfeeding when it is not available
  - d. Exclusive breastfeeding, but only if the parent living with HIV has an undetectable viral load

## **Vaccine Preventable Diseases in the Aftermath of the Pandemic**

Santina Lee, MD

Department of Pediatrics and Child Health, University of Manitoba

### **Abstract:**

The COVID-19 pandemic has disrupted essential health services including routine immunization programs. Related to this, concerns have been raised of a predicted rise in vaccine preventable diseases (VPDs) and anecdotally there are reports of increasing cases of VPDs of which some of the presentations have been quite severe. However, what is actually happening? We will review how immunization rates changed because of the COVID-19 pandemic. In addition, we will review the number of VPD cases and the epidemiology of these cases and see how this compares to before and after the emergence of COVID-19.

### **Objectives**

By attending this session, the attendee will be able to:

1. State the impact of COVID-19 pandemic on routine immunization programs
2. State the impact of COVID-19 pandemic on the incidence and prevalence of vaccine preventable disease.
3. State changes to their practice that they may consider implementing in response to the changes in immunization rates

### **Multiple Choice Questions (Select the best answer)**

1. The COVID-19 pandemic has had the following impact on routine childhood immunizations:
  - a. No change
  - b. Increase in vaccination rates
  - c. Decrease in vaccination rates for all routine childhood vaccines
  - d. Decrease in vaccination rates for some routine childhood vaccines
2. The following is a factor that resulted in low routine childhood immunization coverage during the COVID-19 pandemic:
  - a. Fear of COVID-19 and consequential avoidance of health centres
  - b. Pause of routine immunization programs
  - c. Spread of misinformation
  - d. All of the above
3. Following COVID-19 pandemic, there has been:
  - a. No change in the number of cases of VPDs as compared to prior to the pandemic.
  - b. A decrease in the number of cases of VPDs as compared to prior to the pandemic.
  - c. An increase in the number of cases of VPDs as compared to prior to the pandemic.
  - d. Not enough time to determine whether there have been any changes to the number of cases of VPDs as compared to prior to the pandemic.

## **An Update on Congenital Syphilis**

Jared Bullard, MD

Department of Pediatrics and Child Health, University of Manitoba

### **Abstract:**

Congenital syphilis has increased significantly in Canada in the past decade. The Western provinces (Alberta, Saskatchewan and Manitoba) share a disproportionate number of those cases. In this session, we will discuss the shifting epidemiology of syphilis in Manitoba (and Canada) over the past decade and outline how those changes have resulted in increased numbers of syphilis-exposed infants. We will also review the clinical and laboratory findings of infants with congenital syphilis and discuss how our experience has led to changes in our practice.

### **Objectives**

By attending this session, the attendee will be able to:

1. State factors contributing to the increase in cases of congenital syphilis in Canada
2. Categorize cases of the syphilis exposed infant to triage into low and high risk categories
3. State possible changes in the investigation and management of syphilis exposed infants based on gained experiences

### **Multiple Choice Questions (Select the best answer)**

1. Maternal early latent syphilis is the highest risk for perinatal transmission?
  - a. True
  - b. False
2. At birth, the MOST likely clinical presentation of a high-risk syphilis exposed infant is:
  - a. No symptoms (asymptomatic)
  - b. Rhinitis (Snuffles)
  - c. Rash
  - d. General lymphadenopathy
3. The following factors would be considered high risk for congenital syphilis EXCEPT:
  - a. Lack of prenatal care
  - b. Diagnosis of another sexually transmitted and blood-borne infection (STBBI) in pregnancy
  - c. Syphilis is diagnosed and treated in the current pregnancy
  - d. Lesion resembling Herpes Simplex Virus (HSV) in appearance



## **The Persistent Threat of Filoviruses**

Logan Banadyga, PhD

National Microbiology Laboratory, Public Health Agency of Canada

### **Abstract:**

Filoviruses were first described in 1967, following an outbreak of Marburg virus in Germany and Yugoslavia that was linked to monkeys imported from Uganda. Since then, over 50 outbreaks have been recorded, each caused by one of the six currently known human-pathogenic filoviruses. Disease caused by these viruses is often severe, and case fatality rates have approached 90% in some outbreaks. Although bats are presumed to be the animal reservoir in which these zoonotic pathogens persist, definitive evidence for many of the filoviruses is still lacking. Ebola virus is arguably the most infamous filovirus and has been responsible for the majority of filovirus outbreaks, including the devastating 2013-2016 West African epidemic that resulted in over 28,000 cases primarily in Sierra Leone, Liberia, and Guinea. The unprecedented nature of this outbreak not only galvanized countermeasure development—ultimately leading to the clinical licensure of a handful of vaccines and therapeutics—but it also advanced our understanding of filovirus disease—highlighting, in particular, the risks associated with persistent infections and subsequent recrudescence. Nevertheless, there are still no approved vaccines or treatments for the other human-pathogenic filoviruses, which, like Ebola virus, continue to cause outbreaks of severe disease with alarming persistence.

### **Objectives**

By attending this session, the attendee will be able to:

1. Distinguish between different filoviruses and appreciate the breadth of filovirus diversity.
2. State the ongoing threat that filoviruses pose to global public health.
3. Identify the gaps in our understanding of filovirus disease, treatment, and ecology.

### **Multiple Choice Questions (Select the best answer)**

1. How many distinct filoviruses are currently recognized?
  - a. Less than five
  - b. Six
  - c. Ten
  - d. At least twelve
  - e. More than twenty
2. What is the estimated average case fatality rate for Ebola virus?
  - a. Less than 10%
  - b. Approximately 40%.
  - c. Greater than 50%
  - d. At least 90%
  - e. 100%
3. Filovirus outbreaks in humans have been linked to:
  - a. Contact between a single individual and an infected reservoir host, presumably a bat.
  - b. Contact between a single individual and an infected animal, such as a chimpanzee
  - c. Resurgence/recrudescence of virus in a previously infected individual
  - d. Sexual transmission of virus from a previously infected male individual
  - e. All of the above

# **The Global Public Health Information Network (GPHIN): An Essential Tool for Early Warning**

Cas Taylor, MSc

National Microbiology Laboratory, Public Health Agency of Canada

## **Abstract:**

The Global Public Health Intelligence Network (GPHIN) has been in operation since 1997. GPHIN consists of a platform which brings in thousands of news items every day from many sources, and analysts who examine the sources to identify potential public health threats and distribute their findings through a variety of products. Event-based surveillance differs from the traditional indicator-based surveillance in that it considers events, such as clusters of disease or rumors of unexplained deaths, rather than case counts or laboratory confirmations. GPHIN signals are used for situational awareness and early warning to assist in preparedness. GPHIN was subject to an external review in 2020-2021, and is undergoing an intensive modernization based on the recommendations of this review.

## **Objectives**

By attending this session, the attendee will be able to:

1. State the components and products of the GPHIN system
2. Differentiate event-based surveillance from indicator-based surveillance
3. State the role of event-based surveillance in preparedness and response

## **Multiple Choice Questions (Select the best answer)**

1. Which of the following are NOT steps taken to process the thousands of articles that come into the GPHIN system:
  - a. Deduplication
  - b. Risk assessment
  - c. Relevancy scoring
  - d. Categorization
2. Which of the following sources would be used in event-based surveillance systems?
  - a. Laboratory reporting systems
  - b. Provincial notifiable disease reports
  - c. Newspaper article about a cluster of COVID-19 cases in a care home
3. What is the core function of GPHIN, and many other event-based surveillance systems:
  - a. Early warning and improved situational awareness
  - b. Describing prevalence of disease
  - c. Identifying risk factors

# Canada's Approach to Monitoring Infectious Diseases through Wastewater Surveillance

Chand S. Mangat, PhD

National Microbiology Laboratory, Public Health Agency of Canada

## Abstract:

Wastewater surveillance is an emerging field that utilizes the analysis of sewage samples as a non-invasive and cost-effective approach to monitor and assess the health of communities in real-time. Wastewater, or sewage, is a rich source of information, contains biological, chemical, and genetic signatures that reflect the collective health status and behaviors of a population. Valuable insights can be gained from wastewater on a variety of health-related parameters, including the prevalence and trends of infectious diseases, illicit drug use, exposure to environmental contaminants, and lifestyle factors such as diet and medication consumption. Wastewater surveillance has been successfully employed globally to track COVID-19 and has been extended to include the monitoring of influenza, respiratory syncytial virus, and monkeypox virus. PHACs approach to wastewater monitoring of the above-mentioned diseases and plan for the monitoring of antimicrobial resistance will be presented.

## Objectives

By attending this session, the attendee will be able to:

1. State the history and implementation of wastewater monitoring for public health
2. State the technical limitations of wastewater monitoring
3. Define the use-cases for wastewater monitoring for public health

## Multiple Choice Questions (Select the best answer)

1. What are limitations to wastewater monitoring for public health
  - a. Shedding patterns
  - b. Disease incidence
  - c. Wastewater collection system design
  - d. All of the above
2. Which of the following is a primary purpose of wastewater monitoring at PHAC?
  - a. Monitoring the quality of drinking water
  - b. Identifying sources of pollution in rivers and lakes
  - c. Tracking the spread of infectious diseases in a population
  - d. Studying the impact of climate change on aquatic ecosystems
3. Which of the following could be a potential benefit of using molecular methods for pathogen detection through wastewater monitoring?
  - a. Higher cost compared to traditional methods
  - b. Limited sensitivity and specificity
  - c. Faster results compared to culture-based methods
  - d. Requirement for specialized training to perform the analysis

## **The Major Accomplishments of Public Health**

Tim Hilderman, MD  
Manitoba Health

### **Abstract:**

Public health can be defined as the organized efforts of society to keep people healthy and prevent injury, illness and premature death. Using this generally accepted definition as our guide, one might think that describing Public Health's major accomplishments would be relatively easy. However, when taking both a historical and global perspective we find that identifying the impacts of the combination of programs, services and policies that protect and promote the health of the human species on planet earth is actually very complex. While the absolutely "correct" list of Public Health's major accomplishments may be elusive, this presentation will use the concepts of health and public health to put forth a thought provoking yet defensible list.

### **Objectives**

By attending this session, the attendee will be able to:

1. State the concept of health as more than the absence of disease
2. Describe the importance of perspective in the defining Public Health's major impacts
3. Critically appraise a list of Public Health's major accomplishments

### **Multiple Choice Questions (Select the best answer)**

1. Health can be defined as "a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity". Which of the following contribute to health at an individual and population level?
  - a. Income and social status
  - b. Education and literacy
  - c. Access to health services
  - d. Childhood experiences
  - e. All of the above
2. Which of the following would be considered a function or attribute of Public Health??
  - a. Health Protection
  - b. Health Promotion
  - c. A combination of programs, services and policies that protect and promote the health of all Canadians
  - d. Political System (ex. democracy, monarchy, authoritarian etc)
  - e. a, b, and c
3. Which of the following is not a major accomplishment of public health?
  - a. Reductions in child mortality
  - b. Vaccine-preventable diseases
  - c. Access to safe water and sanitation
  - d. Reality Television
  - e. Malaria prevention and control

## What did COVID Teach Us?

Brent Roussin, MD  
Manitoba Health

### Abstract:

The COVID pandemic had devastating effects on all aspects of our health. The direct effects of the virus cost many lives and caused and continues to cause significant morbidity. Despite being a novel virus with universal susceptibility, we observed significant disparities in severe outcomes amongst many groups, especially BIPOC communities.

Dramatic public health measures were required in order to slow the spread of the infection to avoid catastrophic impacts on the health care system. These non-pharmaceutical interventions also had significant effects on health both directly and indirectly through social and economic impacts. Many of these interventions, including vaccine mandates, continue to cause division in our society. There are remarkable parallels in this respect to the 1918 influenza pandemic.

As we recover from this pandemic and prepare for the next, we continue to learn about the drivers of ill health in our society and what can be done to better prepare for the next event.

### Objectives

By attending this session, the attendee will be able to:

1. State many disproportionate effects of the pandemic on BIPOC communities.
2. State the negative impacts of the utilized non-pharmaceutical interventions and vaccine mandates.
3. State the general principles of pandemic preparedness.

### Multiple Choice Questions (Select the best answer)

1. In Manitoba, what was the average age disparity for severe outcomes for BIPOC communities compared to other Manitobans?
  - a. 5 years
  - b. 10 years
  - c. 15 years
  - d. 20 years?
2. Which of the following best describes the core principles of public health ethics??
  - a. Harm principle, least restrictive means, reciprocity, transparency
  - b. Beneficence, non-maleficence, autonomy, justice
  - c. Informed consent, confidentiality, autonomy, least restrictive means
3. Which of the following best describes the basic reproductive number?
  - a. The average number of cases generated by a single case in a generally susceptible population.
  - b. The proportion of a population expected to be infected within a given time frame.
  - c. The amount of live births per population in a given year.

## **Antimicrobial Household Products: The Good, The Bad, The Unknown**

Ayush Kumar, PhD

Department of Microbiology, University of Manitoba

### **Abstract:**

Antimicrobial household products are widely used to clean and disinfect surfaces, kill germs, and prevent the spread of infections. The use of antimicrobial household products, such as antibacterial soap, during the pandemic has risen significantly. However, the frequent and indiscriminate use of these products can have harmful effects on both human health and the environment. A major risk associated with the use of antimicrobial household products is the development of antibiotic resistance in bacteria. Active compounds in the antimicrobial products select for mutations in bacteria that confer cross resistance to antibiotics. In this session, the mechanisms of cross resistance between antimicrobial household products and antibiotics will be discussed.

### **Objectives:**

By attending this session, the attendee will be able to:

1. State the mechanism(s) of cross-resistance between antimicrobial household products and antibiotics
2. State the impact of antimicrobial household products on our ability to treat infectious diseases
3. Make informed decisions regarding the use of such products in households

### **Multiple Choice Questions (select the best answer)**

1. Use of antibacterial soaps is the best available option to clean our hands:
  - a. True
  - b. False
2. Antimicrobial household products:
  - a. Can select for bacteria with reduced susceptibility to antibiotics
  - b. Can pollute our water bodies
  - c. Is a highly stable molecule
  - d. All of the above
3. Which of the following countries *recently* banned antibacterial soaps?
  - a. Canada
  - b. United States
  - c. France
  - d. England

## **Infection with the Human Immunodeficiency Virus in Manitoba: The Current Crisis and Path Forward**

Ken Kasper, MD<sup>1</sup>, Kimberly Templeton, MSc<sup>2</sup>

<sup>1</sup>Department of Medicine, University of Manitoba

<sup>2</sup>Manitoba HIV Program

### **Abstract:**

Between 2018 and 2021, Manitoba saw a 52% increase in the total number of people diagnosed with infection with the Human Immunodeficiency virus (HIV) and numbers continue to rise. The latest report out of the Manitoba HIV Program shows an epidemiological trend in Manitoba that is changing and that looks much different than Canada as a whole. Half of people newly diagnosed in Manitoba between 2018 and 2021 were female, eight in 10 were heterosexual, and 65% of females and 35% of males reported injection drug use (primarily methamphetamine), with injection drug use and heterosexual sex being the most common modes of HIV acquisition. Most people diagnosed with HIV presented to care with other complex health conditions, namely multiple sexually transmitted and blood-borne infection (STBBIs) and mental health concerns, and a growing proportion of clients reported experiencing houselessness. Indigenous Peoples in Manitoba continue to be disproportionately impacted due to the ongoing impacts of colonization, structural racism, and intergenerational trauma. The Manitoba HIV Program has partnered with several stakeholders to generate broad calls to action that respond to the provincial HIV crisis and pave a path forward for comprehensive, equitable and holistic care for people living with HIV in Manitoba.

### **Objectives**

By attending this session, the attendee will be able to:

1. State the current situation of HIV in Manitoba and how it differs from Canadian trends.
2. State the actions the Manitoba HIV Program will lead in response to the HIV crisis.
3. State the role primary care providers will play in enhancing access to care for people living with HIV in Manitoba.

### **Multiple Choice Questions (Select the best answer)**

1. How much higher is the rate of HIV in Manitoba compared to the rate of HIV in Canada?
  - a. Almost twice as high
  - b. Over three times higher
  - c. The rates of HIV between Manitoba and Canada are the same
  - d. Four times higher
2. What is the most common comorbidity affecting people in Manitoba who are diagnosed with HIV?
  - a. STBBIs
  - b. Mental health
  - c. Cardiovascular disease
  - d. Tuberculosis
3. What role can primary care providers play in the care of people in Manitoba living with HIV?
  - a. Client referral to the Manitoba HIV Program
  - b. Conduct baseline medical assessment
  - c. Support HIV treatment initiation with the Manitoba HIV Program
  - d. Support ongoing treatment and monitoring in collaboration with the Manitoba HIV Program
  - e. All of the above

## **HIV, Hepatitis C and Syphilis Outbreaks in Saskatchewan: What Can Manitoba Learn From the Saskatchewan Experience**

Stuart Skinner, MD

Department of Medicine, University of Saskatchewan

### **Abstract:**

Saskatchewan has had the highest rates of infection with the Human Immunodeficiency Virus (HIV) in Canada for 15 years. The epidemic has continued on despite education, testing and expansion of clinical services. While traditionally the majority of cases are associated with injection drug use, which has also correlated with the highest rates of infection with the Hepatitis C virus (HCV) in Canada, recently there has been a massive increase in syphilis cases and other sexually transmitted infections (STIs). This has corresponded with increased HIV rates, indicating a shift to higher rates of sexual transmission. The Saskatchewan epidemics are very unique within Canada due to the high rates of co-infections, injection drug use, rurality, young women and Indigenous populations being affected. This has required tailored approaches to these affected populations. These have included outreach, point of care testing (POCT) projects in community and unique sites, peer programs, virtual care and community led initiatives to address this. Manitoba and Saskatchewan share a very similar population demographic and, given the limited resources available for our provinces in the prairies, the need for partnership and combined approaches is a critical way forward.

### **Objectives**

By attending this session, the attendee will be able to:

1. State the current situation in Saskatchewan relating to HIV, HCV and syphilis and unique initiatives on-going to address this.
2. State the factors that makes these epidemics unique compared to the rest of Canada and the significant overlap with Manitoba.
3. Describe the need for partnership and opportunities to share information and work together between Manitoba and Saskatchewan clinicians and researchers.

### **Multiple Choice Questions (Select the best answer)**

1. Regarding HIV in Saskatchewan, which of the following is not a unique characteristic compared to the rest of Canada?
  - a. High rates of HCV co-infection
  - b. High rates of men who have sex with men transmission
  - c. Disproportionately affecting young women
  - d. Disproportionate rates amongst Indigenous populations
2. What is the percentage increase in syphilis rates in Saskatchewan from 2019 to 2021?
  - a. 9%
  - b. 90%
  - c. 900%
  - d. 9000%
3. Which of the following potential ways of developing partnership between Manitoba and Saskatchewan would you recommend that would be most effective to address HIV? Please pick only one.
  - a. Develop a joint research program, including students, trainees and post-graduate students
  - b. Develop a joint HIV clinical program with shared initiatives and interventions
  - c. Develop a joint clinical database to compare outcomes and analysis by providing a large dataset
  - d. Provide faculty and trainees to have a joint appointment at both the University of Manitoba and Saskatchewan providing more interchange of ideas and knowledge



## Changing Policies for Assessment of Sexual Risk Behaviours in Canadian Blood Donors

Mindy Goldman MD  
Canadian Blood Services

### Abstract:

Screening donors for high risk sexual behaviours is important to ensure recipient safety, since pathogens such as infection with the Human Immunodeficiency Virus (HIV) may be transmitted by both transfusion and sexual routes and a window period exists between infection and detection by testing. Recently, several countries have moved away from time-based deferrals for men having sex with men, to approaches based on sexual behaviours in all donors. These changes are partly due to consultation with communities who felt stigmatized by previous policies and efforts to promote a more diverse and inclusive donor base.

In Canada, gay, bisexual, and other men who have sex with men are a higher risk group for HIV, and male donors were asked about sex with another man and deferred first indefinitely, and then for progressively shorter periods of time after having sex with another man. In September, 2022, the 3 month deferral for male to male sex was replaced by deferral of all donors who had anal sex with a new sexual partner or more than one sexual partner in the last 3 months. This presentation will summarize evidence used to assess the safety of this policy change and available post-implementation safety data.

### Objectives

By attending this session, the attendee will be able to:

1. Describe the recently implemented approach to risk-based sexual behaviour criteria for blood and plasma donors in Canada.
2. Outline the evidence used to assess the possible impact of changing policy on the safety and adequacy of the blood supply.
3. Discuss post-implementation monitoring and results to date.

### Multiple Choice Questions (Select the best answer)

1. Which of the following statements is false:
  - a. Blood is highly regulated in Canada, and changes that affect the safety of the blood supply must be approved by Health Canada.
  - b. There has been little change in policies to assess sexual risk behaviour in the last few years.
  - c. There is considerable variability in blood donor policies internationally.
  - d. Canada is one of several countries who have moved away from a time-based deferral for men who have sex with men.
2. Which of the following statements is true?
  - a. Views community groups are not important in considering donor criteria changes.
  - b. It is possible to do a randomized trial of different donor criteria approaches to assess acceptability and safety.
  - c. When risks are extremely low, risk modeling can be helpful to assess a possible increased risk associated with a change.
  - d. Testing is so good, you don't really need any donor criteria to prevent HIV transmission to recipients.
3. Which of the following statement(s) are true:
  - a. Canadian research studies played a major role in providing data to inform policy changes
  - b. The current risk of getting HIV from a blood transfusion in Canada is about 1 in a million.
  - c. Post-implementation monitoring will include assessment of donor compliance with the new criteria.
  - d. a and c
  - e. All of the above.

## ***Echinococcus multilocularis*: A Deadly Tapeworm in Winnipeg?**

Pierre Plourde, MD

Winnipeg Regional Health Authority

### **Abstract:**

*E. multilocularis* is a tapeworm that primarily infects dogs, foxes and coyotes, but can also infect humans. In humans, *E. multilocularis* causes alveolar hydatid disease, a serious condition that mimics metastatic malignancy and has a poor prognosis. It is known that coyotes in rural Manitoba are infected with this tapeworm, but until recently it was not known if coyotes in peri-urban areas are also infected. Fecal samples collected in 2018 from coyotes in and around Winnipeg were found to be positive for this tapeworm in 7% of samples, with no positive domestic dog samples. The presence of *E. multilocularis* in coyote feces in the metropolitan area of Winnipeg highlights the need for periodic surveillance, and the need to educate the public about preventive actions.

### **Objectives:**

By attending this session, the attendee will be able to:

1. Describe the life cycle and clinical manifestations of *E. multilocularis* infection in humans.
2. Describe the epidemiology of *E. multilocularis* in the Winnipeg Health Region.
3. State strategies for the prevention of *E. multilocularis* and recommendations for dog owners.

### **Multiple Choice Questions (Select the best answer)**

1. A 20-year-old person from rural Manitoba presents with right upper abdominal pain and is found on abdominal CT scan to have a disorganized looking invasive lesion in the liver. What is the most likely diagnosis?
  - a. Alveolar hydatid disease
  - b. Liver cancer
  - c. Metastatic cancer in the liver
  - d. Tuberculosis in the liver
  - e. All of the above are possible
2. Which of the following are most likely to become infected with *E. multilocularis*?
  - a. A child playing in the dirt in the back yard in Winnipeg
  - b. A dog owner who has their pet dog regularly checked for worms
  - c. A gardener in Winnipeg who grows vegetables in their back yard
  - d. A person eating wild blue berries while picking them in rural Manitoba
  - e. A researcher collecting fox feces samples for a research study who practices hand hygiene
3. Which of the following were recently found to have *E. multilocularis* positive canine feces samples in Winnipeg?
  - a. Assiniboine Park
  - b. Charleswood Dog Park
  - c. Kilcona Dog Park
  - d. Omand's Creek Park
  - e. All of the above

## **An Unwanted Souvenir: Chagas on the Prairies**

Philippe Lagacé-Wiens, MD

Department of Medical Microbiology and Infectious Diseases, University of Manitoba

### **Abstract:**

Chagas disease is a chronic and potentially life-threatening infection that remains a neglected tropical disease. Despite advances in diagnosis and management, appropriate screening, ancillary investigations and treatment recommendations are not widely known among Manitoba's health care providers. However, Manitoba's diverse population, which includes many South American Mennonite migrants, means many Manitobans are at risk of unrecognized infection. These infections can lead to permanent cardiac and gastrointestinal disease as well as congenital infections of infants born to infected mothers. Reactivation of disease during immunosuppression for transplants and cancer therapy represents another significant risk to our population. The purpose of this session is to introduce healthcare providers to the complexities of diagnosis and treatment of Chagas disease in a non-endemic country.

### **Objectives**

By attending this session, the attendee will be able to:

1. Describe risk factors for Chagas disease in Manitobans
2. Name the appropriate screening and confirmatory tests for Chagas disease
3. Describe appropriate investigations and treatment options for patients with chronic Chagas

### **Multiple Choice Questions (Select the best answer)**

1. Which of the following is NOT an appropriate indication for screening patients for Chagas disease?
  - a. An asymptomatic 40-year-old woman born in Uruguay
  - b. A 35-year-old man whose mother was born in Brazil with a new diagnosis of 1<sup>st</sup> degree heart block
  - c. A patient from Nigeria with a new diagnosis of 2<sup>nd</sup> degree heart block and dilated cardiomyopathy
  - d. A 16-year-old girl born in Canada whose mother is from Brazil and had a diagnosis of Chagas disease 10 years ago
  - e. A 60-year-old man from Venezuela about to undergo bone marrow transplant
2. Which of the following is the most appropriate screening test for chronic Chagas disease?
  - a. *Trypanosoma cruzi* PCR
  - b. *Trypanosoma cruzi* serology (IgG)
  - c. Xenodiagnosis with *Triatoma infestans*
  - d. Blood smears for trypanosomes
  - e. Biopsy and microcopy and heart tissue, oesophagus or colon.
3. Which of the following should be offered antiparasitic treatment for Chagas disease?
  - a. A 45-year-old man with a pacemaker for a 3<sup>rd</sup> degree heart block from Chagas disease
  - b. A healthy asymptomatic 35-year-old woman with known congenital Chagas
  - c. A 25-year-old pregnant woman from Paraguay with a confirmed diagnosis of chronic Chagas disease
  - d. A 78-year-old man with chronic Chagas with megaesophagus and megacolon with normal cardiac function
  - e. An asymptomatic healthy 69-year-old woman with a new diagnosis of Chagas disease from Canadian Blood Services

## Manitoba's Most Unwanted: Frequently Recovered Parasites

Paul Van Caesele, MD  
Cadham Provincial Laboratory, Shared Health

### Abstract:

Canada's climate is not well suited to supporting the lifecycles of many parasites, but we still can boast supporting some tough customers among parasites that affect humans. In Manitoba, the most commonly detected gastrointestinal parasites are often locally acquired and associated with symptoms. Local epidemiology, lifecycles, disease manifestations and treatment options for the top three gastrointestinal parasites (perhaps not which the audience would expect) will be discussed. In addition, we will close with a warning about another zoonotic nematode that is prevalent amongst urban, sub-urban and rural wildlife that is extraordinarily difficult to treat once introduced into humans.

### Objectives

By attending this session, the attendee will be able to:

1. Name and recognize the manifestations of Manitoba's most common gastrointestinal parasites.
2. Offer treatment and management options for the top three gastrointestinal parasites we encounter.
3. List risks and prevention methods for avoiding a local dangerous zoonotic roundworm.

### Multiple Choice Questions (Select the best answer)

1. The two most common protozoan intestinal parasites in the world are considered to be:
  - a. *Enterobius spp* and *Trichomonas spp*
  - b. *Balantidium spp* and *Endolimax spp*
  - c. *Giardia spp* and *Cryptosporidium spp*
  - d. *Blastocystis spp* and *Dientamoeba spp*
2. It has been long postulated that one parasite may act as a vector for the other, carrying the other into new human hosts. Which pair are implicated in this unresolved theory?
  - a. *Ascaris spp* is possibly a vector for *Blastocystis spp*
  - b. *Enterobius spp* is possibly a vector for *Dientamoeba spp*
  - c. *Diphyllobothrium spp* is possibly a vector for *Isospora spp*
  - d. *Strongyloides spp* is possibly a vector for *Entamoeba spp*
3. Regarding *Baylisascaris procyonis* which of the following is most accurate?
  - a. Eggs deposited in the environment are immediately infectious.
  - b. Humans can be a definitive host, and adults form in about 12 weeks
  - c. Eggs are chemically resistant and only heat can destroy infectivity.
  - d. Once infected, a human can transmit *Baylisascaris spp* disease to others in their household.

## Answers to Multiple Choice Questions

### 1. The Immunocompromised Host: A Call to Action

1. d
2. a
3. c

### 2. Harm Reduction in First Nations

1. e
2. d
3. d

### 3. Controlling Human Papilloma Virus: Closing the Gaps in the Screening and Treatment of Cervical Cancer through Self-Sampling

1. e
2. d
3. e

### 4. New Therapies for the Management of Sepsis

1. d
2. b
3. c

### 5. Breastfeeding in Women Infected with the Human Immunodeficiency Virus

1. b
2. d
3. a

### 6. Vaccine Preventable Diseases in the Aftermath of the Pandemic

1. c
2. d
3. d

### 7. An Update on Congenital Syphilis

1. b
2. a
3. c

### 8. The Persistent Threat of Filoviruses

1. d
2. b
3. e

### 9. The Global Public Health Information Network (GPHIN): An Essential Tool for Early Warning

1. b
2. c
3. a

### 10. Canada's Approach to Monitoring Infectious Diseases through Wastewater Surveillance

1. d
2. c
3. c

**11. The Major Accomplishments of Public Health**

1. e
2. e
3. d

**12. What did COVID Teach Us?**

1. d
2. a
3. a

**13. Antimicrobial Household Products: The Good, the Bad, the Unknown**

1. b
2. d
3. b

**14. Infection with the Human Immunodeficiency Virus in Manitoba: The Current Crisis and Path Forward**

1. b
2. b
3. e

**15. HIV, Hepatitis C and Syphilis Outbreaks in Saskatchewan: What Can Manitoba Learn from the Saskatchewan Experience**

1. b
2. c
3. No right answer

**16. Changing Policies for Assessment of Sexual Risk Behaviours in Canadian Blood Donors**

1. b
2. c
3. d

**17. *Echinococcus multilocularis*: A Deadly Tapeworm in Winnipeg?**

1. e
2. d
3. c

**18. An Unwanted Souvenir: Chagas on the Prairies**

1. c
2. b
3. b

**19. Manitoba's Most Unwanted: Frequently Recovered Parasites**

1. d
2. b
3. c