10/15

New Brunswick Disease Watch Bulletin

Office of the Chief Medical Officer of Health

Highlights of the 22nd Edition

We welcome feedback and suggestions for topics. Please submit them to our editor Dr. Cristin Muecke, Medical Officer of Health – Provincial Programs at dr.cristin.muecke@gnb.ca.

Electronic copies of the bulletin can also be found on the Department of Health website under publications at: http://www2.gnb.ca/content/gnb/en/departments/ocmoh/publications.html.

Physician report sparks food borne illness investigation

A family doctor in Nackawic, New Brunswick telephoned Central Region Health Protection Branch on Monday December 8, 2014 after having seen three patients with gastrointestinal symptoms. One person was hospitalized. All three patients had attended a Christmas dinner at a local hall in Nackawic on the evening of December 5, 2014.

The Health Protection Branch began an immediate investigation and discovered that the dinner was hosted by a number of local churches, with 105 people in attendance.

Health Protection actions included interviewing ill people, inspecting the hall where the event occurred, ensuring the disposal of leftover food and securing food samples from the event.

Results

The Health Protection Branch interviewed 58 attendees at the function including 37 who reported becoming ill. Symptoms reported by respondents included diarrhea, abdominal cramps, nausea, headache, chills, vomiting, and fever. One case had bloody diarrhea. Cases had onset of symptoms between three and 17 hours after eating at the event (median incubation period eight hours) and experienced an illness of short duration (<48 hours). One death occurred in a case. One set of stool samples from a case was submitted for bacterial and viral tests.

The investigation found a number of food items served at the event including four turkeys prepared by three home cooks in their own kitchens. The four turkeys had been purchased frozen and defrosted in cold water or in sinks at the cooks' homes. The cooks used "pop up" turkey timers to determine how long the turkeys

10362

were cooked. The turkeys were cooled at the home kitchens; at least half of them were cooled at room temperature. The turkeys were transported to the event hall and disassembled; the meat was combined in a roasting pan and warmed at 200°F. Stuffing, potatoes, string beans and carrots, and gravy were prepared at the hall. The drippings of the four turkeys were combined in ice cream containers at 3 pm and held on the counter at room temperature until the gravy was made around 5:30 pm. Members of the community supplied various pies that were homemade or purchased from local bakeries or grocery stores. Inspection of the event hall revealed that vinegar was used as an environmental sanitizer.

Stool sample results yielded the presence of *Clostridium perfringens* toxin. Consistent with this finding, food sample results also revealed the presence of *Clostridium perfringens* toxin and the bacteria *Bacillus cereus*. Although all ill attendees who were interviewed ate the turkey, some attendees who consumed turkey did not become ill. The statistical relationship between consumption of turkey and illness could not be calculated. Epidemiologic analysis established a statistically significant association between consumption of gravy and consumption of string beans and carrots with becoming ill.

Discussion

Both bacterial toxin production and bacterial growth can proliferate if foods are improperly cooked, cooled and stored. For example if cooked food is left between four degrees C and 60 degrees C, then levels of *Clostridium perfringens* toxin will increase to levels that can cause illness. *Bacillus cereus* can also multiply when cooked foods are left at temperatures between four and 60° C. Meats and meat products are the foods most frequently seen in outbreaks associated with *Clostridium perfringens*.

The source of the likely causative organisms in this outbreak is not known but could have originated from: the raw products, food handling surfaces, or how the food was stored, thawed, handled and served. Food handling and temperature control was suboptimal, which could have resulted in growth of organisms. For example, the use of turkey pop-up timers during cooking does not ensure accurate assessment of the internal temperatures of food. In addition, the use of vinegar as a sanitizer is not recommended as it does not sufficiently inactivate bacteria, viruses and toxins.

Policy and practice implications

The clinical instinct of the physician who reported the first cases helped Public Health to investigate an outbreak and implement control measures. Under the New Brunswick *Public Health Act* and associated regulations, medical practitioners are obligated to report notifiable diseases and clusters of illness thought to be food- or water-borne to a medical officer of health. Given the short duration of illness, the timely report in this case was critical to enabling an investigation of an outbreak that resulted in more than 38 illnesses and one death.

In this incident, inadequate food safety knowledge resulted in temperature abuse of foods that were served to a large number of people. In 2009, the Government of New Brunswick created new regulations under the *Public Health Act*, which required church groups and other not-for-profit groups to obtain a licence in order to hold events such as church suppers. This regulation was rescinded in 2010 by the previous provincial government. Therefore, currently not-for-profit groups holding public events where food is served are not licensed. There is no Public Health inspection of community not-for-profit kitchens where foods are prepared for large groups. Although free food safety seminars are available on request, systematic or routine food handler education does not occur for those who participate in the preparation of foods for these events.

Following the investigation, the Office of the Chief Medical Officer of Health has been exploring options to improve food safety, which may include legislative and provincial policy changes.

In response to this incident, Central Region staff in the Health Protection Branch have actively promoted existing free food safety seminars to non-profit groups. As a result of the media coverage of this outbreak and regional outreach, the number of participants in these safe food handling seminars in Central Region has increased by 1,100 per cent in the first half of 2015.

New Brunswick's influenza vaccines for 2015-16

For the 2015-16 influenza season, the Department of Health will be offering **quadrivalent influenza vaccine**, which will replace the previously used trivalent influenza vaccine.

The quadrivalent influenza vaccines are designed to protect against four influenza viruses; two influenza A viruses and two influenza B viruses. The inclusion of a second lineage of influenza B is in response to the co-circulation of both lineages and/or challenges in the prediction of which lineage will circulate in a given season. [1]

The quadrivalent influenza vaccine will be available, free of charge, to individuals at high-risk of influenza-related complications and those capable of spreading the flu to individuals at high-risk. However, influenza vaccine is recommended for anyone six months of age and older without contraindications. Additional information about the eligibility for publicly funded influenza vaccines can be found in the *New Brunswick Immunization Program Guide* [2].

The publicly funded influenza vaccines for the 2015-16 season include two products: **Fluzone Quadrivalent** (Sanofi Pasteur) and **Flulaval Tetra** (GlaxoSmithKline). Health care providers can request a specific product; however, there is no guarantee which product they will receive as it will depend on product availability nationally.

Protection: As per the World Health Organization (WHO) recommendations, all seasonal quadrivalent influenza vaccines for 2015-16 contain the following strains [3]:

- A/California/7/2009 (H1N1) pdm09-like virus
- A/Switzerland/9715293/2013(H3N2)-like virus
- B/Phuket/3073/2013-like virus
- B/Brisbane/60/2008-like virus

Product packaging information:

- Fluzone Quadrivalent and Flulaval Tetra are supplied in 5mL multidose vials (10 doses / vial).
- A multidose vial of Fluzone Quadrivalent, which has been entered and stored at 2° to 8°C, may be used up to the expiry date indicated on the vial label [4].
- Once a multidose vial of Flulaval Tetra has been entered, the vial should be discarded within 28 days [5].
- A small quantity of Fluzone Quadrivalent dose pre-filled syringes will be also available from Central Serum Depot upon request.

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2. Office of the Chief Medical Officer of Health. *New Brunswick Immunization Program Guide*. Accessed on August 4, 2015 and available from: http://www2.gnb.ca/content/gnb/en/departments/ocmoh/for_healthprofessionals/cdc/NBImmunizationGuide.html
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Expanded access to Hepatitis B vaccine

The eligibility criteria for the publicly funded hepatitis B vaccine have been expanded to include men who have sex with men (MSM) who have not been previously vaccinated. Hepatitis B virus transmission occurs primarily among unvaccinated persons with behavioural risks. Hepatitis B vaccination is the most effective measure to prevent infection and its consequences, including cirrhosis of the liver, liver cancer, liver failure and death. This enhancement to the program was in response to an increase in the incidence of reported acute hepatitis B cases among MSM in the province.

Please review the immunization status of your patients and offer vaccination to those who are eligible for this vaccine. It is important to note that MSM may describe themselves as gay, bisexual or heterosexual. Therefore, risk levels for sexually transmitted and bloodborne infections (STBBIs) may not be evident in all patients and more explicit questioning may be warranted. An offer of testing for all STBBIs as well as education and counselling on ways to reduce exposure should also be considered.

More information about the eligibility criteria for Publicly Funded Vaccines and Biologics in New Brunswick is in the *New Brunswick Immunization Program Guide*: http://www2.gnb.ca/content/dam/gnb/Departments/h-s/pdf/en/CDC/HealthProfessionals/NBIPG-standard3-3-e.pdf.

Health inequities and the social determinants of health – A role for health professionals

Natural variations in genetics and constitution that occur among individuals mean that it is normal to observe differences in health across populations [1]. When differences in health status systematically appear between groups that occupy different positions on the social hierarchy – where the more socially disadvantaged group experiences poorer health – they come to be known as health inequities. Socially disadvantaged groups and communities may be distinguished by characteristics such as race or ethnicity, income or education, sexual orientation or gender identity, or any other characteristic associated with discrimination, marginalization, or exclusion from economic and social opportunities [2-9]. Health inequities are unfair as they arise from situations outside of the direct control of the individuals or groups affected [10], preventing them from obtaining their fundamental human right to the highest attainable standard of health [2-6, 9].

Health Inequity

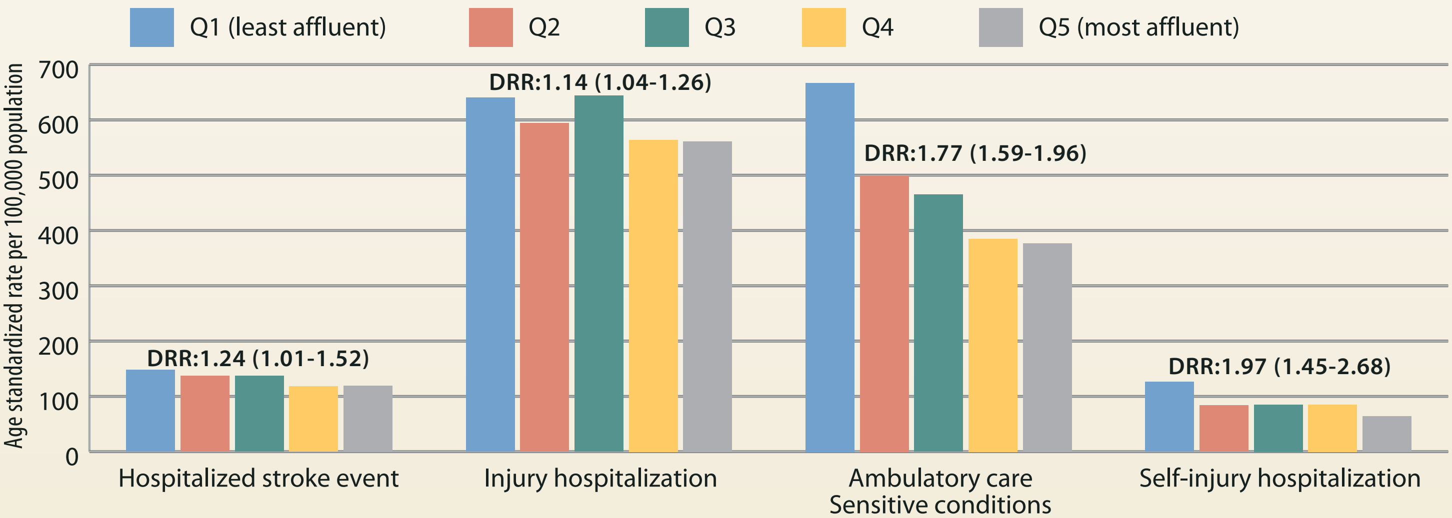
A health inequity is a systematic and unfair difference in health status between groups that occupy different positions on the social hierarchy, where the more socially disadvantaged group experiences poorer health.

Health Equity

Health equity is concerned with achieving the highest possible standard of health for all by reducing, with the goal of eliminating, differences in health, and the social determinants of health, between groups with different underlying levels of social advantage.

Health inequities affect all New Brunswickers because they are a driver of health-care costs [11] and because there is a social gradient where a linear decrease in health can be seen with decreasing social position [1, 11]. Moreover, research suggests that scale of a society's inequality is a determinant of population health, where greater income differences are associated with lower standards of population health [12]. Examples of this social gradient can be seen in Figure 1, where differences in hospitalization rates are observed between New Brunswick's most and least affluent neighborhoods as well as at every neighbourhood income quintile. However, the gradient is not a straight line – as the figure shows, the lowest income neighbourhoods suffer the greatest burden. If we are to reduce health inequities in the province, we need to focus on "levelling-up" or bringing up the health of disadvantaged individuals and groups to the level of the most advantaged [1].

Figure 1: Hospitalization rate in New Brunswick for selected health indicators, by neighbourhood income quintile, for 2011-2012



DRR: Disparity Rate Ratio. DRR is the indicator rate for the least affluent neighbourhood income quintile (Q1) to the rate for the most affluent neighbourhood income quintile (Q5). All DRR shown indicate a statistically significant disparity between Q1 and Q5 rates. Data is presented as DRR (95% confidence interval).
Adapted from: CIHI Health Indicator 2013 Report.

Addressing the Social Determinants of Health in the Clinical Environment [16]

Regularly screen patients for poverty, and intervene where necessary.

Ensure your practice is accessible to all patients, especially marginalized populations.

Offer advanced access and same-day scheduling.

Build an anti-poverty team shaped around your community's needs.

Understand and provide forms for provincial/territorial social assistance programs.

Health-care providers can work to close these gaps through their practices by acting on the social determinants of health. Dr. Chris Simpson, president of the Canadian Medical Association (CMA), recently blogged about the importance of physicians getting involved in the social determinants of health of their patients and reviewed CMA progress on this issue [13]. Similarly the Canadian Nurses Association provides online resources and articulates the responsibility of nurses to promote health equity through action on the social determinants of health [14]. Indeed, research suggests that 50 per cent of population health is determined by our social and economic environment, compared to only 25 per cent being determined by the health care system [15].

The College of Family Physicians of Canada has recently released a Best Advice Guide on the social determinants of health. It provides concrete steps on how to consider and improve patients' social determinants of health, including suggested clinical, community, and population-level interventions [16]. For example, the Ontario College of Family Physicians' Poverty Committee has developed a poverty intervention tool (http://ocfp.on.ca/cpd/povertytool) that uses a simple verified question for detecting those living below the poverty line: "Do you ever have difficulty making ends meet at the end of the month?"

The authors point out that poverty has been shown to be a risk to health equivalent to hypertension, high cholesterol and smoking. Work is underway to adapt this tool to the New Brunswick setting. (Rosemary Boyle, personal communication, August 2015).

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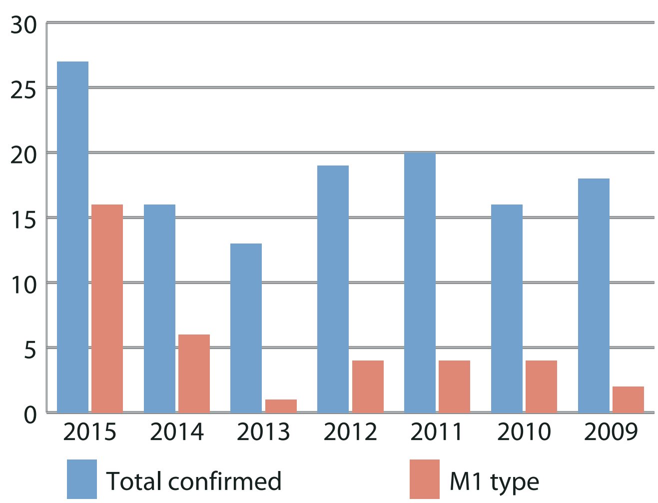
[16] The College of Family Physicians of Canada, “Best Advice Guide: Social Determinants of Health,” The College of Family Physicians of Canada, 2015. http://patientsmedicalhome.ca/resources/best-advice-guide-social-determinants-health/

Increase in reports of invasive group A *Streptococcus* in New Brunswick

Current Situation:

The incidence of invasive group A *Streptococcus* (IGAS) infections has been increasing in New Brunswick since the beginning of January 2015. From January 1 to July 31 2015, 27 confirmed and four probable cases were reported to Public Health. The average annual number of confirmed cases during the last six calendar years has been 17. And hence, 27 cases during about half of the year are significant. What is interesting to note is that the majority (60 per cent) of confirmed cases reported in 2015 have been of a single serotype (M1 type), which is also atypical compared to previous years (Figure 1). Of those confirmed cases, 15 (55.5 per cent) have developed severe symptoms and three (11 per cent) reported death, which is consistent with previous years.

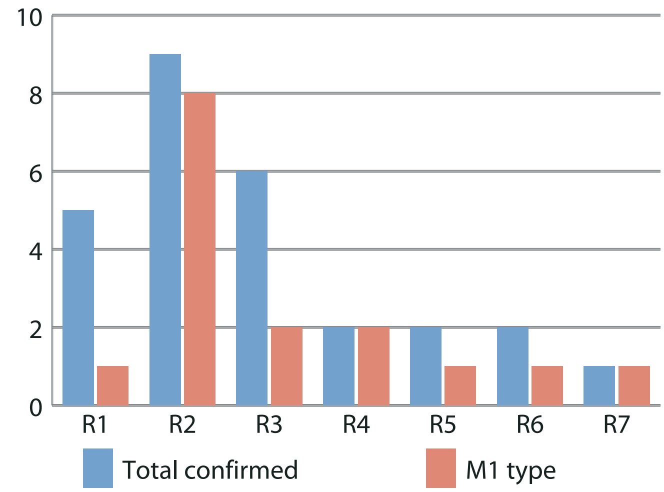
Figure 1: Total number of IGAS cases versus number of M1 type IGAS cases 2009–2014 and 2015 (Jan 1–July 31), New Brunswick



From January to July 2015, 16 IGAS cases were identified as M1 type 50 per cent of which were reported in Region 2 (Figure 2).*

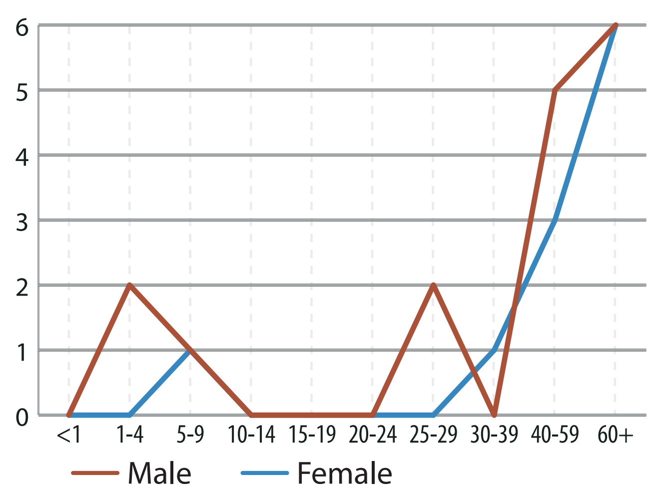
* R1=Moncton
R2= Saint John
R3= Fredericton
R4= Edmundston
R5= Campbellton
R6= Bathurst
R7= Miramichi

Figure 2: Total number of IGAS cases versus number of M1 type IGAS cases, January 1–July 31, 2015, by health region of New Brunswick



There was no predominant clinical presentation noted or any common risk factors between cases. Males were higher than females, 16 cases (59.26 per cent) versus 11 cases (40.7 per cent) respectively. Cases fell primarily under 10 years and 40+ year age groups, with almost half of all cases (44 per cent) in the 60+ age group (Figure 3).

Figure 3: IGAS confirmed cases by gender and age groups, 2015, New Brunswick



In addition, there are no epidemiological links between cases that suggest a single source outbreak. The exception to this is a small family cluster in Region 2 where both parents were diagnosed with IGAS and the son had non-invasive GAS disease.

Discussion:

Conventionally, differentiating between GAS strains is done by M typing. There are more than 200 known M types of GAS [1]. In general, 25 M types account for about 95 per cent of cases. Four types (M1, M28, M3, and M12) account for 50 per cent and M1 type alone account for 23 per cent of cases analyzed [2]; and is usually the most prevalent M type reported in Canada and in North America [3,4]. Sudden increases in GAS incidence accompanied by increases in M1 (or M3) have also been noted [5-7]. The lack of epidemiological or common risk factors among reported cases is not uncommon. Indeed, M1 generally targets a wide range of the population as a whole rather than one specific group per se. For example, the age distribution of M1 is broad rather than landing on specific age groups, which is more common in other M types [4].

Harris et. al. [8] states:

"*Localized and transient increases in sporadic GAS infections may occur because of an influx of a new emm type into a population with low levels of community immunity to that specific emm type; an increase in the detection and reporting of IGAS without a true increase in infection; or an increase in conditions that predispose persons to IGAS, such as GAS pharyngitis among children or concurrent influenza or other virus outbreaks in the community.*"

It was recognized that M1 strains were increasing in prevalence since the beginning of January 2015. However, the major increase in number of reported cases involving M1 we have seen this year in NB did not replace other M types, rather, occurring in addition to them. Other M types worth mentioning for the current year are M3 type, and M12 type (seven per cent of reported cases each).

Clinical information was collected on M1 type cases captured in different regions and compared with cases of other M types within same calendar year and during the past five years. Nothing significant was noted. An inquiry to neighbouring provinces and American states has been conducted and similar increases have not been seen in other provinces or bordering states.

Studies have found that higher rates of IGAS infection are predominately detected in young children and the elderly; in males more than in females; and that the incidence rate is higher in winter and spring and lowest in autumn. In NB, reported cases so far for the current year, males were higher than females and distribution of the age-groups is as expected for this M type. However, no seasonal pattern was noticed.

Risk factors include alcohol abuse, illicit drug use, homelessness, chronic illness such as diabetes, cardiac, renal, HIV infection, skin infections, and varicella in the past two weeks. Close contact with IGAS cases and household colonization is among the risk factors as well.

There is a higher risk of secondary attacks in close contacts of IGAS cases. Part of routine investigation is contact identification and tracing; and if cases are part of long-term care facility, childcare setting or hospitals. Detailed definitions of close contact are outlined in the Public Health Agency of Canada's Guideline [9]. Chemoprophylaxis administration to all close contacts of a confirmed case of severe group A streptococcus, to prevent disease in colonized individuals and in those who have recently been exposed, thereby decreasing transmission of a strain known to cause severe infection is recommended in these guidelines.

In response to the increased cases, the Office of Chief Medical Officer of Health (OCMOH) had communicated with regional Public Health offices, local labs, reference labs and clinicians regarding their roles and responsibilities.

In conclusion, we are seeing an increase in the number of reported IGAS cases in New Brunswick, dominated by a single strain, M1 type. The strain type has historically been present at a lower proportion in NB, however, it is the most common type in Canada and worldwide. The origin of the increase in M1 cases remains unclear, and no specific risk group has been more heavily impacted.

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IGAS contact chemoprophylaxis

Chemoprophylaxis should only be offered to close contacts of a lab confirmed (isolation from normally sterile site) severe case of IGAS. Severe cases may be manifested by one or more of the following conditions: Streptococcal toxic shock syndrome, soft-tissue necrosis (including necrotizing fasciitis, myositis or gangrene), meningitis, GAS pneumonia, other life-threatening conditions or death [9]. Chemoprophylaxis should be administered to close contacts (household, sexual, IV drug dranng, direct contact with secretions) as soon as possible, in consultation with regional Public Health, and preferably within 24 hours of case identification but is still recommended for up to seven days after the last contact with an infectious case.

Table 1: Recommended Chemoprophylaxis Regimens for Close Contacts [9]

Drug	Dosage	Comments
First-generation cephalosporins: cephalexin, cephadroxil, cephradine	**First line. Children and adults:** 25 to 50 mg/kg daily, to a maximum of 1 g/day in 2 to 4 divided doses × 10 days	Recommended drug for pregnant and lactating women. Use with caution in patients with allergy to penicillin or those using nephrotoxic drugs (e.g. aminoglycosides, vancomycin) .
Erythromycin	**Adults:** 500 mg every 12 hours (base) × 10 days **Children**: 5 to 7.5 mg/kg every 6 hours or 10 to 15 mg/kg every 12 hours (base) × 10 days (not to exceed 1 g/day)	Contraindicated in persons with pre-existing liver disease or dysfunction and during pregnancy. Sensitivity testing where macrolide resistance is unknown or known to be ≥ 10%.
Clarithromycin	**Adults:** 250 mg every 12 hours × 10 days **Children:** 15 mg/kg daily divided into 2 equal doses (not to exceed 500 mg/day)	Contraindicated in pregnancy. Sensitivity testing where macrolide resistance is unknown or known to be ≥ 10%.
Clindamycin	**Adults:** 150 mg every 6 hours × 10 days **Children:** 8 to 16 mg/kg daily divided into 3 or 4 equal doses × 10 days (not to exceed 600 mg/day)	Alternative for persons who are unable to tolerate beta-lactam antibiotics.

Children's environmental health: Taking action!

For children to reach optimal health and wellness, the environments where they live, play, learn and grow need to be safe and healthy. Because children are growing and developing so quickly, they are uniquely vulnerable to health effects caused by exposure to environmental hazards.

Children are vulnerable to environmental hazards in their first environment – the womb. Environmental pollutants are especially hazardous during fetal development, when the vital organs are developing. Exposures of even minute quantities of pollutants during these sensitive periods of development can cause damage to the brain, reproductive organs, immune systems and other organ systems [1].

More than 800 chemicals are known or suspected to be endocrine-disrupting chemicals (EDCs) but few have been properly tested, even though ample evidence exists of widespread and simultaneous exposure of humans and wildlife to multiple EDCs. Of particular concern is the exposure to persistent pollutants and EDCs as well as heavy metals in utero and during childhood [2].

In response to these concerns, and an interest in finding ways to reduce New Brunswick children's exposures to chemicals in the air, water and soil, the Children's Environmental Health Collaborative was created in 2005. Its goal is to work collaboratively to promote healthy environments where children grow, learn, live and play and to reduce their exposures to environmental contaminants that may contribute to illness and chronic disease.

Today, the network is made up of several hundred people from nearly 100 agencies and organizations, including representatives from government and non-government sectors, academia, education, nurses, public health professionals, family resource centres and parents. Even children are now a part of this network!

It is important to understand the environment as a determinant of health for our children and future generations. According to Dr. Trevor Hancock, professor and senior scholar, School of Public Health and Social Policy, University of Victoria (March 28 2013):

Photo courtesy of Tracy Jeffries

" If we want healthy children then we must create healthy environments. We must understand that health and the environment are intimately connected. Ecosystem health is the ultimate determinant of health for now and in the future and children are the most dramatically affected by changes in our system."

This network has dedicated and passionate individuals, a strategic committee and teams that have created work plans based on the larger groups' strategies for action. One such team is Team Policy, whose mandate is to improve policy and legislation related to children's environmental health. It does this by respecting national, provincial and municipal jurisdictions and by using evidence and best practices, research and philosophies from other groups across Canada and the world.

Its most recent work involves taking a Child's Rights Based Approach to live in a healthy safe environment. With respect to the United Nations *Convention on the Rights of the Child*, the network has partnered with the New Brunswick Child and Youth Advocate with support from others such as Ecojustice and Raffi Cavoukian, a child advocate who has devoted himself to "child honouring".

Other teams within the Children's Environmental Health Collaborative do work in partnership with many others. Providing education, tools, resources and support for families and caregivers to promote health and well-being and healthy environments for children is some of the great work being done together!

The New Brunswick Children's Environmental Health Collaborative is looking for interested participants from a multidisciplinary background to participate in this network. Family physicians would add great value to this network.

For more information (New Brunswick Environmental Network): http://www.nben.ca/index.php/en/

Resources about children's environmental health:

Children's Environmental Health Network http://cehn.org/

World Health Organization, Children's Health and the Environment http://www.who.int/ceh/en/

Canadian Partnership for Children's Health and Environment http://www.healthyenvironmentforkids.ca/

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Overview of the 2014-15 influenza season in New Brunswick

Background

Influenza surveillance in New Brunswick (NB) is comprehensive and consists of several components. It is linked with national and international surveillance and monitors several indicators of influenza spread and intensity. Components of influenza activity surveillance in NB are:

- Laboratory: Dr. Georges-L-Dumont University Hospital Centre (DGLDUHC) lab reports all requested influenza tests and their results.
- Clinical: Influenza-like-symptoms (ILI) consultation rates through FluWatch sentinel physicians and the NB Sentinel Practitioners Influenza Network (SPIN) practitioners.
- Outbreak reporting from nursing homes and other institutions to regional Public Health
- Influenza hospitalizations: Hospitals to regional Public Health

Influenza activity in New Brunswick for the 2014-15 season

Despite the different predominant circulating strain, the 2014-15 influenza season in NB was comparable to the 2013-14 season in terms of lab-confirmed influenza case counts (1,408 versus 1,479 influenza cases, respectively) and duration of activity. Influenza activity peaked around Week 3 and Week 4 (January 18-31, 2015) with a positivity rate of more than 40 per cent, followed by a 13-week period (Week 5 to Week 17) of positivity rate fluctuating around the 35 per cent mark, with the later weeks mainly due to Influenza B activity (Figure 1). ILI consultation rates were highest around the same period of the influenza positivity peak (Weeks 4 and 5) and remained at or below average until the end of the season.

The main feature of this season in NB, as elsewhere in Canada, was the unprecedented[1] high number of reported influenza outbreaks in nursing homes (42 outbreaks in NB). The most likely reason for this finding is that influenza A (H3N2) was the predominant strain, which disproportionately affects elderly population (as observed in previous seasons with the same predominant strain). In addition the circulating influenza A (H3N2) strain experienced antigenic drift, resulting in significant vaccine mismatch [1, 2]. This created a perfect environment for the elderly (65 years and older) to be mostly affected: this age group constituted more than half (55 per cent) of all confirmed influenza A cases and three quarters (75 per cent) of all hospitalizations.

Another finding was the higher number of reported hospitalizations and deaths in hospitalized cases compared to the previous season. New Brunswick started collecting data on

1 Collection of Information on Influenza outbreaks started 10 years ago

influenza hospitalization in the 2013-14 season; therefore with this limited two-season data we cannot confirm if the reported number was higher than expected for this season, or was less than expected for the previous season. However, the increase in the 2014-15 can be a true increase especially with the elderly being mostly affected, and the fact that the geriatric population tends to have other health conditions that can render influenza more severe or influence a health-care providers' decision to hospitalize cases. The proportion of ICU admissions among hospitalized patients, though, was less than reported last season (10 per cent in 2014-15 season vs 20 per cent in 2013-14).

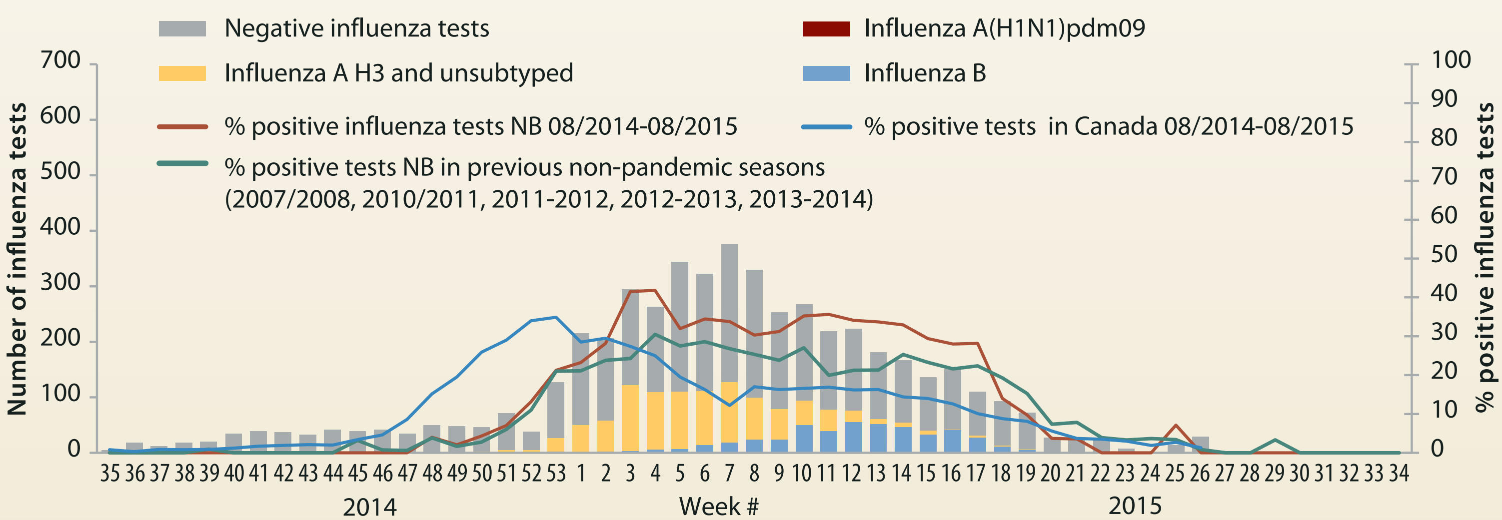
In the 2014-15 Influenza season, the National Microbiology Laboratory (NML) antigenically characterized 216 influenza A (H3N2), of which 210 (97 per cent) viruses were antigenically not a match to the recommended H3N2 component of the 2014-15 northern hemisphere influenza vaccine. A study conducted by Canada's Sentinel Physician Surveillance Network (SPSN) to assess the vaccine effectiveness (VE) against medically attended, laboratory confirmed influenza A(H3N2) infection in January 2015 found little or no vaccine protection provided, consistent with the substantial vaccine mismatch detected by NML [3]. Another study held to assess VE against influenza A(H3N2) hospitalization in the elderly in Quebec, found no cross-protection against hospitalization reinforcing the need for adjunct protective measures among high-risk individuals and improved vaccine options [4].

Consistent with the above VE studies, it was observed, that despite the relatively high vaccination rate among residents in the nursing homes in NB (median 93 per cent), a large proportion of residents were affected (median ILI attack rate in the nursing homes was 27 per cent); in addition, more than half of the hospitalized cases (58 per cent) with known vaccination status reported to be vaccinated.

This season, for NB, was also characterized by a higher than expected number of reported influenza B cases (n= 470) compared to the previous five-season average (~123 cases of influenza B), although this strain primarily affected younger people (almost 70 per cent were younger than 65 years).

For more details about the 2014-15 Influenza season, please refer to *New Brunswick Influenza Activity Summary Report: 2014-15 season* posted at the following link: http://www2.gnb.ca/content/dam/gnb/Departments/h-s/pdf/en/CDC/Influenza/InfluenzaActivitySummaryReport2014-2015.pdf and the Weekly New Brunswick influenza reports posted at the following link: http://www2.gnb.ca/

Figure 1: Number and percent of positive influenza specimens in New Brunswick by week, up to July 4, 2015 (data source: DGLDUHC Lab results)



Note: Most of the Influenza A unsubtyped specimens are of the predominant strain.

content/gnb/en/departments/ocmoh/cdc/content/influenza/influenza_surveillance_activities.html

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Antiviral use in long term care facilities

Influenza outbreaks in long-term care facilities (LTCF) can lead to substantial morbidity and mortality due to the residents' medical conditions, advanced age and the closed environment. Prevention, early detection and implementation of control measures are vital to effective communicable disease management in this setting. New Brunswick Public Health's recommendation to use antiviral drug prophylaxis as a supplement to vaccine administration to control outbreaks in LTCFs aligns with the Association of Medical Microbiology and Infectious Disease Canada (AMMI) guidelines (http://www.ammi.ca/guidelines/). The process for use of antivirals in LTCF is outlined at: http://www.gnb.ca/0212/AntiviralCoverage-e.asp This process is also found in *The Guidelines for the Prevention and Management of Seasonal Influenza in Licensed Nursing Homes in New Brunswick* which is available in LTCFs.

To ensure that this vulnerable population has the best protection against influenza, immunization and antivirals are key in the effectiveness of an outbreak control strategy.