

02/15

New Brunswick Disease Watch Bulletin

Office of the Chief Medical Officer of Health

Introduction

Welcome to the 20th edition of the *New Brunswick Disease Watch Bulletin*.

This volume provides an overview of the most significant public health event of 2014, the Ebola Virus Disease (EVD) outbreak in West Africa. Other communicable disease related articles include an article on antibiotic management of Gonococcal Infections, and an update on emerging respiratory illness and reporting. There is a review of the best practices for ordering, storing and handling vaccines after the widespread power outages we experienced during recent storms.

This issue contains two articles on the health effects of alcohol consumption – one examines how alcohol affects individual and population health, the other article reviews the serious health and social concern of Fetal Alcohol Spectrum Disorder (FASD).

Furthermore, there is a short article dispelling some common myths about UV indoor tanning, and a summary of current nutrition guidance for healthy term infants.

As usual, 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>.

Ebola: Public Health Emergency at our Doorstep

The most significant public health event of 2014 is without a doubt the Ebola Virus Disease (EVD) outbreak in West Africa. It was declared a Public Health Emergency of International Concern by the World Health Organization (WHO) on August 8, 2014. Many thousands of people have become infected and died in the most affected countries (Guinea, Liberia, and Sierra Leone) and a handful of cases have been imported into other countries, in a few cases causing localized transmission to health care workers.



Chief medical officer of health Dr. Eilish Cleary recently spent ten weeks in West Africa helping the World Health Organization to fight the Ebola virus. Above she is looking at the epidemiology of the outbreak in Nigeria.



Dr. Cleary is in Port Loko, Sierra Leone with a team of district public health staff after decontaminating the accommodations occupied by an international aid worker who contracted Ebola. The aid worker did subsequently recover.

Many fundamental questions have arisen from this international crisis, including: What is so different about this EVD outbreak compared to previous ones? Why West Africa and why now? What allowed this outbreak to spiral out of control? What can we do to prevent this situation from happening again? What does this crisis reveal about global health?

The three most affected countries have Atlantic Ocean coastlines and the crescent shaped Guinea wraps around Sierra Leone and most of Liberia. Guinea has extensive mineral wealth and Sierra Leone is rich in diamonds. Liberia was relatively calm until the intensive civil war during the 1990's that left the country in economic ruin, with endemic unemployment and illiteracy. Sierra Leone also recently emerged from a decade of brutal civil war in 2002, perpetuated by the trade in "blood diamonds". Economic growth has occurred but the ruinous effects of the war are still felt today. Guinea too has had an ongoing history of tyrannous governments and tremendous civil unrest.

The social and economic effects of recent civil wars and unrest have resulted in extreme poverty, low literacy and education, weak and fragile infrastructures, and lack of access to health care. The brutality of the conflicts has also mentally and/or physically traumatized considerable proportions of the population. This has resulted in significant fear and distrust of government and foreigners.

The United Nations Human Development Index (HDI) measures the average achievements of a country for three basic components – a long and healthy life, access to knowledge and a decent standard of living. According to the 2013 HDI values,

these countries are among the poorest countries in the world. Liberia ranks 175 out of 187 countries, Guinea is 179 and Sierra Leone is 183. Canada is eighth. In Canada there are approximately 210 doctors for 100,000 persons; compared to one or two doctors in the Ebola affected countries (not taking into account the significant number of health care worker deaths due to the current EVD outbreak).

Previous outbreaks of Ebola only occurred in central Africa, have been limited in size and geographic spread, and were typically in remote areas. The first cases of Ebola virus disease appeared in Guinea in December 2013 in districts bordering both Sierra

Leone and Liberia. It took more than 3 months to determine Ebola was the cause of the outbreak, due in part to the unfamiliarity of local health care workers with this disease, which was thousands of kilometers from its typical stomping grounds. By June, the epidemic had expanded to urban areas in Sierra Leone and Liberia leading to increased ease of transmission through densely populated areas and risk of international spread. The hot zone of intense transmission had a porous border with easy movement between countries. Coordinating control efforts was further complicated by poor communication infrastructure, multiple language barriers, fear and anxiety of a fatal disease without a cure, and cultural behaviors that resulted in continued transmission, for example funeral practices.

The impoverished health care systems in these countries had very limited equipment or resources to respond, and in many cases people preferred care at home with family members, which increased community transmission risks. To date, subsequent control efforts have been insufficient to stop the spread of Ebola and the situation remains serious. Traditional control efforts need to be strengthened including early diagnosis, patient isolation and care, contact tracing and monitoring, infection control, safe burials, community engagement and support from the international community. That being said, there have been many inspiring stories that illustrate the courage, dedication, ingenuity, and tireless efforts of West African people and international aid agencies in the face of this monstrous crisis.

Tragically the effects of EVD in the most affected countries will not dissipate when the outbreak

is declared over. The outbreak has significantly disrupted trade and agriculture, as well as community and family level survival, which could lead to ongoing poverty, hunger and desperation. It may not make the international news, but the daily lives of many West Africans will continue to be immensely challenging.

Although there are many reasons why the outbreak has become so extensive in West Africa, imported cases have also illustrated that developed nations are not invulnerable to Ebola. It has reinforced the need for health care workers to be vigilant for illness in returning travelers, as well as for health care facilities to ensure that protective environments, policies, procedures and equipment exist for health care staff. There is a fine line that needs to be walked between ensuring that those outside the global outbreak zone are protected, and ensuring sufficient aid and resources get into the 'hot zone' to stem the tide at the source.

But perhaps most importantly, this outbreak should be seen as a wake-up call to the importance of addressing global health equity and resources. Such crises are not contained by geographic or political boundaries. As the Director-General of the WHO Dr. Margaret Chan states:

“Ebola for 40 years was an African disease. The world this time has learned a lesson: The *world* is ill-prepared for severe, sustained public health emergencies.”

References

- Bausch DG, Schwarz, L. Outbreak of Ebola Virus Disease in Guinea: Where Ecology Meets Economy. *PLoS Negl Trop Dis* 2014; 8(7): e3056, DOI:10.1371/journal.pntd.0003056
- Chan, M. Ebola Virus Disease in West Africa — No Early End to the Outbreak. *N Engl J Med* 2014; 371:1183-1185, September 25, 2014, DOI: 10.1056/NEJMp1409859
- Farrar, J and Piot, P. The Ebola Emergency — Immediate Action, Ongoing Strategy. *N Engl J Med* 2014; 371:1545-1546, October 16, 2014, DOI: 10.1056/NEJMe1411471
- Friedman, TR et al. Ebola 2014 — New Challenges, New Global Response and Responsibility. *N Engl J Med* 2014; 371:1177-1180
- Rid, A and Emanuel, EJ. Ethical considerations of experimental interventions in the Ebola outbreak. *The Lancet Early Online Publication*, 22 August 2014, DOI:10.1016/S0140-6736(14)61315
- Semalulu, T et al. Why has this Ebola outbreak in West Africa been so challenging to control? *CCDR: Volume 40-14*, August 14, 2014
- WHO Ebola Response Team. Ebola Virus Disease in West Africa — The First 9 Months of the Epidemic and Forward Projections. *N Engl J Med* 2014; 371:1481-1495, October 16, 2014, DOI: 10.1056/NEJMoa1411100

Recommended Management of Gonococcal Infections during Cefixime Shortage

Neisseria gonorrhoeae infection is the second most commonly reported bacterial sexually transmitted infection in Canada. In New Brunswick, the incidence rate steadily increased more than five-fold from 2001-2011, going from 1.5 to 9.4 infections per 100 000 people. The incidence rate then decreased dramatically in 2012 (to 5.0 per 100 000 people) before increasing slightly in 2013 (6.2 per 100 000 people). Untreated infections can lead to complications for both sexes [1].

Increasing antimicrobial resistance of *Neisseria gonorrhoeae* is a serious global public health concern. Gonococcal resistance to penicillin, erythromycin and tetracycline is long established and none of these antibiotics are recommended. Due to the rapid increase in quinolone-resistant *N. gonorrhoeae*, quinolones such as ciprofloxacin, levofloxacin and ofloxacin are also **no longer recommended** for treating gonococcal infections in Canada. Third generation oral/injectable cephalosporins which includes cefixime are the last remaining first-line treatments [2].

In September 2014, the Public Health Agency of Canada (PHAC) advised that there is currently a **national cefixime shortage which is expected to last until September 2015** [3]. In light of this shortage, PHAC, in consultation with the Expert Working Group for the Canadian Sexually Transmitted Infections Guidelines, is providing health care professionals with interim recommendations for the treatment and follow-up of gonococcal infections which can be found at: <http://www.phac-aspc.gc.ca/std-mts/sti-its/alert/2014/alert-gono-eng.php>

Patients should optimally be treated with combination gonococcal infection therapy. This combination therapy also includes effective treatment for chlamydia due to high rates of concomitant infection [3]. All partners who have had sexual contact with the case within 60 days prior to symptom onset or date of specimen collection (if the case is asymptomatic) should be notified, tested and empirically treated. Patients and contacts should

also be informed to abstain from unprotected intercourse until treatment is complete.

Preferred treatment during cefixime shortage	
For uncomplicated anogenital and pharyngeal infection in adults including men who have sex with men:	Combination therapy with ceftriaxone 250 mg IM and azithromycin 1 g PO;
For severe cephalosporin allergy and/or documented gonococcal susceptibility to azithromycin	Monotherapy with azithromycin 2 gm orally as a single dose

For guidelines on the treatment of complicated gonococcal infections, or for more information on gonococcal infections, the Canadian Guidelines on Sexually Transmitted Infections can be found at: <http://www.phac-aspc.gc.ca/std-mts/sti-its/cgsti-ldcits/section-5-6-eng.php>

Please consider conserving available stock of cefixime for patients with gonococcal infection in whom ceftriaxone is contraindicated (or in settings where its use is not possible), and using alternative treatments instead of cefixime for non-gonococcal infections.

Gonococcal infection is a reportable disease under the *Public Health Act* (2009) and regulations in New Brunswick. It is recommended that reports be sent from laboratories to the regional Public Health offices within seven days of laboratory confirmation [4].

Repeat screening for individuals with a gonococcal infection is recommended 6 months post-treatment. Follow-up cultures for test of cure from all positive sites should be done **3–7 days** after the completion of therapy, particularly in some situations including persistent symptoms or signs post-therapy (see the Canadian Guidelines on Sexually Transmitted Infections). Clinicians are encouraged to report clinically suspected or known cases of antibiotic resistant *Neisseria gonorrhoeae* infections (e.g., treatment failures) to their Regional Medical Officer of Health [3].

- [1] Public Health Agency of Canada. REPORT ON SEXUALLY TRANSMITTED INFECTIONS IN CANADA 2010. Retrieved Oct 2014 at http://publications.gc.ca/collections/collection_2013/aspc-phac/HP37-10-2010-eng.pdf
- [2] Martin I, Jayaraman G, Wong T, Liu G, Gilmour M. Trends in Antimicrobial Resistance in *Neisseria gonorrhoeae* Isolated in Canada: 2000–2009. *Sex Transm Dis* 2011;38(10): 892-898. Retrieved Oct 2014 at http://journals.lww.com/stdjournal/Fulltext/2011/10000/Trends_in_Antimicrobial_Resistance_in_Neisseria.2.aspx
- [3] Public Health Agency of Canada. *Recommended Management of Gonococcal Infections during Cefixime Shortage* Retrieved October 17, 2014 at <http://www.phac-aspc.gc.ca/std-mts/sti-its/alert/2014/alert-gono-eng.php>
- [4] Government of New Brunswick. New Brunswick regulation 2009-136 under the Public Health Act (O.C. 2009-455). Accessed on October 17, 2014 at: <http://laws.gnb.ca/en/showfulldoc/cr/2009-136/20120126>

Severe Acute Respiratory Illness (SARI) Update

Emerging viruses that have recently caused public health concern and severe respiratory illness include Enterovirus D-68 (EV-D68) and Middle East Respiratory Syndrome Coronavirus (MERS-CoV).

Enterovirus-D68 (EV-D68)

Enterovirus D68 (EV-D68) is one of approximately 100 serotypes of non-polio enteroviruses. EV-D68 is not a reportable disease in Canada and laboratory testing for EV-D68 is not routinely performed. Consequently, cases are likely under-detected and under-reported. Over a 15 year period (1999 to 2013), a total of 82 specimens have tested positive at the National Microbiology Laboratory (NML).

Source and Transmission¹: Humans appear to be the only reservoir. Young children (0-4 years) have been the most frequently reported age group. Incubation period is 1-5 days and period of communicability appears to be one day prior to onset until about five days after onset of symptoms. The virus spreads from person to person by droplets from coughing and sneezing and is also likely spread by the fecal-oral route. Non-polio enteroviruses usually occur in the summer and fall months.

Clinical Spectrum¹: EV-D68 has been reported to cause mild to severe acute respiratory illness but most infections are probably asymptomatic. However, the full spectrum of EV-D68 illness has not been well-defined.

Concern: In August 2014, the US reported two geographic clusters of pediatric patients with severe respiratory illness. Sequencing of nasopharyngeal specimens identified EV-D68 in most of the cases. The median age was 4-5 years ranging from 6 weeks to 16 years of age. Clinical presentations included difficulty breathing and hypoxemia, wheezing, and respiratory distress. Notably, 70% of children had a history of asthma or wheezing, and less than one-quarter were febrile. ² This situation prompted further investigations - from mid-August to November 20, 2014, US CDC or state public health laboratories have confirmed a total of 1,121 people in 47 states and the District of Columbia with respiratory illness caused by EV-D68.

Since September 2014, EV-D68 has been detected across Canada (British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia and Prince Edward Island). Between August and October 2014, 214 specimens from across Canada tested positive for EV-D68 at the National Microbiology Laboratory (NML) ¹. Case detection dropped after November 2014. New Brunswick has had one confirmed case in a hospitalized school aged child. The child was discharged after a few days.

Middle East Respiratory Syndrome Coronavirus (MERS-CoV)³

MERS-CoV is a coronavirus that causes respiratory illness. From April 2012 to November 13, 2014, 909 laboratory-confirmed cases have been reported to WHO from 23 countries ⁴. To date, no cases have been identified in Canada. All cases have either occurred in the Middle East or have a link to a primary case infected in the Middle East. Most cases have existing underlying medical conditions, some experienced mild disease or were asymptomatic, and 331 were fatal. There is evidence of limited human-human transmission. Although camels (and not other livestock) are suspected to be the primary source of infection for humans, the exact routes of exposure remain unknown.

Concern:

Although incidence seemed to follow a seasonal pattern (increasing in the spring), the pattern appears to be changing, with a rise in number of cases occurring throughout the year. Limited person to person transmission has been occurring with healthcare professionals, emphasizing the importance of standard use of infection prevention and control measures for patient care.

Enhanced surveillance of SARI in New Brunswick

To ensure early detection and appropriate management of any Severe Acute Respiratory Illness (SARI) in New Brunswick, clinicians are requested to do the following:

SCREEN

- Patients with a new/worse cough or shortness of breath AND fever > 38 C should be identified at the earliest opportunity (telephone screen at time of appointment, screening on arrival in clinic or ER) and basic infection control measures taken (ask patient to clean hands, wear mask, arrange physical separation from other patients).

ASSESS

- Patients who meet initial screening criteria should be asked questions about travel history, animal contact, or contact with a person with respiratory symptoms in the past 14 days.
- Clinically and diagnostically evaluate the patient for evidence of pulmonary parenchymal disease (pneumonia, pneumonitis, ARDS) using appropriate contact and droplet precautions.
- Determine need for hospital admission and critical care.

TELL

- Report any suspect cases meeting SARI criteria immediately to regional Public Health to discuss a risk assessment and further laboratory testing. Lab confirmation is not needed in order to consult Public Health.
- As per the NB *Public Health Act*, reporting for suspected or lab-confirmed emerging or novel pathogens (such as MERS-CoV, and EV-D68) must be done verbally, within 24 hours followed in writing within seven days, to the Regional Medical Officer of Health.
- **Report clusters of severe or atypical respiratory illness** to the Regional Medical Officer of Health verbally within one hour and followed in writing by end of next day.

Remain up to date on relevant developments regarding MERS-CoV and EV-D68 by visiting the Public Health Agency of Canada's website:

MERS-CoV: <http://www.phac-aspc.gc.ca/eri-ire/coronavirus/index-eng.php>

EV-D68: <http://www.phac-aspc.gc.ca/id-mi/vhf-fvh/enterovirus-eng.php>

Also check our Influenza surveillance reports posted weekly on: http://www2.gnb.ca/content/gnb/en/departments/ocmoh/cdc/content/influenza/influenza_surveillance_activities.html

[1] NCCID: <http://www.nccid.ca/disease-debrief-ev-d68>

[2] For more information, see CDC website: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm63e0908a1.htm>.

[3] Interim Case definition for MERS-CoV: <http://www.phac-aspc.gc.ca/eri-ire/coronavirus/case-definition-cas-eng.php>

[4] WHO: http://www.who.int/csr/disease/coronavirus_infections/en/

Best Practices for Ordering, Storing and Handling Vaccines

The series of damaging winter storms in 2013-14 as well as post-tropical storm Arthur in July 2014 that caused widespread power outages in New Brunswick, serves as a reminder of the importance of maintaining lower stock levels, routine vaccine storage and handling protocols, as well as for emergency procedures.

The Office of the Chief Medical Officer of Health procures and provides vaccines for use in the New Brunswick Public Health Immunization Program.

Inventory management and forecasting of vaccine requirements are paramount to ensure sufficient vaccine, reduce wastage and promote efficient, cost-effective and sustainable immunization programs.

The Central Serum Depot became the subject of one of the first Performance Excellence projects in the Department of Health. The process involved using the *Lean Six Sigma* approach to bring forward process improvement opportunities and identify ways to reduce waste. One of the key findings from the *Lean Six Sigma* project was vaccine wastage occurring through cold chain issues and expiration.

The *Lean Six Sigma* project set a number of recommendations, including the implementation of system process improvements involving inventory management (e.g. accurate forecasting of vaccine requirements using the Kanban method - a process that advises to replenish only what has been used).

In October 2014, the new processes using the Kanban method were launched starting with Public Health and subsequently with all other CSD clients (i.e. First Nations communities, hospital pharmacies, physicians, VON, community pharmacies etc.).

Tips for Managing Vaccine Supply and Keeping Vaccines Safe

Manage Vaccine Inventory

- Rotate your vaccine supply by placing vaccines with the earliest expiration dates in front of other vaccines and always use them first. [1]
- Review your vaccine inventory on a monthly basis and with each vaccine order to avoid over-ordering.
- Order twice a month and maintain no more than a one-month supply in immunization clinic/practice refrigerators. [2]
- Use the appropriate order form designated for your practice setting to place orders (see link at the end of the article). [2]
- Return expired vaccine to Central Serum Depot using the *Vaccines and Biologics Loss Summary Report*. [2]

Store Vaccines Correctly

- The storage temperature for refrigerated vaccines is between +2°C and +8°C. [3]
- Store vaccines in their original packaging; the packaging provides protection from light and physical damage. [3]
- Keep a digital high-low thermometer in refrigerator and record temperature twice daily.
- Store full bottles of water on empty shelves and on the door of the refrigerator to maintain consistency in temperature.
- Do not store vaccine in the door of the refrigerator.
- Leave space between products in the refrigerator to allow air to circulate.
- Do not use a "Bar" or half-size refrigerator.
- Do not use your vaccine refrigerator for storage of staff lunches or other products.
- Limit opening your refrigerator door.

Develop a plan for alternate storage and take action on out-of-range temperatures

Develop a back-up plan for power outage/refrigerator failure. Establish working agreements with an alternate storage facility where vaccine can be appropriately and securely stored in the event of a power outage or refrigerator failure (facility with backup generator if possible).

- Contact manufacturers and/or your local Public Health office for advice when vaccine has been exposed to temperatures outside of +2°C and +8°C – i.e. power outage or refrigerator failure.
- Identify vaccines that have been exposed to cold chain excursion, mark “DO NOT USE” and keep in a functioning refrigerator until you receive recommendations for further use.
- Return damaged vaccine to Central Serum Depot using the *Vaccines and Biologics Loss Summary Report*. [2]

All forms can be found in the New Brunswick Immunization Program Guide: http://www2.gnb.ca/content/gnb/en/departments/ocmoh/for_healthprofessionals/cdc/NBImmunizationGuide/forms.html

References:

1. Public Health Agency of Canada. National Vaccine Storage and Handling Guidelines for Immunization Providers, Ottawa, Ont. 2007 (Minister of Public Works and Government Services Canada. Cat. No., HP40-17/2007E-PDF) Accessed on September 18, 2014 and available from: <http://www.phac-aspc.gc.ca/publicat/2007/nvshglp-ldemv/intro-eng.php>
2. Office of the Chief Medical Officer of Health. New Brunswick Immunization Program Guide. Accessed on September 18, 2014 and available from: http://www2.gnb.ca/content/gnb/en/departments/ocmoh/for_healthprofessionals/cdc/NBImmunizationGuide.html
3. Public Health Agency of Canada. Canadian Immunization Guide, Evergreen Edition, Accessed on September 18, 2014 and available from: <http://www.phac-aspc.gc.ca/publicat/cig-gci/p01-08-eng.php#stor>

Alcohol and Health

Alcohol use is common in Canada and New Brunswick. The World Health Organization notes that, in general, high-income countries including Canada have the highest per capita consumption and prevalence of heavy episodic drinking. [1-2] Virtually three quarters (73.7%) of New Brunswick respondents to the 2012 Canadian Alcohol and Drug Use Survey reported drinking alcohol in the previous year. [3] According to the same survey, **alcohol use in Canadians begins in adolescence** with the age of initiation consistently reported at around 18 years of age.[4] Total consumption of alcohol in the New Brunswick population appears to be stable over the last decade. Provincial per capita alcohol sales by volume was 6.5 L in 2000, increased to 7.2 L in 2010 and returned to 6.5 L in 2013. [5]

The population health effects of alcohol accrue from more than total consumption. The patterns of consumption relative to health based guidelines and the trends of alcohol use in particular groups in the population are also important for understanding the effects of harmful alcohol use. Alcohol consumption in excess of health based guidelines is associated with a range of harms. The health effects of alcohol misuse are not confined to the

extremes of consumption. [2] Health effects in the population can accumulate across the spectrum of problematic levels of consumption above health based guidelines. The harms of alcohol not only affect the individual consumer, but their family and social support networks, the health care system and wider society. [2]

Individual health effects of alcohol

Alcohol is a carcinogen, teratogen and neurotoxin. Chronic health impacts of alcohol at levels of one to two drinks daily include increased relative risk of epilepsy, dysrhythmia, and cancers of the breast, colon, oropharynx and liver. [6] At such levels of intake, the risk of common chronic diseases such as hypertension and hemorrhagic stroke is also increased. [6] Alcohol consumption during the biologically sensitive period of pregnancy increases the risk of low birth weight and accounts for the long term alteration in child development associated with Fetal Alcohol Spectrum Disorder. The chronic risk of developing these medical conditions increases with each increase in average daily consumption. [6] The neurotoxic effects of alcohol include dependence, alcohol induced psychosis, alcohol poisoning and

nervous system degeneration. Excess ingestion of alcohol increases the acute risk of injury and violence. A meta-analysis of the increase in risk of injury posed by alcohol consumption demonstrates the dose response relationship between alcohol consumption and injury (Table 1). [6] Alcohol use can also modify the progression of infectious diseases such as HIV and tuberculosis. [2]

Table 1. Relative risks by number of Canadian standard drinks consumed three hours before an injury. (Taylor et al, in press). [6]

Canadian Standard Drinks	Motor Vehicle Injuries	Non-motor Vehicle Injuries
	Increase in risk (%)	Increase in risk (%)
0	0	0
1	57	40
2	145	92
3	283	162
4	500	256
5	838	384
6	1,369	557
7	2,198	790
8	3,496	1,107
9	5,528	1,534

Reproduced with permission from the Canadian Centre on Substance Abuse

- Alcohol use is common in Canada and New Brunswick.
- Alcohol use in Canadians begins in adolescence.
- Alcohol is a carcinogen, teratogen, and neurotoxin.
- Alcohol use contributes to disease and death, and related excess use of the healthcare system.
- Low-Risk Alcohol Drinking Guidelines have been created to help Canadians consume alcohol at levels that pose a lower risk of adverse health effects.
- Many of your patients may not be aware of the Low-Risk Alcohol Drinking Guidelines.

- Health professional screening and brief interventions in primary care can reduce harmful drinking in patients.
- As few as three questions can identify those at elevated risk for alcohol related harms.

Population health effects of alcohol

Alcohol use contributes to disease and death, and related excess use of the healthcare system.

The broad array of health effects and the patterns of harmful use have positioned alcohol as the world's third largest risk factor for morbidity and mortality. [7] New Brunswick does not yet have the infrastructure to fully evaluate the burden of alcohol related disease and death. However, available statistics indicate that in 2014 there were approximately 1,138 hospital discharges related to alcohol use in New Brunswick.[8] Provincially, in the years 2005 through 2010 the share of deaths due to motor vehicle collisions on public roadways that involved a drinking driver ranged between 33 to 40%. [9] When alcohol related motor vehicle fatalities are defined more broadly to include fatal crashes involving a drinking pedestrian or driver of highway or off road vehicles, 47% of motor vehicle fatalities in New Brunswick were alcohol related in 2010. [9] About one in three (29%) of cases of assault treated at the Saint John Regional Hospital in 2008 and 2009 were alcohol related. [10] Outside of the health care system, the indirect social impacts of alcohol use include lost productivity, impaired family dynamics, and injuries to others.

Interventions

Due to the multiple health effects of alcohol, **Low-Risk Alcohol Drinking Guidelines have been created to help Canadians consume alcohol at levels that pose a lower risk of adverse health effects.** The Low-Risk Alcohol Drinking Guidelines are based on the observed dose response between alcohol consumption and change in risk for illnesses (see Table 2). These guidelines for alcohol consumption for the Canadian population were set at the level where the net health harms equal the net health benefits such that the risk for premature death equals that of someone who never consumes alcohol. [6] These include guidelines for average use among adults aged 25 to 65 years to reduce chronic risks and acute risks. The Low-Risk Alcohol Drinking guidelines also cover situations when alcohol consumption should be zero, guidelines for Canadian youth and during pregnancy.

Table 2. Percentage change in long term relative risk by average standard drinks per day for 12 illnesses that are similar for men and women aged below 70 years [6]

Type of Illness or Disease	Proportion of All Deaths, 2002–2005	Percentage Increase/Decrease in Risk						
		Zero or Decreased Risk						
		Increased Risk						
		0%	-1% to -24%	-25% to -50%	Up to +49%	+50% to 99%	+100% to 199%	Over +200%
		1 Drink	2 Drinks	3–4 Drinks	5–6 Drinks	+ 6 Drinks		
Tuberculosis	1 in 2,500	0	0	+194	+194	+194		
Oral cavity & pharynx cancer	1 in 200	+42	+96	+197	+368	+697		
Oral esophagus cancer	1 in 150	+20	+43	+87	+164	+367		
Colon cancer	1 in 40	+3	+5	+9	+15	+26		
Rectum cancer	1 in 200	+5	+10	+18	+30	+53		
Liver cancer	1 in 200	+10	+21	+38	+60	+99		
Larynx cancer	1 in 500	+21	+47	+95	+181	+399		
Ischemic heart disease	1 in 13	-19	-19	-14	0	+31		
Epilepsy	1 in 1,000	+19	+41	+81	+152	+353		
Dysrhythmias	1 in 250	+8	+17	+32	+54	+102		
Pancreatitis	1 in 750	+3	+12	+41	+133	+851		
Low birth weight	1 in 1,000	0	+29	+84	+207	+685		

Reproduced with permission from the Canadian Centre on Substance Abuse

Interpretation of the Low-Risk Alcohol Drinking Guidelines involves three components. First, the guideline levels differ for females and males due to the physiological differences that exist (such as body mass that affects alcohol metabolism). The guidelines specify low-risk intake for acute consumption, which is defined as consumption within three hours. There are also guidelines for chronic consumption and for special occasions when there may be opportunities for consumers to exceed the usual daily limits.

Many of your patients may not be aware of the Low-Risk Alcohol Drinking Guidelines. In 2012, less than 3 in 10 Canadians older than 15 years of age had ever seen or heard about the national Low-Risk Alcohol Drinking Guidelines. [11] In New Brunswick, of those who consume alcohol, 16% of people aged 15 and older exceeded the acute Low-Risk Alcohol Drinking Guidelines and 21% exceeded the chronic Low-Risk Alcohol Drinking Guidelines. [3] As trusted advisors on health matters, **health professional screening and brief interventions** (as little as

five minutes of advice) in primary care **can reduce harmful drinking in patients.** [12]

Tools for clinicians to identify harmful consumption of alcohol have been developed along with resources for patients. Clinical opportunities to screen for harmful use of alcohol occur during periodic health exams, prenatal care, care of adolescents and young adults, and assessment and treatment of mental health, trauma and injuries. **As few as three questions can identify those at elevated risk for alcohol related harms:** “Do you drink beer, wine, coolers or other alcoholic beverages; On average how many days per week do you have an alcoholic drink; On a typical drinking day, how many drinks do you consume?” [13] The College of Family Physicians of Canada has developed a clinical resource for conducting this screening and advising and assisting patients at increased risk of alcohol related health harms (found at <http://www.sbir-diba.ca/>). Resources for patients are also available to increase the awareness and importance of the Low-Risk Alcohol Drinking Guidelines. [14]

Canada's Low-Risk Alcohol Drinking Guidelines

Drinking is a personal choice. If you choose to drink, these guidelines can help you decide when, where, why and how.

For these guidelines, "a drink" means:



Your limits

Reduce your long-term health risks by drinking no more than:



- 10 drinks a week for women, with no more than 2 drinks a day most days
- 15 drinks a week for men, with no more than 3 drinks a day most days

Plan non-drinking days every week to avoid developing a habit.

Special occasions

Reduce your risk of injury and harm by drinking no more than 3 drinks (for women) or 4 drinks (for men) on any single occasion.

Plan to drink in a safe environment. Stay within the weekly limits outlined above in **Your limits**.

Safer drinking tips

- Set limits for yourself and stick to them.
- Drink slowly. Have no more than 2 drinks in any 3 hours.
- For every drink of alcohol, have one non-alcoholic drink.
- Eat before and while you are drinking.
- Always consider your age, body weight and health problems that might suggest lower limits.
- While drinking may provide health benefits for certain groups of people, do not start to drink or increase your drinking for health benefits.

Low-risk drinking helps to promote a culture of moderation.
Low-risk drinking supports healthy lifestyles.

When zero's the limit

Do not drink when you are:

- driving a vehicle or using machinery and tools
- taking medicine or other drugs that interact with alcohol
- doing any kind of dangerous physical activity
- living with mental or physical health problems
- living with alcohol dependence
- pregnant or planning to be pregnant
- responsible for the safety of others
- making important decisions

Pregnant? Zero is safest

If you are pregnant or planning to become pregnant, or about to breastfeed, the safest choice is to drink no alcohol at all.



Delay your drinking

Alcohol can harm the way the body and brain develop. Teens should speak with their parents about drinking. If they choose to drink, they should do so under parental guidance; never more than 1–2 drinks at a time, and never more than 1–2 times per week. They should plan ahead, follow local alcohol laws and consider the **Safer drinking tips** listed in this brochure.

Youth in their late teens to age 24 years should never exceed the daily and weekly limits outlined in **Your limits**.



Canadian Centre on Substance Abuse
Centre canadien de lutte contre les toxicomanies

Partnership. Knowledge. Change.
Collaboration. Connaissance. Changement.

The Canadian Centre on Substance Abuse changes lives by bringing people and knowledge together to reduce the harm of alcohol and other drugs on society. We partner with public, private and non-governmental organizations to improve the health and safety of Canadians.

CCSA wishes to thank the partners who supported development of Canada's Low-Risk Alcohol Drinking Guidelines. For a complete list of the organizations supporting the guidelines, please visit www.ccsa.ca/Eng/Priorities/Alcohol/Canada-Low-Risk-Alcohol-Drinking-Guidelines/Pages/default.aspx

Reference:

Butt, P., Behrman, D., Glikman, L., Paradis, C., & Stockwell, T. (2011). *Alcohol and health in Canada: A summary of evidence and guidelines for low-risk drinking*. Ottawa, ON: Canadian Centre on Substance Abuse.

500–75 Albert Street, Ottawa, ON K1P 5E7
Tel: 613-235-4048 | Fax: 613-235-8101

Charitable #: 122328750RR0001 ISBN 978-1-77178-010-0
Developed on behalf of the National Alcohol Strategy Advisory Committee
© Canadian Centre on Substance Abuse 2013

Cette publication est également disponible en français.

Visit our website to find out more!

www.ccsa.ca

A social environment to support healthy consumption of alcohol will enhance the important work of clinicians to reduce the effects of alcohol related harm. Change of societal norms away from harmful consumption of alcohol is enabled by wider societal and regulatory measures such as control of alcohol sales and legislation on drinking age and drinking.

References

- World Health Organization. Global status report on alcohol and health. Geneva: World Health Organization; 2011. Accessed on October 15, 2014 and Available from http://www.who.int/substance_abuse/publications/global_alcohol_report/msbgsruprofiles.pdf
- World Health Organization. Global status report on alcohol and health 2014. Luxembourg: World Health Organization; 2014. Accessed on October 15, 2014 and Available from http://www.who.int/substance_abuse/publications/global_alcohol_report/en/
- Health Canada. Canadian Alcohol and Drug Use Monitoring Survey Detailed Table 7: Main 2012 CADUMS indicators by province – Alcohol. Ottawa: Health Canada; 2014. Accessed on October 15, 2014 and Available from: http://www.hc-sc.gc.ca/hc-ps/drugs-drogués/stat/_2012/tables-tableaux-eng.php#t7
- Health Canada. Canadian Alcohol and Drug Use Monitoring Survey Detailed Table 8: Prevalence of alcohol use and exceeding LRDG, total population, CAS 2004, CADUMS 2008 – 2012. Ottawa: Health Canada; 2014 Accessed on September 25, 2014 and Available from http://www.hc-sc.gc.ca/hc-ps/drugs-drogués/stat/_2012/tables-tableaux-eng.php#t7
- Statistics Canada. CANSIM Tables: Volume of sales of alcoholic beverages in litres of absolute alcohol and per capita 15 years and over. CANSIM [Online database]; 2014 Accessed on October 15, 2014 and Available from <http://www5.statcan.gc.ca/cansim/>
- Butt P, Berness D, Gliksman L, Paradis C, Stockwell T. Alcohol and health in Canada: A summary of evidence and guidelines for low risk drinking. Ottawa: Canadian Centre on Substance Abuse; 2011. Accessed on October 15, 2014 and Available from <http://www.ccsa.ca/Resource%20Library/2011-Summary-of-Evidence-and-Guidelines-for-Low-Risk%20Drinking-en.pdf>
- World Health Organization. Global strategy to reduce the harmful use of alcohol. Geneva, World Health Organization; 2010 Accessed on October 15, 2014 and Available from http://www.who.int/substance_abuse/alcstratenglishfinal.pdf
- Canadian Institute for Health Information. Discharge Abstract Database. Data provided by Health Information Management, New Brunswick Department of Health
- Traffic Injury Research Foundation of Canada, 2010. Alcohol Crash Problem in Canada 2010. Ottawa: Canadian Council of Motor Transport Administrators; 2013 Accessed on October 15, 2014 and Available from http://www.tirf.ca/publications/PDF_publications/2010_Alcohol_Crash_Problem_Report_4_FINAL.pdf
- Atlantic Collaborative on Injury Prevention. Alcohol and injury in Atlantic Canada: creating a culture of safer consumption. 2010 Accessed on October 15, 2014 and Available from <http://www.acip.ca/Document-Library/Alcohol%20And%20Injury/ACIP%20Alcohol%20&%20Injury%20in%20Atlantic%20Canada.pdf>
- Health Canada. Canadian Alcohol and Drug Use Monitoring Survey (CADUMS) Summary of Results. Ottawa: Health Canada; 2014 Accessed on October 15, 2014 and Available from: http://www.hc-sc.gc.ca/hc-ps/drugs-drogués/stat/_2012/summary-sommaire-eng.php
- Rumeniuk RE, Henry-Edwards S, Ali RL, Poznyak V and Monteiro M. The ASSIST-linked brief intervention for hazardous and harmful substance use: manual for use in primary care. Geneva: World Health Organization; 2010. Accessed October 15, 2014 and Available from: http://whqlibdoc.who.int/publications/2010/9789241599399_eng.pdf?ua=1
- The College of Family Physicians of Canada. Alcohol screening, brief intervention & referral: a clinical guide. Accessed October 15, 2014 and Available from: <http://www.sbir-diba.ca/docs/default-document-library/2012-screening-brief-intervention-and-referral-clinical-guide-enB0E406423349865474B15064.pdf?sfvrsn=4>
- Canadian Centre on Substance Abuse. Canada's Low-Risk Alcohol Drinking Guidelines. Ottawa: Canadian Centre on Substance Abuse; 2013. Accessed on October 15, 2014 and Available from <http://www.ccsa.ca/Resource%20Library/2012-Canada-Low-Risk-Alcohol-Drinking-Guidelines-Brochure-en.pdf>

Fetal Alcohol Spectrum Disorder – a Serious Health and Social Concern

Fetal Alcohol Spectrum Disorder (FASD) describes a complex range of brain injuries and disabilities that may affect people whose mothers consumed alcohol during pregnancy.

People affected by FASD can experience a range of developmental, physical, behavioural and learning problems. They may have significant difficulties with speech, memory, attention, self care, decision making and social skills. They are also more susceptible to cardiac anomalies, urogenital defects, skeletal abnormalities, as well as visual and hearing impairments [1]. These problems vary in intensity and depend on a number of factors, including

the extent of the prenatal alcohol exposure (amount, frequency and timing) and genetic predispositions [2].

Without crucial support, people affected by FASD are at a high risk of developing “secondary disabilities” such as mental health problems, trouble with the law, trouble with or dropping out of school, unemployment, inappropriate sexual behaviour and becoming homeless- which are a tremendous cost to themselves, the family, and society [3].

FASD is the **leading known cause of preventable developmental disability** among Canadians. It is estimated that FASD affects approximately **one percent** of the Canadian population.

FASD cannot be cured and has lifelong impacts on individuals, their families and society [4].

Screening

The *Alcohol Use and Pregnancy Consensus Clinical Guidelines* recommend the screening of all pregnant women and women of child-bearing age for alcohol use. Such screening can improve maternal-child outcomes through;

- early identification and reduction of problem maternal drinking;
- early identification of exposed infants and
- earlier diagnosis of FASD so that intervention can start as soon as possible to prevent secondary problems [5].

The National Screening Tool kit for Children and Youth Identified and Potentially Affected by Fetal Alcohol Spectrum Disorder (FASD) by the Canadian Association of Paediatric Health Centres is available at: <http://ken.caphc.org/xwiki/bin/download/FASDScreeningToolkit/National+Screening+Tool+Kit+for+Children+and+Youth+Identified+and+Potentially+Affected+by+FASD/FASDToolkit-BoundEN.pdf>.

This tool kit provides two categories of tools:

1. Tools to elicit maternal drinking information and confirm prenatal alcohol exposure.
2. Tools to screen children and youth for maladaptive behaviour associated with FASD [6].

Diagnosis

Early identification and diagnosis of people with FASD is critical since it can support better interventions and can affect long term outcomes [1].

FASD is a medical diagnosis best made by a multidisciplinary team. Canadian guidelines were developed and include the recommended approach for proper assessment and diagnosis of FASD: http://www.cmaj.ca/content/172/5_suppl/S1.full

In New Brunswick, the NB FASD Centre of Excellence is currently accepting referrals for

a comprehensive multidisciplinary diagnostic assessment for children or youth up to 18 years of age who are experiencing difficulties in their home, school and/or community setting and where there is a suspicion of prenatal alcohol exposure.

Alcohol Use and Pregnancy Consensus Clinical Guidelines - Recommendations [5]

- 1) Universal screening for alcohol consumption should be done periodically for all pregnant women and women of child-bearing age. Ideally, at-risk drinking could be identified before pregnancy, allowing for change.
- 2) Health care providers should create a safe environment for women to report alcohol consumption.
- 3) The public should be informed that alcohol screening and support for women at risk is part of routine women's health care.
- 4) Health care providers should be aware of the risk factors associated with alcohol use in women of reproductive age.
- 5) Brief interventions are effective and should be provided by health care providers for women with at-risk drinking.
- 6) If a woman continues to use alcohol during pregnancy, harm reduction/treatment strategies should be encouraged.
- 7) Pregnant women should be given priority access to withdrawal management and treatment.
- 8) Health care providers should advise women that low-level consumption of alcohol in early pregnancy is not an indication for termination of pregnancy.

Contact information for the programs and services available from the NB FASD Centre of Excellence

NB FASD Centre of Excellence - VON Moncton
1224 Mountain Road -Unit 6
Moncton, NB E1C 2T6
Telephone: 506-857-9115
Fax : 506-857-1101
Email address : annette.cormier@von.ca
Web site: www.von.ca

Resources for primary health care providers:

Continuing medical education 3-part modules (FASD series): www.mdcme.ca/fasd/

PRIMA (Pregnancy-Related Issues in the Management of Addictions): www.addictionpregnancy.ca

Motherisk (The Hospital for Sick Children): www.motherisk.org

Coalescing on Women and Substance Use: <http://www.coalescing-vc.org/>

Resources for parents and families:

VON (Victorian Order of Nurses): Let's Talk FASD: http://www.von.ca/fasd/_fasdtool_fullproof_final.pdf

The Caregiver Curriculum on FASD: www.fasdchildwelfare.ca (click on the "learning" tab)

Strategies Not Solutions: http://www.faslink.org/strategies_not_solutions.pdf

References:

1. Institute of Health Economics. Consensus statement on FASD across the lifespan. Government of Alberta; 2009. Available from: http://www.ihe.ca/documents/FinalWeb_FASDStatement.pdf
2. Encyclopedia on Early Childhood Development. Fetal Alcohol spectrum disorder. Centre of Excellence for Early Childhood Development; 2011. Available from: <http://www.excellence-earlychildhood.ca/az.asp?lang=EN&let=E-L>
3. Popova S et al. Economic impact of fetal alcohol syndrome and fetal alcohol spectrum disorders: a systematic literature review. Centre for Addiction and Mental Health; 2012. Available from: http://knowledgex.camh.net/reports/Documents/economic_impact_fas_litreview12.pdf
4. Public Health Agency of Canada. Fetal Alcohol Spectrum Disorder. Available from: <http://www.phac-aspc.gc.ca/hp-ps/dca-dea/prog-ini/fasd-etcaf/index-eng.php>
5. Carson G et al. Alcohol Use and Pregnancy Consensus Clinical Guidelines. Journal of Obstetrics and Gynaecology Canada 2010;32(8) supplement. Available from: <http://www.sogc.org/guidelines/documents/gui245CPG1008E.pdf>
6. Canadian Association of Paediatric Health Centres. National Screening Tool Kit for Children and Youth Identified and Potentially Affected by Fetal Alcohol Spectrum Disorder (FASD). Available from: <http://ken.caphc.org/xwiki/bin/download/FASDScreeningToolkitNationalScreeningToolKitforChildrenandYouthIdentifiedandPotentiallyAffectedbyFASD/FASDToolkit-BoundEN.pdf>

Facts about UV indoor tanning

Since June 2013, it is illegal from someone **less than 19 years old** to use commercial UV tanning equipment in New Brunswick, even with a medical prescription.

Indoor tanning beds are not designed to treat serious skin conditions such as psoriasis, eczema, or vitiligo. Phototherapy devices used in dermatologists' offices are designed to treat these medical conditions by delivering a lesser amount of ultraviolet light than tanning beds. Dermatologists are specially trained to treat skin conditions with medically necessary UV radiation. (1)

"This new Act, with enforcement provisions for persons under 19, is a very important step forward in our fight against preventable causes of skin cancer." Dr. Dana Hanson, Dermatologist

There is no significant protective effect of obtaining a base tan before a trip south.

- A base tan will only provide a protection equivalent to a Sun Protection Factor (SPF) of 2 to 3. (2) (3)

The best protection is to apply a sunscreen with an SPF of at least 30, wear a hat and long sleeves and stay in the shade.

Artificial tanning is not safer than sun tanning

- Some modern tanning beds emit 3 to 5 times the intensity of the midday sun (4).
- Newer "TURBO" models emit as much as 15 times the intensity than the sun (5). A few minutes of exposure at that intensity could be sufficient to burn.

Indoor tanning is not a safe source of Vitamin D

- Vitamin D is synthesized by the skin from UVB rays, not from UVA rays which tanning devices mostly emit.
- It is not necessary to tan in order to get a sufficient dose of Vitamin D. Reasonable exposure, such as during an outdoor walk, provides a good amount of Vitamin D.
- Vitamin D can also be found in a variety of foods such as some dairy products, eggs, fish, etc. In

Canada, the Vitamin D found in food is generally sufficient. (6)

- Over the counter supplements are available if desired.

- (1) American Academy of Dermatology: <https://www.aad.org/media-resources/stats-and-facts/prevention-and-care/indoor-tanning>
- (2) Gange R, et al., Comparative protection efficiency of UVA- and UVB-induced tans against erythema and formation of endonuclease-sensitive sites in DNA by UVB in human skin. *J Invest Dermatol*, 1985. 85: p. 362-4. PubMed

- (3) Bykov V, Marcusson J, and Hemminki K, Protective effects of tanning on cutaneous DNA damage in situ. *Dermatology*, 2001. 202: p. 22-6. PubMed
- (4) Communiqué du Conseil supérieur d'hygiène publique de France, 1996 ; Diffey, 1986 ; Nachtwey, 1981).
- (5) Gerber B, Mathys P, Moser M, Bressoud D, Braun-Fahrlander C. Ultraviolet emission spectra of sunbeds. *Photochem Photobiol*. 2002;76(6):664-8.
- (6) Health Canada: <http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/life-vie/tanning-bronzage-eng.php>

Nutrition for Healthy Term Infants: Recommendations from Six to 24 Months

Nutrition for Healthy Term Infants: Recommendations from Six to 24 Months is a joint statement of Health Canada, Canadian Paediatric Society, Dietitians of Canada, and Breastfeeding Committee for Canada. It reflects the latest science since the last update in 2005 and supports Health Canada's commitment to providing information that will help Canadians make healthier food choices for themselves and their families.

What's new?

Nutrition for Healthy Term Infants encourages **responsive feeding**. Responsive feeding means the parent or caregiver responds to the child's hunger cues in a supportive way and allows the child to guide feeding. By being sensitive to the hunger cues of the infant and young child it helps avoid over or under feeding.

The following guidelines can help the parent or caregiver support responsive feeding:

- Respond to the child's early hunger and satiety cues.
- Allow the child to guide feeding and encourage self-feeding.
- Encourage self-feeding, in a way that is appropriate for the child's level of development.
- Use eye contact and positive verbal encouragement.
- Do not verbally or physically coerce the child into eating.
- Encourage the child to use eating utensils that are age-appropriate, as well as culturally appropriate.

- Minimize distractions during meals and feedings.
- Offer different food combinations, tastes, and textures.

Nutrition for Healthy Term Infants supports breastfeeding as an important source of nutrition for older infants and young children and recommends the introduction of solid foods, now referred to as **complementary foods**, at 6 months of age. The following guidelines can help the parent or caregiver support the appropriate introduction of complementary foods.

- Recommend iron-rich meat, meat alternatives, and iron-fortified cereal as the first complementary foods.
- Gradually increase the number of times a day that complementary foods are offered while continuing to breastfeed.
- Offer lumpy textures no later than nine months.
- Progress towards a variety of textures, modified from family foods, by one year of age.

The following is the complete list of evidence-informed principles and recommendations that were developed by the Infant Feeding Joint Working Group to provide health professionals with accurate and consistent messaging on nutrition for older infants and young children from six to 24 months of age. For more information, visit Health Canada's website at the following link: www.healthcanada.gc.ca/infantnutrition.

Breastfeeding is an important source of nutrition for older infants and young children as complementary foods are introduced

- Support breastfeeding for up to two years or beyond, as long as mother and child want to continue.

Supplemental vitamin D is recommended for infants and young children who are breastfed or receiving breastmilk

- Recommend a daily vitamin D supplement of 10 µg (400 IU) for infants and young children who are breastfed or receiving breastmilk.

Complementary feeding, along with continued breastfeeding, provides the nutrients and energy to meet the needs of the older infant.

- Recommend gradually increasing the number of times a day that complementary foods are offered while continuing to breastfeed.
- Recommend iron-rich meat, meat alternatives, and iron-fortified cereal as the first complementary foods. Encourage parents and caregivers to progress to introduce a variety of nutritious foods from the family meals.
- Ensure that lumpy textures are offered no later than nine months. Encourage progress towards a variety of textures, modified from family foods, by one year of age.

Responsive feeding promotes the development of healthy eating skills.

- Encourage responsive feeding based on the child's hunger and satiety cues.
- Promote offering finger foods to encourage self-feeding.
- Encourage use of an open cup, initially with help.

Iron-rich complementary foods help to prevent iron deficiency

- Continue to recommend a variety of iron-rich foods. Ensure that foods such as meat and meat alternatives and iron-fortified cereal are offered a few times each day.

- If parents and caregivers are introducing cow milk, advise them to delay until nine to 12 months of age. Recommend limiting cow milk intake to no more than 750 mL per day.

Foods for older infants and young children must be prepared, served, and stored safely

- Recommend infants and young children always be supervised during feeding.
- Recommend parents and caregivers avoid offering hard, small and round, or smooth and sticky, solid foods. These may cause aspiration and choking.
- Promote safe food preparation and storage to prevent foodborne illness. Recommend avoiding products that contain raw or undercooked meat, eggs, poultry, or fish; unpasteurized milk or milk products; unpasteurized juice; and cross-contamination between cooked and uncooked foods.
- Advise parents and caregivers not to give honey to a child under one year of age. This helps to prevent infant botulism.

From one year of age, young children begin to have a regular schedule of meals and snacks, and generally follow the advice in Canada's Food Guide.

- Recommend a regular schedule of meals and snacks, offering a variety of foods from the four food groups.
- Recommend foods prepared with little or no added salt or sugar.
- Explain to parents and caregivers that nutritious, higher-fat foods are an important source of energy for young children.
- Encourage continued breastfeeding, or offering 500 mL per day of homogenized (3.25% M.F.) cow milk.
- Advise limiting fruit juice and sweetened beverages. Encourage offering water to satisfy thirst.
- Encourage parents and caregivers to be role models and instil lifelong healthy eating habits.

Reproduced from Health Canada's website at the following link: www.healthcanada.gc.ca/infantnutrition