Anticipating, identifying and addressing Flood-related Illnesses:
As Albertans continue to work together to rebuild communities, our roles as health professionals likewise remain central to the health and wellness of those affected by the devastating floods. Your collaboration in caring for Albertans is appreciated, and supported. Primary care physicians will increasingly be the frontline providers to flood-affected Albertans struggling with both physical and mental health concerns, and with questions about flood-related risks and exposures. This following information is intended to provide you with a summary guide to flood-related risks and presentations you may see in your practice, as well as general advice and supports when assessing and addressing these concerns.

Addiction & Mental Health Concerns
In the aftermath of this flood, primary care can expect to see many people presenting with stress related concerns. 

Risks and Presentations:
• In the first few months, it is best to understand that most distress can be attributed to stress. 
• Individuals with pre-existing mental health / addictions problems are at risk for exacerbations, but they too may simply be responding to the acute stress. 
• Individuals often experience stress in somatic terms, so if people are re-presenting over time with ill-defined somatic complaints, this may be primarily a stress response. 
• Substance abuse can also be one of the problems after major stress; we can unwittingly invite that if we over-use opiates for cleanup-related injuries. 
• Increases in family violence have often been reported after large scale disasters including floods and this can present through any family member.

Follow-up and Treatment:
In the first few months following a distressing event, some straightforward approaches to self-care are commonly helpful. 

CALM:
  o Connect – with family, friends and natural support systems  
  o Accept – what has changed; this happens slowly and is a kind of grief process 
  o Look for the positive – attending to positive things helps with keeping hope alive 
  o Manage stress – includes routine, regular exercise, and relaxation breaks. 

More Information and Support:
• AHS and AH have together produced a Support For Albertans Affected by Flood booklet for public, which can be accessed through the AHS Flood webpage: www.albertahealthservices.ca/flood 
• On that same page, you will also find a link to Dr. Trew's post-flood mental health support blog, and many other resources that you and your patients might find helpful dealing with this difficult time. You are welcome to print and disseminate all resources on the website, to your patients: 
• You can also direct patients to call Health Link at 1-866-408-5465 or the Mental Health Help line at 1-877-303-2642. 
• In the upcoming weeks, skill-building opportunities will be made available to assist with managing stress for everyone. Watch for more information through the AHS website and AH sources, in the coming weeks.
Respiratory Illnesses
Following flooding, indoor mould can and has already caused significant damage to many southern Albertan homes. Renovation and remediation activities can increase exposure risk, as well as kick up organic dust and other inhalable particles. Although it is impossible to accurately predict the extent or severity of risk without individual assessment (including residential and community exposure risk), it is important to be aware of the following:

Risks and Presentations:
Inhaled mould spores can cause respiratory irritation, allergic and infectious symptoms.
- Patients with existing mould allergies can have increased rhinitis, asthma, and/or hypersensitivity pneumonitis; rarely allergic bronchopulmonary aspergillosis and allergic fungal sinusitis can occur.
- Non-allergic patients can present with irritation of: eye, ear, nose and throat, cough, airway hyper-reactivity and influenza-like symptoms.
- Mycotoxins have a large molecular weight so rarely aerosolize; they are unlikely to cause problems except to those cleaning moulds without respiratory protection.
- Severely immune compromised adults may develop infections, including pulmonary aspergillosis and aspergillomas.

Follow-up and Treatment:
- General treatment with usual anti-allergic and anti-asthmatic medications, and symptomatic relief for irritant exposures.
- Treatment of hypersensitivity pneumonitis can range from just removing the fungi to oral prednisone. Allergic bronchopulmonary aspergillosis treatment includes glucocorticoids and antifungal agents.
- Referral to Infectious Diseases is recommended if you suspect infectious symptoms in immune compromised adults.

More Information:
- AHS and AH have together developed several resources to guide Albertans on safely cleaning-up flood-affected areas. To access these resources, please visit [www.albertahealthservices.ca/flood](http://www.albertahealthservices.ca/flood). Please feel free to print any of the resources on this webpage, and disseminate to your patients.
- Summary evidence review info from the National Collaborating Centre for Environmental Health: [www.ccnse.ca/sites/default/files/Mould_and_Health_Effects_Nov_2009.pdf](http://www.ccnse.ca/sites/default/files/Mould_and_Health_Effects_Nov_2009.pdf)
- Detailed information from the American College of Occupational and Environmental Medicine: [www.acoem.org/AdverseHumanHealthEffects_Molds.aspx](http://www.acoem.org/AdverseHumanHealthEffects_Molds.aspx)

Gastrointestinal Illnesses
Increased bacterial and protozoal GI illness (are expected to occur due to the sewage contaminated floodwaters

Risks and Presentations:
- E coli, Campylobacter, amebiasis, cryptosporidiosis and giardiasis are likely to occur, due to sewage contamination of floodwaters.
- Symptom presentation with these illnesses may include acute onset of watery diarrhea with abdominal cramping that may be accompanied by fever, malaise, anorexia, vomiting, nausea with duration of more than a few days; bloody diarrhea.
• Incubation period can range from 1 day to 4 weeks (or longer) for these agents, so physicians should not dismiss potential flood-related exposures that are “too soon” or “too late”.

Follow-up and Treatment:
• Please order C&S and O&P of stool if you suspect a flood-related enteric infection.
• If patient presents with bloody diarrhea and a likely infectious cause, always order stool C&S and O&P.

More Information:
• AHS and AH have together developed several resources to guide Albertans on safely cleaning-up flood-affected areas. To access these resources, please visit www.albertahealthservices.ca/flood. Please feel free to print any of the resources on this webpage, and disseminate to your patients.
• For information on specific enteric infections, see the Alberta Health Notifiable Disease Guidelines (clinical information section): www.health.alberta.ca/professionals/notifiable-diseases-guide.html

Wounds, Injuries & Violence
Risks and Presentations:
• Flood clean-up activities put Albertans at increased risk of injuries, including wounds that can be contaminated with soil, feces, or floodwaters.
• Gender-based violence (such as sexual assaults and domestic violence) can also increase, post-flood. Post-flood Public Health Surveillance has already recorded a slight increase in emergency department visits for gender-based violence in flooded areas.

Follow-up and Treatment:
• Patients presenting with open wounds that have been exposed to soil, feces, sewage or floodwaters should be managed as follows:
  o Patient should be advised to clean wound immediately and thoroughly with soap and warm water;
  o Patient should be advised to apply an antibiotic ointment to prevent infection;
  o If patient has not received a tetanus vaccination in the past five years, patient should receive a booster dose of tetanus vaccine within two to three days of wound contamination. In cases of unimmunized or incompletely immunized patients, a medical consultation should occur to assess the need for immunoglobulins or additional doses of tetanus vaccine.
• Sexual assaults should be dealt with according to existing protocols.
  o Also advise all patients to always take steps to ensure their personal safety, including being careful consuming alcohol and walking home with a buddy.

More Information:
• AHS and AH have together developed several resources to guide Albertans on safely cleaning-up flood-affected areas. To access these resources, please visit www.albertahealthservices.ca/flood. Please feel free to print any of the resources on this webpage, and disseminate to your patients
• Alberta Health Services Flood-related Wound Care and Tetanus Guidance info sheet: http://www.albertahealthservices.ca/Advisories/ne-pha-tetanus-wounds.pdf
• You can also access Alberta Health guidelines for tetanus prophylaxis in wound management, see Table 1 on page 7 of: www.health.alberta.ca/documents/Guidelines-Tetanus-2011.html
Skin Rashles
Infections, chemical contacts, immersion in water, and exposure to bacteria can all cause skin lesions.

Risks and Presentations:
The following skin lesions have been reported in aftermath of historic flood and tsunami disasters, particularly in clean-up workers:
• Bacterial Folliculitis
• Bacterial Infections
  Due to gram negative bacteria from fecal contamination of floodwater.
• Contact Dermatitis
  Can be caused by chemicals that may be in floodwater, as well as contact with gloves and boots.
• Eczema
• Fiberglass Dermatitis
  Fiberglass dermatitis is distinguished by intense pruritus within 4 hrs of handling fiberglass, and poorly demarcated diffuse erythema with an urticarial or sandpaper texture.
• Leptospirosis
  Rare, but potential risk when the organism enters water in the urine of infected animals, including rodents, livestock, wild animals and dogs. Route of exposure is water contact with skin or mucous membranes. Clinical presentation is diverse, but usually fever with flu-like symptoms, sometimes jaundice and a maculopapular or petechial/purpuric rash. Diagnosis is usually serological.
• Maceration
  Prolonged water contact can cause thickening, wrinkling and maceration of the skin, especially on the feet.
• Papular Urticaria
• Photodermatitis.

Follow-up and Treatment:
Treatment will depend on the rash:
• Use anti-inflammatories, antifungals, and antibiotics, as appropriate.
• For Maceration, rest and drying is recommended.
• For Leptospirosis, treatment is usually with antibiotics.

More Information:
• Leptospirosis: www.cdc.gov/leptospirosis/health_care_workers/index.html

Asbestos Exposures
Houses built before the mid-1980s may contain asbestos materials, including in drywall mud, ceiling tiles, insulation and floor tiles. If inhaled, asbestos can cause serious disease.

Risks:
• If disturbed, asbestos can become airborne, putting individuals at risk of inhalation and subsequent disease. Water exposure is one means of dislodging, delaminating and/or disturbing friable asbestos-containing materials. Water can then carry fibres as a slurry to other areas where evaporation leaves a collection of fibres that can be released into the air.

Recommended Guidance:
• Individuals completing remediation or renovations in buildings of the pre-1980s-era should be made aware of the risks, and advised to seek professional asbestos abatement assessment and guidance before commencing remediation or renovation work, and to hire qualified asbestos abatement professionals to complete the work.
• Explain to patients that qualified contractors wear specialized personal protective equipment and have expert knowledge and techniques to avoid asbestos exposure.

More Information:
• Alberta Health Services Asbestos & Health info sheet: www.albertahealthservices.ca/Advisories/ne-pha-asbestos-infoflood-affected.pdf

Lead Exposures
Prior to 1990, some paints contained lead, and this old paint may be present in some houses undergoing remediation or renovation, post-flood. Although it is not possible to accurately anticipate the likelihood of older paint being aerosolized during demolition activities (and then inhaled), as a precaution, these symptoms and guidance should be kept in mind:

Risks and Presentations:
• Short-term acute exposure to high levels of lead can cause metallic taste in mouth, abdominal pain, vomiting, diarrhea, convulsions, coma and even death.
• Lead is a cumulative toxin, with fetuses and children under 5 years of age being most at risk; however, unless patient has had exposure to lead prior to flood-related exposure, it would be unlikely to see cumulative effects in patients at this time.

Recommended Guidance:
• Alberta Health recommends blood lead level testing be done only when there is reason to believe on clinical grounds that a patient has had unusually high exposures.

More Information:

West Nile virus Infections
You are likely to receive some questions about the difference in risk for WNv this year as compared to past years; however, your advice to patients, as well as your clinical follow-up for any suspected presentations, should not change.

Risks:
• All Albertans are at risk of West Nile virus infection.
• Because environmental factors influence the breeding patterns of mosquitoes every year, the risk of West Nile virus carrying mosquitoes being present may vary; however, where there are mosquitoes, there is risk.
• Precautions must be taken.

Recommended Guidance:
• Your advice to all patients should consistently remain focused on precautions that must be taken, to prevent bites and (and thereby reduce risk of West Nile virus infection).
• As with past years, the essential precautions remain:
  • Use an insect repellent with DEET.
  • Wear a light-colored long-sleeved shirt, pants, and a hat.
  • Consider staying indoors at dawn and dusk, when mosquitoes are most active.

More Information:
• Alberta’s official West Nile virus website is http://fightthebite.info