Prévention
en pratique médicale

DIRECTION
DE LA SANTÉ
PUBLIQUE

Garder notre monde en santé

BIOTERRORISM

Physicians are part of the surveillance network and the public health response team

By integrating infectious disease reporting into his or her daily practice, any astute physician could be the first person to identify an outbreak, and set rapid intervention into motion which could halt a possible epidemic and save lives. Similarly, a physician's vigilance is essential to rapidly identifying unsuspected cases of bioterrorism.

An act of bioterrorism is first and foremost an act of revenge or intimidation whereby someone deliberately propagates pathogenic, or even lethal, biological products. The goal of such an act is to instill widespread fear of using certain products or going to certain places in order to disrupt political and economic life, and destabilise leaders.

In addition to the pathophysiological consequences of a terrorist act, physicians should also watch all their patients for signs of psychological damage.

As soon as you suspect a serious infectious disease, report it to the Public Health Department immediately.

Physicians on the alert

Unsuspected acts

In the absence of warning signs of an epidemic or of bioterrorism, physicians assess a patient's clinical signs based on the similarities of the symptoms with those of more common diseases: normally, when we hear hoofbeats, we think of horses not zebras.

But we cannot forget the zebra...

Just as they do for infectious diseases that are fairly uncommon in Montréal, physicians must use their clinical acumen to detect illnesses caused by the biological agents that terrorists are most likely to use.

The quicker such cases are reported, the sooner the epidemiological investigation can begin, thus reducing transmission of the disease. Clinicians continue to manage their patients and close contacts, and public health leads an investigation among other potential victims.

Suspected or publicised acts

When an act of bioterrorism is suspected or announced, people who have been exposed are first handled by the Public Health Department. If the product involved turns out to be infectious, a network of clinicians are called upon to take charge of the people who are likely to be infected. However, it is essential that front-line physicians remain vigilant to detect cases among people who may have been exposed but who have not been identified by the emergency response team.

REPORTING NOTIFIABLE DISEASES AND POISONINGS

Monday to Friday, 8:30 A.M. to 4:30 P.M.:

- *by confidential fax: 528-2461*
- *by telephone: 528-2400,*
  See page 5 for form to photocopy

Outside opening hours, for immediate epidemiological help, call: 528-2400 and follow the instructions.

Progress report

The Public Health Department had been getting ready...

Over the last few years, the question we had about bioterrorism was not if it could happen but rather when and how it would take place.

With this perspective, the Infectious Disease Unit and the Occupational and Environmental Health Unit began, in 1998, to develop an expertise in biological and chemical terrorism. We organised internal simulations to prepare the staff to deal with these types of terrorist acts. In June 2000, the Public Health Department participated in organising and conducting a simulation (Centauri 2000) which included representatives from most agencies that could be involved during a terrorist event where biological or chemical agents are used: the police and the military, fire departments, emergency preparedness and environment protection teams, health institutions, etc. at the municipal, provincial and federal levels.

Moreover, staff members from the public health department have attended courses and colloquia organised by the CDC and the American army's health services.

In addition, the Public Health Department had already developed medical and organisational expertise in actual situations where it had had to respond to outbreaks of infectious diseases and environmental accidents.

In Montréal

Since the first anthrax alert was issued, only 9 of the 1,500 calls received by police were credible enough to warrant an intervention by public health professionals. *Bacillus anthracis* was not detected in any of these events.

In the United States

As of 10 December 2001, 23 cases of anthrax had been confirmed: 5 of the 11 cases of inhalation anthrax had died. Some 30,000 people had initiated prophylaxis and 5,000 had been given complete prophylaxis.

The role of front-line physicians: be vigilant

1. Be familiar with the agents

Many micro-organisms can be used as bioterrorism agents or biological weapons; but only a few lend themselves well to this use based on the ease with which they can be grown and disseminated, their deadliness, and their transmission from person to person.

Categories of biological agents and their characteristics*

	Category A	Category B	Category C
Principal agents or diseases	Athrax Botulism Smallpox Plague Tularaemia Viral haemorragic fevers	Salmonella Shigella Brucella Q fever Cholera Staphylococcal enterotoxin Glanders Mosquito-borne encephalitis Others	Hantavirus Yellow fever Multiresistant tuberculosis Tick-borne encephalitis Others
Ease with which it can be spread as a bioterrorism agent	Great	Less	Little known: would require much preparatory work
Case fatality rate	High	Less	Variable
Social impact	Major and immediate	Less and/or delayed	Variable
Required public health response	Specific and immediate	According to the usual emergency response protocols	Variable

**Adapted from MMWR (CDC) April 21, 2000/Vol. 49/No. RR-4.*

All these infections are notifiable diseases. As soon as you suspect them, you must report them to the Public Health Department

2. When assessing the symptoms, think of what is least probable

Some physicians prefer a syndromic diagnosis. Unexpected infections may be hiding behind common symptoms.

Syndromic diagnosis*

Syndromic / Agents	Respiratory		Neurological		Mucocutaneous	Gastrointestinal	Unexplained fever
	Immediate	Delayed	Immediate	Delayed			
Infectious Category A		**A**nthrax **P**lague **T**ularaemia		**B**otulism	**A**nthrax **S**mallpox **H**aemorragic fevers	**A**nthrax	
Infectious Category B		**Q** fever		**M**osquito-borne encephalitis		**S**almonella **S**higella **C**holera	**Q** fever **B**rucella
Chemical**	**C**yanide **N**erve agents **R**espiratory irritants **O**thers	**I**nhaled staphylococcal enterotoxin **R**icin **P**hosgene **N**itrogen oxides	**C**yanide **N**erve agents		**V**esicants **I**rritants **R**iot-control agents **O**thers	**N**erve agents **C**yanide **O**thers	

** Kortepeter M. et al. Medical Management of Biological Casualties Handbook. U.S. Army Medical Research, Institute of Infectious Diseases, September 2000.*

*** Rapidty of onset and seriousness of the effects of chemical agents require emergency services to take charge, followed by hospitalisation. It is highly unlikely that people with high exposure will consult in a private clinic or CLSC. However, people with low exposure might leave the site of the event and consult in a clinic, CLSC, or hospital. In these cases, health workers risk being contaminated.*

Category A groups together the agents most likely to be used by terrorists.

Characteristics of category A biological agents

Characteristics \ Agents	Anthrax	Botulism	Viral haemorragic fevers	Plague (pneumonic)	Tularaemia	Smallpox
Modes of acquiring infections through infectious agents used as biological weapons	Inhalation Ingestion Cutaneous contact	Foodborne Inoculation Inhalation	Contact with blood and secretions Inhalation	Inhalation Flea bite	Inhalation Ingestion Bite or cut	Inhalation
Person-to-person transmission	Very rare	No	Yes	Yes	No	Yes
Incubation period	1 to 6 days; up to 60 days	8 to 36 hours sometimes several days	3 to 10 days, up to 35 days	2 to 4 days	1 to 21 days	7 to 19 days
Characteristic signs and symptoms:						
Respiratory	Chest pain Pleural effusion Widened mediastinum			Haemoptysis	Dry cough	
Gastrointestinal	Pain Ascites Diarrhoea	Dysphagia Constipation				
Cutaneous	Itching Blisters Black eschar		Signs of vascular breaks Bruising Blood blisters, etc.		Ulceration at injection site with localised adenopathy	Maculopapular followed by vesicular lesions, starting on the head and extremities (including palms of the hands and soles of the feet) at the same stage of development in each region
Neurological		Diplopia Descending flaccid paralysis in a person who is conscious				
Confounding signs and symptoms	Influenza (see table page 4)	Guillain-Barré syndrome				Those of chickenpox (start on the torso, sparing the palms of the hands and soles of the feet, with presence of lesions at different stages simultaneously)
Precautions to take immediately	Basic preventive practices	Basic preventive practices	Isolation Precautions against contact, droplet, or airborne transmission	Isolation Precautions against contact or droplet transmission	Basic preventive practices	Isolation Precautions against contact, droplet, or airborne transmission

** Canada Communicable Disease Report, Vol. 25S4, July 1999.*

These infections should be reported as soon as they are clinically suspected.

3. Intervene with people who think they may have been exposed to a suspicious substance believed to be biological

If a patient comes to see you for a medical check-up because they fear they have been exposed to anthrax, once you have completed your usual evaluation, we recommend that you proceed as follows:

A patient consults because he or she is involved in:

1) an event that has been reported to police, investigated, and considered suspect and at risk:

MUC police investigate reports of "suspicious packages"; depending on the circumstances, they are joined by public health environmental and infectious disease experts. If an event is thought to be suspect and the risk of exposure is real, public health professionals ensure follow-up for people who have been exposed (including, if indicated, initial chemoprophylaxis prescription).

Normally, this person should not go to the emergency room or a clinic for an evaluation. If you are unsure of the event described by the patient, contact the physician on-call at the Public Health Department.

2) an event that has been reported, investigated, and considered not suspect or at-risk:

Public Health does not follow-up on the people involved. Nonetheless, someone who is worried may consult. In this case, try to reassure the patient by explaining that:

- Prophylactic antibiotic prescription is not indicated;
- It is not necessary to collect samples for testing;
- Isolation and quarantine are unwarranted.

3) an event that has not been reported and therefore not investigated:

Special police teams must first evaluate the event.

The person should report the event to the police (911) immediately.

At this stage:

- A prophylactic antibiotic prescription is not indicated;
- No samples need to be taken;
- People in contact with the person who was exposed are not at risk.

Once the police investigation is complete, if the event is considered suspect and presents a risk, public health will follow up on the person.

If the event is considered not serious and without risk, public health will not proceed with the follow-up.

Regional response to an act of bioterrorism

A regional response to a suspicious event requires many players from different organisations (police, fire department, Hazmat, Urgences-Santé, Public Health Department).

The first ones to be called to the scene are always police officers, whose mandate is to carry out an initial investigation to evaluate the likelihood of the threat being real. If the threat is not credible, the intervention is halted and public health is not called.

However, if the threat is seemingly real, the regional response to a terrorist act is then activated and various actors are summoned.

A special police team (Hazmat) evaluates the risks of an explosive, nuclear, or chemical attack at the site. A team from the Public Health Department composed of environmental and infectious disease experts make their way to the site to evaluate the degree of exposure, and the pertinence of decontaminating individuals and the site, and of chemoprophylaxis for people who have come in contact with the suspicious substance.

Later on, if necessary, environmental samples will be sent to the Laboratoire de Santé Publique du Québec (LSPQ) for analysis. If indicated, public health physicians will prescribe short-term chemoprophylaxis to the people who have been exposed. Depending on the test results, people who were likely exposed will be followed by the Régie régionale (RRSSS) and the Public Health Department; these two institutions will arrange for physicians to manage these cases.

Moreover, in anticipation of major events and according to the Régie's emergency plans, all health institutions must have their own emergency plans, and other groups will also contribute.

During the influenza season: distinguish between influenza-like ilness (ILI) and anthrax*

	ILI	Anthrax
Incidence	Much more common than anthrax, even in regions where the latter is endemic	Rare
Causal(s) agent(s)	Numerous organisms	*Bacillus anthracis*
Rhinorrhoea	Frequent	Rare
Nasal congestion	Frequent	Rare
Sore throat	Frequent	Possible
Dyspnea	Rare	Frequent
Chest or pleuritic pain	Rare	Frequent
Nausea	Rare	Frequent
Vomiting	Rare	Frequent
Abnormal chest X-ray	Rare	Frequent
Immunisation	Influenza vaccination does not exclude a diagnosis of ILI	There is a vaccine, but it is not currently available in Canada

**Adapted from MMWR Weekly (CDC), November 9, 2001/50(44); 984-6.*

Internet references

ww.santepub-mtl.qc.ca www.cdc.gov

Pay attention to anxiety

Whether faced with a real or perceived threat, or should a terrorist act occur in Québec, some of your patients may show signs of anxiety. Some will have specific symptoms (fear, stress, irritability, insomnia, isolation, etc.), while others will try to camouflage their anxiety by making specific requests (chemoprophylaxis, vaccines (smallpox, anthrax) or personal protective equipment (masks)).

How do you respond? Here is a bit of advice …

- Try and understand where the patient is coming from based on his or her history and present situation.
- Listen to what the patient is saying.
- Invite the person to talk in detail about his or her emotions and reactions following the event.
- Bear in mind the impact on this patient: loss of his or her job, economic, social, and political insecurity, uncertain future, etc.
- Reassure the patient that it is normal to be anxious: it is normal for someone to be upset, sad or angry, especially if he or she has a previous history of trauma.
- Make the situation less alarming by putting it in the current context.
- Provide support to the patient and make sure he or she is getting enough support from people around him or her.
- Remember that although medication can help reduce certain symptoms of anxiety, insomnia and repressed depression, it cannot in any way replace therapy, which is based on talking and support.

What about a child's reaction? What advice can we give parents ?

Reactions to psychologic trauma may appear immediately after the traumatic event or several days or weeks later. A common reaction is the fear that a similar event may reoccur. Other reactions vary according to the child's age (fear, regressive behaviours, agitation, sleep problems, etc.)

Family physicians will not always be asked to intervene directly with traumatised or anxious children and adolescents. Although they may not intervene directly, physicians can give valuable advice to parents and other adults who are close to these children and adolescents :

- Explain the event and its aftermath as well as you can.
- Limit the frequency and duration of exposure to horrific television images, especially for younger children.
- Encourage children to talk about their feelings but do not force them. Give them the time to do it, and listen without passing judgement. Do not expect them to be brave. Help younger children find the words that express their feelings.
- Help them understand that it is normal to feel upset after such events, but that what happened is not their fault.
- If some children are fearful, reassure them that you love them and will take care of them.
- Do not criticise regressive behaviour in children.
- If bedtime becomes difficult, take a bit more time and reassure them; suggest leaving a night light on, if needed.
- Try as much as possible to maintain the family's daily activities and routines.
- Parents should take care of themselves so they can take care of their children…

Given adequate support, most children and adolescents will recover almost completely within a few weeks from the fear and anxiety they felt. Others will need more help: those who have prolonged problems—longer than a month—and present all or some of the symptoms of post-traumatic stress disorder. They may require the help of a specialist.

Excerpts from the "Prévention en pratique médicale" issues published on the Public Health Department's web site: ***www.santepub-mtl.qc.ca.***

Reporting is mandatory... and easy

Attending physicians, heads of infectious disease departments, and directors of laboratories all share the duty of notifying the director of public health of certain cases of infectious disease and biological or chemical poisoning, as stated in the Regulation Respecting the Application of the Public Health Protection Act (R.R.Q., 1981, P-35, r.1).

By telephone, mail, fax, and e-mail

Reports can be sent in by telephone, mail, fax, or e-mail. Any means is acceptable to report cases as quickly as possible. The ministère de la Santé et des Services sociaux forms can be used, as can photocopies of computer forms from the laboratory or clinic, or the form included with this newsletter.

Completely

It is important that all the information required in the Regulation be provided so that we can intervene rapidly and compile valid data. If any information is missing, we will have to contact the physician by telephone. When you take the time to file a complete report, you help save time.

Quickly

The time limit for effective action with a patient's contacts or community is short. In fact, it is shorter than the disease's incubation period. Although intervention is usually less effective beyond this time period, it is still important to send in the forms. It is essential to report quickly.

Confidentially

The only people who know the names of the individual about whom the report is filed are the data entry clerk and the physician or nurse who is following up on the case. These people, as well as all Infectious Diseases Unit personnel, have signed an oath of confidentiality. Moreover, all data entry, computer analysis, and filing procedures conform to the rules of the Access to Information Commission.

Prévention *en pratique médicale*

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Direction de la santé publique

Association des Médecins Omnipraticiens de Montréal

TÉLÉCOPIE CONFIDENTIELLE*

Du lundi au vendredi, de 8h30 à 16h30
En dehors de ces heures, pour une prise en charge épidémiologique immédiate, contacter le (514) 528-2400 et suivre les instructions

Destinataire : Unité Maladies infectieuses, Direction de la santé publique de Montréal-Centre

Télécopieur dédié confidentiel : (514) 528-2461

à signaler immédiatement dès un soupçon d'infection, y compris le charbon et la tularémie à déclaration obligatoire par le laboratoire

Gouvernement du Québec
Ministère de la Santé et des Services sociaux

DÉCLARATION D'UNE MALADIE À DÉCLARATION OBLIGATOIRE*

Nom du malade | Prénom | Sexe ☐M ☐F

Adresse
N° Rue

Municipalité | N° téléphone

Date de naissance (Année Mois Jour) | Occupation

(*) *Pour la déclaration d'une maladie vénérienne, utiliser la formule AS-771. Pour la déclaration du syndrome d'immunodéficience acquise (SIDA), utiliser la formule AS-757.*

(**) *Voir ci-bas la liste des maladies à déclaration obligatoire en vertu de la Loi sur la protection de la santé publique, codifiées selon la neuvième révision de la Classification internationale des Maladies.*

Nom de la maladie (* *): _____

Début de la maladie _____ (Année Mois Jour)

Prélèvement soumis au laboratoire oui ☐ non ☐

Nom du médecin en lettres moulées

Adresse
N° Rue

Municipalité | N° téléphone

_____ Date

_____ Signature M.D.

AS-770 (rev. 95-08)

À TRANSMETTRE AU DIRECTEUR DE LA SANTÉ PUBLIQUE DE VOTRE TERRITOIRE

MALADIES À DÉCLARATION OBLIGATOIRE PAR LE MÉDECIN

À DÉCLARER D'URGENCE PAR TÉLÉPHONE OU TÉLÉGRAMME SIMULTANÉMENT AU MINISTRE DE LA SANTÉ ET DES SERVICES SOCIAUX ET AU DIRECTEUR DE LA SANTÉ PUBLQIUE DE VOTRE TERRITOIRE ET À CONFIRMER DANS LES 48 HEURES À L'AIDE DE LA PRÉSENTE FORMULE

- botulisme (005.1)
- choléra (001)
- fièvre de Lassa (078.8)
- fièvre hémorragique africaine (Ebola) (078.8)
- fièvre jaune (060)
- maladie de Marburg (078.8)
- peste (020)
- variole (050)

À DÉCLARER À L'AIDE DE LA PRÉSENTE FORMULE (CI-HAUT) AU DIRECTEUR DE LA SANTÉ PUBLIQUE DE VOTRE TERRITOIRE DANS LES 48 HEURES :

- coqueluche (033)
- diarrhée épidémique (009.2)
- diphtérie (032)
- fièvres typhoïde (002) et paratyphoïde (002)
- hépatite virale (070)
- herpès néonatal (054)
- **Infections à *Chlamydia trachomatis* :**
  - génitales (099.4, 099.8, 616)
  - oculaires (076, 077.0)
  - pulmonaires (483)
- **Infections à *Haemophilus influenzae* :**
- méningite (320.0)
- bactériémie (038.4)
- autres formes envahissantes (041.5)
- infections à méningocoques (036)
- infections invasives à streptocoque (035.0, 038.0, 038.2, 041.0, 041.2, 320.2, 481, 482.3, 711.0, 728.0, 730.2, 785.5, 998.5)
- légionellose
- lèpre (030)
- oreillons (072)
- poliomyélite (045)
- rage (071)
- rougeole (055)
- rubéole (056)
- rubéole congénitale (771.0)
- scarlatine (034.1)
- tétanos (037)
- toxi-infection alimentaire (005)
- tuberculose (010-018)

Intoxications par :

- benzène (982.0)
- béryllium et ses composés (985.3)
- chlore et ses composés
  - chlore gazeux (987.6)
  - composé (983.9)
- chrome et ses composés (985.6)
- cuivre, nickel et zinc (985.8)
- fluor (987.8)
- hydrocarbures chlorés
  - solvants (tétrachlorure de carbone) (982.1)
  - non solvants (989.2)
- monoxyde de carbone (986)
- nitro et amino dérivés du benzène, phénol et leur homologues
  - vapeur (987.8)
  - solvants (982.9)
  - non solvants (989.9)
- pesticides
  - vapeur (989.4)
  - arsenic (985.1)
  - carbamate (989.3)
  - chlore (989.2)
  - composite précisée NCA (989.4)
  - cyanure (989.0)
  - mixte (989.4)
  - organochloré (989.2)
  - organophoshoré (989.3)
  - strychnine (989.1)
  - thallium (985 8)
- phosphore et ses composés (983.9)
- souffre et ses composés
  - soufre (989.8)
  - acide sulfurique (989.1)
  - sulfure de carbone (982.20
  - dioxyde (gaz) (987.3)
  - hydrogène (987.8)
  - médicinal (onguent) (976.4)
  - pesticide (vapeur) (989.4)
  - vapeur NCA (987.8)
- vapeurs nitreuses
  - maladie des ouvriers de silo (506.9)
  - oxyde nitreux (968.2)
  - oxyde nitreux non anesthésique (987.2)
  - oxyde nitrique (987.8)

À DÉCLARER À L'AIDE DE LA FORMULE AS-771 (AS-757 - sida) AU DIRECTEUR DE LA SANTÉ PUBLIQUE DE VOTRE TERRITOIRE DANS LES 48 HEURES :

- chancre mou
- granulome inguinal
- infection gonococcique
- lymphogranulomatose vénérienne
- syphilis
- sida

Unité Maladies infectieuses, 1301, rue Sherbrooke Est Montréal, Québec, H2L 1M3. Téléphone: (514) 528-2400.

- prière de faire des copies -