



# INSIGHTS

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ISSUED QUARTERLY

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## Missing drugs in a shaky Canadian Supply Chain

Dr. Jacalyn Duffin, a hematologist and medical historian at Queen's University in Kingston, first became aware that certain drugs were sometimes getting hard to find in 2010, when her patient at a cancer clinic wanted to stop chemotherapy because she couldn't get Prochlorperazine, a common anti-nausea drug.

Duffin was shocked. "I just couldn't believe that it was gone. It is a very old, reliable drug that has been around for a long time and it was the only one that worked for her."

Duffin started investigating and quickly discovered the problem went far beyond an old anti-nausea drug. "It's affecting all classes of drugs, as far as we can tell. There are drugs missing for treating mental illness, there are chemotherapy drugs missing in cancer care, there are painkillers missing, there are anti-inflammatory drugs that have gone missing, there are blood pressure drugs that have gone missing, there are antibiotics that have gone missing."

The problem is found in many countries around the world, though the form may differ by jurisdiction. In the U.S., for example, a lot more injectables are missing than in Canada, said Duffin.

But more worrying than the missing drugs, she said, is that we don't really know how big the problem is, or what is causing it. "Nobody is measuring it properly," she said. "And without measuring it properly, it is very hard to describe it and to know if it is getting better, or getting worse."

To try to fill that gap, Duffin has been collecting reports of shortages, possible causes and patient stories on her website, [www.canadadrugshortage.com](http://www.canadadrugshortage.com).

### Less lucrative

A possible clue to the cause of the shortages may be in the one thing they mostly have in common: the missing drugs are usually generics. In other words, they are older drugs without patent protection. These drugs are less lucrative than new blockbuster drugs or most drugs still on patent, and companies must sell huge volumes to turn a profit. This results in a shaky supply chain; often only a few companies manufacture each drug and if it becomes uneconomical, they may stop production. The Canadian Generic Pharmaceutical Association declined to be interviewed, but Jeff Connell, the association's Vice-President of Corporate Affairs, stated in an email that, "The root causes of drug shortages are complex and are influenced by both domestic and international factors. The most common causes for drug shortages are the



**The missing drugs are usually generics - older drugs without patent protection.**

availability of active ingredients, manufacturing issues, regulatory issues and marketplace issues."

Bulk purchasing by large health care providers, even provinces, in pursuit of the lowest prices may lead to shortages, agrees Paul Grootendorst, an economist at the University of Toronto's school of pharmacy. Pushing down the price on a product with already thin margins can drive some suppliers out of the market. "When governments interfere to keep prices low, people don't bother to supply."

Whatever the causes, and eventual solutions, the drug shortage is posing a serious, tangible cost to patients right now, even if little is being done to record it, said Duffin. "There is nothing we are required to fill out when somebody dies; they die of a disease, they don't die of a drug shortage," she said. But she has no doubt that

...continued on reverse

**Missing Drugs ... continued from reverse**

the shortage of Prochlorperazine had a major effect on her patient's life. "She died of cancer, eventually, this poor woman, and she suffered way more than she had to because she couldn't get that drug."

Creating and enforcing an essential medicines list of prescription drugs that Canada commits to supplying at all times could help alleviate drug shortages and improve prescribing practices, doctors say. Unlike 117 other member countries of the World Health Organization, Canada has no such list. An essential medicines list of between 200 and 500 medicines that a government commits to keeping in stock because officials consider them essential makes sense. Norway has kept a list of essential medicines since 1928, and few drug shortages have been reported in that country. Sweden's "wise list" of 200 drugs is trusted by practitioners, who have seen cost savings and improved quality of care because of it, previous research

suggests. Drugs on the list are the gold standard, with proven effectiveness and safety says Dr. Duffin. Doctors and other health-care providers would remain free to prescribe medications beyond those listed – currently more than 8,000 pharmaceutical drugs are licenced for sale by Health Canada. The essential list would create a manageable number of medications to supply while Canadians get a handle on the extent of drug shortages, and guide prescribing practices while controlling drug costs.

Drug shortages can be dangerous. At points over the past few years in Canada, children with controlled epilepsy seizures have had difficulty accessing vital medication, cancer patients have had their recommended chemotherapy treatment interrupted or stopped, and Epinephrine auto-injectors used to treat anaphylactic allergic reactions have been in short supply.

"I think that people are affected by the drug

shortage and don't even realize it," Duffin said in an interview. They'll say, "Oh, my doctor changed my medicine. It cost a lot more and it's a new drug so it must be better." They assume the doctor is just looking after them properly and the doctor is... but on the other hand, doctors don't have any guidance as to how to solve the problem when the drug the patient has relied on for a number of years suddenly goes missing.

Drugs are sometimes difficult to obtain because global shortages can limit supplies. Dr. Duffin feels that a list of essential medicines could improve availability and help governments to avoid or mitigate shortages. It could also become the cornerstone to a Canadian National pharmacare plan.

Until next time...

Source: CMAJ - Canadian Medical Association Journal June 2016  
CBC.ca/News/Health June 2016

## Lyme Disease Increase in Canada is Alarming

An increase in Lyme disease cases is a concern, Canada's top public health officer says.

Lyme disease is an infection caused by *Borrelia burgdorferi* bacteria. In Canada, it's transmitted by two species of ticks that suck on the blood of humans and other animals. Ticks look like a small, flat watermelon seed.

In 2015, there were more than 700 cases of Lyme disease reported to the Public Health Agency of Canada. In 2009, there were 128 cases.

"We think the numbers are much higher and it's alarming that the numbers are increasing continuously," said Dr. Gregory Taylor, the country's chief public health officer.

Taylor expects the true number of cases is much higher since mild cases may clear on their own, or may never be reported to public health authorities, even though it's been nationally notifiable since 2009.

If detected early, the treatment is a short course of antibiotics that cures the majority of people. Left untreated, it can result in facial palsy, meningitis, heart problems, nerve damage and inflammation of the brain and spinal cord. "It's worrisome that something so easy to treat can sometimes have such an impact on people", Taylor said.

The easiest way to deal with Lyme disease

is to protect yourself when going into areas where ticks live, such as woodlands or where there are leaves or tall grass on the ground.

**Recommended precautions include:**

- Avoidance - if you live in a tick zone, remove leaf litter and tall grass around your house to reduce their numbers
- Cover up with light-coloured clothing to spot ticks more easily
- Walk in the centre of designated trails
- Wear closed-toed shoes
- Tuck your pant legs into your socks to prevent ticks from crawling up your legs
- Tuck your shirt in to prevent ticks from getting onto your skin
- Use insect repellents that contain DEET or Icaridin
- Have a friend give a quick scan at regular intervals to check if a tick is crawling on you
- Change your clothes and hang the clothes outside so ticks don't enter the house
- A run through the dryer will kill ticks more effectively than the washer
- Shower or bathe within two hours of being outdoors to wash away loose ticks

**Ticks like dark and quiet**

Ticks are tied to reservoirs of deer and field



mice populations. The eight-legged critters can't fly or jump. They lurk on grass or shrubs and climb onto a passing host.

In most cases, the tick must be attached for 36 to 48 hours or more before Lyme disease bacteria can be transmitted, the U.S. Centers for Disease Control and Prevention says.

The tick will protrude but can be quite small. Check children and pets, too, especially dogs. They can easily pick up ticks when walking in the woods.

Taylor said his major concern is that the full impact of Lyme disease isn't known.

Tick surveillance depends on people submitting ticks for identification and testing in parts of the country where Lyme disease is not yet regularly found, as well as actively testing ticks for the bacteria. Diagnostic tests are failing Canadians and we need better public awareness to this fact. A clinical diagnosis must be supported for treating chronically ill cases of Lyme disease.

Source: cbc.ca/news/health/lyme-disease May 2016