

One quarter of prescription drugs in Canada may be in short supply

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Research from the Centre for Health Evaluation and Outcome Sciences (CHÉOS) sheds new light on the factors behind drug shortages in Canada, a common problem across the country.

In 2018 alone, Canadian patients faced shortages for hundreds of medications, including EpiPens, [opioid drugs](#), and treatments for Parkinson's disease, schizophrenia, and depression.

In many cases, these shortages can have severe and life-threatening consequences. While there are several studies from the United States about this topic, there have been very few investigations about [drug](#) shortages in Canada, mostly due to lack of reliable data.

To understand drug shortages in the Canadian context, the CHÉOS research team—led by Wei Zhang and Aslam Anis—analyzed prescription drug data from the Canadian Drug Shortage Database. The team also included Larry Lynd, director of the Collaboration for Outcomes Research and Evaluation, and senior statisticians Daphne Guh and Dr. Huiying Sun.

"Since early 2017, Canadian drug manufacturers are required to report drug shortages and state the reason they are unable to meet demand for the drug," said Zhang, the study's first author and program head for health economics at CHÉOS. "We looked at the first year and a half of data from this database to describe the factors associated with drug shortages."

The researchers found that, of the over 9,000 different drugs marketed in Canada, one quarter were reported in shortage during the study period. The average length of a shortage was five months.

The researchers also grouped the drugs with the same ingredients, dosage, type, and strength into a "[market](#)." The drugs under the same market were considered as interchangeable. This allowed them to look at shortages at the market level, rather than at the level of individual manufacturer. There was a total of 3,470 distinct markets; of these, 13 percent were reported as having a shortage.

Related to the reasons behind these shortages, the team found several factors that could be at play.

"Our main finding was that markets with a single generic manufacturer were the most vulnerable to shortage," said Zhang. "We did not see the same result with single branded manufacturers."

This result suggests that shortage could be related to the low profit margins for [generic drugs](#) compared to branded drugs. "One of the reasons behind this finding could be related to the lower reimbursement price for generic drugs based on the pan-Canadian tiered pricing framework and provincial price-cap policies" said Anis, study co-lead and director of CHÉOS.

The team also found that markets with a larger proportion of their drugs covered under provincial formularies were more likely to be in shortage. Other factors related to shortages included complex manufacturing processes and certain types of therapies.

"This study gives Canadian policy makers who are trying to balance cost with drug supply security a number of red flags to look out for in order to avoid [drug shortages](#)," said Zhang.

The research is published in *CMAJ Open*.

More information: *CMAJ Open*, [DOI: 10.9778/cmajo.20200036](https://doi.org/10.9778/cmajo.20200036)

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