



Position Paper on Drug Shortages in Canada

Brain Tumour Foundation of Canada
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Brain Tumour Foundation of Canada is concerned about the increasing frequency of pharmaceutical drug supply shortages across Canada. Drug products are used routinely for the treatment and management of many types of brain tumours. Many common generic medicines are used for critical disease management and to prevent debilitating symptoms in this population. A reliable supply of these drug products is critical to the safety and well-being of those living with brain tumours in Canada. A disruption in supply, without warning, can place many people living with brain tumours at significant risk. Brain Tumour Foundation of Canada supports the steps taken by the federal government to require manufacturers to report anticipated or actual drug shortages, and the ongoing work with stakeholders to improve supply chain management. Moving forward, Brain Tumour Foundation of Canada urges the federal government to incorporate an “essential medicines list” into drug shortage reporting systems and expand the scope of Health Canada to measure and project priority drug shortages.

Background

A drug shortage is defined by Health Canada as a situation whereby the manufacturer assigned to a drug is unable to meet market demand for the drugⁱ. Drug shortages are increasingly common in North America and Europe and impact patient care on a near daily basisⁱⁱ. There are approximately 1,000-1,200 product shortages reported each year in this country, impacting more than 10% of all active prescriptions in Canada. The reasons are multi-faceted and include a disruption in the supply of raw materials¹, raw material quality testing failures, importation issues or delays, manufacturing quality inspection failures, and production equipment breakdowns or limitations^{2, iii}.

Until 2017, drug shortages in Canada were reported by manufacturers to a pharmaceutical industry-sponsored site on a voluntary basis. That changed with the passing of federal *Food and Drug Regulations* that made it *mandatory* for pharmaceutical manufacturers to report^{iv}:

- an anticipated drug shortage six months in advance;
- a planned discontinuation of a drug six months in advance; and
- any unanticipated shortage or discontinuation within 5 days of learning about it.

These reports are submitted to a public website funded by industry and operated by BELL CANADA under a contact with the Government of Canada. The website, Drug Shortages Canada

¹ “Raw material supply disruptions can result from several factors, including a manufacturer ceasing operation, delivery delays, political upheaval, natural disasters, degradation or contamination during transport, animal diseases, decreased yields of plants used to source raw materials, and suspension of production to remediate quality issues”. (MSSC 2017 p 8)

² “Some drug products such as vaccines, sterile injectables and biologics, have highly specialized and complex production processes that make it difficult or impossible to quickly find alternate manufacturing options in the event of a facility shutdown, loss of manufacturing capacity or sudden increase in demand”. (MSSC 2017 p 10)

(www.drugshortagescanada.ca) provides a searchable database and reports on shortages. Its function is limited and does not allow for broader analysis of trends or possible shortages.

Mandatory reporting of drug shortages had been one of several recommendations made by the Standing Committee on Health (HESA) in 2012 to the federal government of Canada^v. HESA had also recommended a list of *essential* or critical medicines be created by the Canadian Agency of Drugs and Technologies in Health (CADTH) to better understand and track the country's supply capacity for these medicines. A related recommendation was for CADTH to create a list of *therapeutic alternatives* to these essential medicines that could be communicated to health professionals and considered in the overall management of supply. To date, these initiatives have not been fully enacted.

The *Multi-Stakeholder Steering Committee* (MSSC) on Drug Shortages has been in place since the release of the HESA report in 2012. Its aim is to provide support for a more coordinated approach to drug shortages among the provinces and territories, and includes representatives from industry, and health professional associations, federal, provincial and territorial governments. Its work is supported by Health Canada's *Drug Shortage Unit* and the *Provincial and Territorial Task Team on Drug Shortages*. Since 2013, the MSSC has produced Protocol for the Notification and Communication of Drug Shortages, a Tool Kit^{vi} (updated in 2017) for stakeholder that can be used to identify points of risk for drug shortages in Canada across the supply chain (supply, manufacturing, distribution, procurement, front-line care) and strategies to reduce potential shortages, as well as a Guidance Document to Mitigate Drug Shortages through Contracting and Procurement (also updated in 2017), which outlines best practice contracting guidelines, procurement strategies, and tools to address common drug supply chain shortage vulnerabilities^{vii}. The impact and use of these documents has not been evaluated^{viii}.

In March 2019, the MSSC launched a pilot project of a "*Tier Assignment Committee*" (TAC). The purpose of this committee is to better identify and communicate on potential or actual drug shortages that will have the greatest impact on the Canadian health care system^{ix}. A drug shortage is first identified by the Health Canada Drug Shortage Unit and/or the Provincial Territorial Task Team who then engage with the TAC for a consensus determination to classify the drug as "Tier 3" and requiring attention. The TAC then advises Health Canada on possible mitigation strategies.

On March 30, 2020, the federal Minister of Health passed an Interim Order to allow the import and sale of drugs that didn't meet full regulatory requirements to address "Tier 3" drug shortages in Canada^x. This was done in response to the increasing shortage of drugs related to the COVID-19 pandemic. This was an important first step by the federal government in identifying and addressing shortages of critical or essential drug products in Canada.

Several Advisory Committees and policy experts have called for a critical or essential medicines list to be developed for drug supply management in Canada. This includes the *Advisory Committee for the Implementation of National Pharmacare*^{xi}, who called for an essential medicines list to be created and managed by a Canadian Drug Agency. The federal government has endorsed this recommendation and allocated funding for its development. This essential medicines list, along with the Tier 3 assignments of critical medicines, will provide a foundation for a coordinated approach to drug procurement and supply management in Canada. Its development cannot wait.

Several policy experts on drug shortages have also called for the *measurement* of drug shortages to be implemented along with the identification and tracking of drug shortage information^{xii}. By analyzing

trends within the drug shortage reports the government could better understand the causes of different shortages and be more prepared to predict potential disruptions in supply of related products.

Context

Persons living with brain tumours rely on many different yet common medicines for the treatment of their tumours and the management of symptoms. These include anti-edema (e.g. steroids), anti-seizure and chemotherapy drugs. There are only a limited number of drugs for the treatment of malignant brain tumours, and these treatments have been proven significant in extending survival and improving quality of life. The primary treatment – temozolomide – is considered standard of care in countries worldwide^{xiii}. To have a shortage of this drug would pose a significant increased risk to the mortality of this population.

Studies have shown that medication shortages overall have significant clinical, economic, and humanistic impacts on patients^{xiv}. They can increase the rates of mortality, adverse drug reactions, drug administration errors, hospitalizations, drug-resistant mutations, seizure frequency, and rationing of medications. These impacts can be far-reaching if the shortage occurs in a raw material, where numerous manufacturers experience a shortage and many versions of a drug are unavailable.

One example is the widespread shortage of dexamethasone, a steroid commonly prescribed in the treatment of brain tumours. Canada has been experiencing increased shortage reports of this drug from several manufacturers in 2019-20. This is a significant concern for hospitals and physicians across the country. Brain tumour patients use this one drug intermittently for a variety of needs throughout the course of their disease^{xv}. Patients are given dexamethasone intraoperatively and immediately post operatively to moderate brain swelling. They take it during treatment with radiation therapy and/or chemotherapy to minimize symptoms of pain, confusion, and balance. Patients also take it at the end of their life to palliate their symptoms. Due to the pharmacokinetics of dexamethasone, if or when patients are able to stop this medication, they must slowly taper the dose. They cannot simply stop the drug as they run the very real risk developing significant medical problems such as vomiting, drowsiness, confusion, headache, fever, joint and muscle pain, peeling skin, and weight loss. The shortage of this drug has posed a very real and immediate risk for brain tumour patients.

Another example is the 2019 shortage of vincristine, used as standard treatment for pediatric brain tumours. This shortage caused panic among medical oncologists and the parents of these children, who were aware that there are no viable substitutes for this treatment drug^{xvi}. There have been similar shortages with lomustine and temozolomide in the adult population. These shortages occurred with little warning, and relied on careful contingency planning by oncology centres and cancer agencies to deter risk to the brain tumour population. These shortages were evidence that any sudden shortages to the few drugs used to treat brain tumours would pose a significant risk to patient morbidity and mortality.

Principles

The vision of Brain Tumour Foundation of Canada is to find the cause and cure for brain tumours while improving the quality of life of those affected. Advocacy activities address the issues of the collective brain tumour community. The positions on drug shortages in Canada are in keeping with this mission and the organization's value of providing hope and caring while acting with accountability, integrity and collaboration.

Positions

- (1) Brain Tumour Foundation of Canada acknowledges pharmaceutical drug products form a vital component of brain tumour treatment.** In addition to surgical and radiotherapy options, drugs treat disease and help manage symptoms. They are a necessary reality in the lives of many patients to reduce debilitating symptoms, improve quality of life, and extend survival.
- (2) Brain Tumour Foundation of Canada acknowledges pharmaceutical drug shortages can place those living with brain tumours at risk.** Most of the drugs used for the treatment of brain tumours are used for emergency care, surgery, symptom control (e.g. anti-seizure) and the treatment of advanced cancer. The administration of these drugs is time-sensitive and usually follows a sudden diagnosis or change in symptoms. There are few evidence-based treatments available for this population, so any shortages risk delays and treatment viability. Patients could face going without standard treatment for malignancies with a significantly reduced life expectancy. Other patients could be hospitalized in an effort to manage symptoms. Drug shortages risk increased mortality, increased morbidity, and decreased quality of life for brain tumour patients.
- (3) Brain Tumour Foundation of Canada supports the creation of an essential medicines list that reflects not only frequently used medicines but those critical to the treatment of certain diseases.** This includes those living with brain tumours. An essential medicines list could better inform those who manage and address drug shortages and help identify potential strategies for mitigating the risks of those shortages.
- (4) Brain Tumour Foundation of Canada supports the expansion of the drug shortage reporting system to include predictive and causal analytics.** Currently, the scope of the mandatory drug shortage reporting system is to record and communicate reported shortages. Experts agree a more vigilant surveillance of drug shortage trends could help predict shortages in certain drug classes or related drug treatments. These predictive measures and a reliable alert system would give health care professionals and governments more time to prepare for and respond to possible shortages. Measurement might also provide insight into the causal factors of shortages and steps that could be taken to address these causes.
- (5) Brain Tumour Foundation of Canada supports the continuation of the Tier Assignment Committee (TAC) and the creation of additional health expert committees to inform an essential medicines list for Canada.** This includes professionals with knowledge of the needs of the brain tumour population. Those with knowledge of clinical use guidelines and drug shortage protocols for specific populations are best positioned to inform future drug shortage mitigation strategies.

Conclusion

Persons living with brain tumours rely on many common medicines for the treatment of their tumours and the management of symptoms. The urgent and delicate nature of brain tumour treatment means any interruption in the supply of these drugs could have significant impact to the morbidity, mortality, and quality of life of these patients. Brain Tumour Foundation of Canada works to support the collective needs of the brain tumour population, and supports an expansion of current national drug shortage reporting methods. This expansion should include the use of an essential medicines list, the use of predictive and causal analytics, and the expansion of health care advisory committees. These steps are critical to avoid future drug shortages that could place the care of brain tumour patients at risk.

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