

Medication incidents involving smoking cessation therapy: A multi-incident analysis

By Phillip Yang, Jim Kong, and Certina Ho

Every year, thousands of Canadians attempt to quit smoking with the help of nicotine replacement therapy or other non-nicotine medications. However, statistics show that as recently as 2017, 16 per cent of the Canadian population still continues to smoke despite the multitude of public and private campaigns that highlight the health related concerns associated with smoking. Studies have shown that an average smoker will experience five to seven unsuccessful attempts at smoking cessation before maintaining complete remission. Pharmacists, being one of the most accessible healthcare professionals in the community, can embrace their role to bring about positive changes in a smoker's health and well-being with communication and patient education on smoking cessation. Currently, there are different interventions available to help patients quit smoking, which include medications and non-drug therapy (e.g. behavioural therapy).

We conducted a multi-incident analysis on the use of selected drug therapy for smoking cessation in order to analyze the underlying causes that might have led to medication incidents and/or, ultimately, a potential failure in smoking cessation. Incident data were gathered from the ISMP Canada's Community Pharmacy Incident Reporting (CPhIR) (<https://www.cphir.ca>) Program between 2010 and 2014. Inclusion criteria included

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any voluntary incident reports pertaining to non-nicotine medication therapy for smoking cessation, such as Varenicline and Bupropion, including their generic equivalents. Although a search for medication incidents related to nicotine replacement therapy (NRT) was also conducted, there was insufficient data for incident analysis. As a result, NRT medications were excluded from this analysis. A total of 360 incident reports were included in this multi-incident analysis, with 39 per cent (n = 140) involving Varenicline and 61 per cent (n = 220) associated with Bupropion.

The typical dosing schedule of Varenicline requires a one-week titration schedule with 0.5 mg once daily to be taken orally for the first three days, followed by 0.5 mg twice daily for the next four days; and this is included in the initial dosing pack (or starter pack) of Varenicline. The remaining 11 weeks of therapy (for a usual 12-week course of Varenicline) can be dosed as either 0.5 mg twice daily or 1 mg twice daily. Our incident analysis has shown that instructions for the initial dosing pack (or starter pack) and subsequent refills of Varenicline

were often mixed up and patients have been either overdosed or underdosed, depending on their smoking cessation therapy status or progress. A potential recommendation to prevent this mix-up would be to apply highlighted labels (e.g. in bold characters) to reflect and help patients identify the different dosing schedule. In addition, the pharmacy practice management system or dispensing software, perhaps, can be set up to prevent filling of subsequent refills until the initial dosing pack (or starter pack) has been completed based on the number of days' supply of the smoking cessation therapy. Utilizing a pre-printed order set that specifies the dosing pack type (e.g. an initial dosing pack (or starter pack) versus a subsequent refill prescription), the duration of use, number of days' supply, and the number of prescription refills, etc., would be helpful for both prescribing and dispensing of Varenicline. Independent double checks within the pharmacy workflow or through patient counselling can always serve as a final or additional verification to help prevent unintentional misuse of Varenicline.

Bupropion, in the form of sustained-release tablets, is another non-nicotine drug therapy commonly used for smoking cessation. From our multi-incident analysis, we found that the various commercially available formulations of Bupropion (i.e. sustained-release tablets and extended-release tablets) often confused healthcare professionals, resulting in incorrect formulations being prescribed or dispensed for smoking cessation, followed by potential therapy failure. A possible recommendation to prevent this mix-up would be to set up alerts in clinical decision support systems or prescribing and dispensing software applications to flag for a double check or verification during prescribing and order entry of the extended-release formulations of Bupropion, which is usually indicated for depression (instead of smoking cessation). In addition, auto-completion of drug names (a function that is usually available in dispensing software applications) with multiple commercially available formulations should also be discouraged during order entry at the pharmacy. Finally, similar to what was mentioned earlier, independent double checks within the pharmacy workflow or through patient counselling are always recommended as safe medication practices.

Learning from medication incidents is a fundamental step to continuous quality improvement. It is hoped that our incident analysis findings will support safe prescribing and use of smoking cessation therapy. **H**

Phillip Yang is a pharmacist and he completed a PharmD rotation at the Institute for Safe Medication Practices Canada (ISMP Canada) in 2014; Jim Kong is a Program Development Manager at ISMP Canada; and Certina Ho is a Project Lead at ISMP Canada.