

Fentanyl patches can be deadly

By Joyce Tsang, Matthew Chan, Steven Lam, and Certina Ho

Fentanyl is a highly potent long-acting opioid that is used broadly as an analgesic. The fentanyl transdermal system (i.e. skin patch) is highly effective, and is only used in the management of chronic pain. However, there are unique characteristics of the patches that need to be taken into consideration in order for them to be used safely. Failure to do so may result in overdoses which can have fatal consequences, especially for opioid naïve users.

ISMP Canada conducted this multi-incident analysis to examine medication incidents involving fentanyl patches that are commonly encountered within the community setting. Incidents were retrieved from ISMP Canada’s Community Pharmacy Incident Reporting (CPhIR) program from the period between January 2010 and January 2016. A total of three main themes were identified by this analysis.

Pharmacological Properties

This theme is related to the drug property of fentanyl or how it works, which includes the following sub-themes: (1) dosing interval; (2) drug-drug

interactions; (3) Rate of absorption; and (4) its effects on opioid naïve users. Although considerations of pharmacological properties apply for all drugs, fentanyl is unique with its constant rate of absorption and long dosing interval. Hence, a fentanyl patch is expected to be applied for 72 hours; yet, most patients attribute a typical pain medication as lasting only for a few hours that can be used only when required. (Table 1)

Opioid-Dose Conversion

Opioid-dose conversion refers to the process of calculating the appropriate dose of fentanyl to prescribe. To initiate fentanyl therapy safely, patients must first have prior use of other opioid analgesics in order to reduce the risk of adverse effects, such as, respiratory depression. Converting the doses between the myriad of opioid formulations can have significant safety implications if performed incorrectly. (Table 2)

Product Design

Finally, product design represents the physical limitations as to how the medication is commercially available. This re-

fers to the fixed dosage of fentanyl and its supply of 5 patches per box. A combination of multiple or, sometimes, different patches may be required to achieve the prescribed doses. (Table 3)

Recommendations

Safety recommendations can target different stages of the medication-use process rather than a specific potential contributing factor. These recommendations provide a good transition point to align with the recent fentanyl legislation in Ontario (http://www.ontla.on.ca/web/bills/bills_detail.do?locale=en&Intranet=&BillID=3059). Many regions have already adapted a “patch-for-patch” program to create safer fentanyl practices, where patients with a prescription for fentanyl would only be provided with new fentanyl patches when they return the used patches. (Table 4) ■

Joyce Tsang is an Analyst at the Institute for Safe Medication Practices Canada (ISMP Canada); Matthew Chan and Steven Lam are PharmD Students at the School of Pharmacy, University of Waterloo; and Certina Ho is a Project Lead at ISMP Canada.

TABLE 1. Pharmacological Properties

Subtheme	Potential Contributing Factors of Medication Incidents
Dosing interval	Lack of knowledge or awareness of the unique dosing interval of fentanyl transdermal patches in pain management.
Drug-drug interaction (DDI)	Lack of a clinical decision support system to alert the prescriber and/or pharmacist for potential DDI and/or other contraindications.
Constant rate of absorption	Fentanyl patch is a controlled delivery system designed to release a steady amount of medication at a constant rate in mcg/hour. Unlike most other pain medications, fentanyl transdermal patch is used consistently with a strict dosing regimen and direction of use rather than on an “as needed” basis.
Effects on opioid naïve users	Lack of knowledge or awareness of the proper indication for the use of fentanyl patches.

TABLE 2. Opioid-Dose Conversion

Potential Contributing Factors of Medication Incidents
Lack of familiarity or access to equianalgesic or opioid-dose conversion tables for pain management.

TABLE 3. Product Design

Subtheme	Potential Contributing Factors of Medication Incidents
Supplied in a box of 5 patches	Confirmation bias (mix up of the number of boxes and the number of patches prescribed).
Fixed dosage	Prescribed doses may require combination of multiple or different patches.

TABLE 4. Recommendations

Medication-use process	Recommendations
Prescribing	Use a standardized fentanyl prescribing guideline or protocol. Include or have access to an equianalgesic conversion table.
Order Entry	Adhere to the physician’s specific written instructions. Include “return used patch(es) to pharmacy” or adopt the “patch-for-patch” program.
Therapeutic Check	Assess patient on appropriate indication and dose of fentanyl, potential drug-drug interactions, contraindications, state of opioid-naïve, and use of maintenance or breakthrough pain medications, etc.
Medication Dispensing	Double check the number of patches to be dispensed. Ensure all patch strengths dispensed add up to the prescribed dose.
Patient Counselling	Educate patient on the appropriate indication and administration of a fentanyl patch, signs and symptoms of an overdose, and accessibility of naloxone (an antidote to fentanyl).
Monitor/Follow-up	Initiate a patch-for-patch partnership with patients. Ensure patients return used patches to pharmacy for safe disposal.