Drug Status Report

**Drug:** Thienylfentanyl

**Drug Name Status:** Thienylfentanyl is the common name.

**Chemical Name:** N-Phenyl-N-[1-(2-thienylmethyl)-4-piperidinyl]propanamide

**Other Name:** Thienyl Fentanyl

**Chemical structure:**

![Chemical Structure of Thienylfentanyl]

**Molecular Formula:** $C_{19}H_{24}N_2OS$

**CAS Number** (Thienyl Fentanyl Hydrochloride): 117332-93-1

**Pharmacological class / Application:** Fentanyl

**International status:**

US: Thienylfentanyl is not currently listed on the US Controlled Substances Act and is not mentioned on the DEA website. However, the substance may be considered controlled as a fentanyl under the analogue provision of the CSA.

United Nations: The substance is not listed on the Yellow List - List of Narcotic Drugs under International Control nor the Green List - List of Psychotropic Substances under International Control.

Canadian Status: Thienylfentanyl is not currently listed in the Schedules to the CDSA. A review of the current family of fentanyls revealed that substances included under item 16 of Schedule I to the CDSA all contain the following root structure:

![Chemical Structure of Fentanyl]

- $R$=ethyl group substituted variously at the 1 and 2 position
- $R_1$=hydrogen, methoxymethyl or carboxylate alkyl ester
- $R_2$=phenyl or substituted phenyl
- $R_3$=alkyl
- $R_4$=hydrogen or alkyl
Note, however, that the pharmacological activities of the substances were not considered in the earlier reviews.

According to above root structure, thienylfentanyl would not be considered to contain all the essential structural elements, as it does not contain a substituted ethyl group at the R position. However, it is well-established in the scientific literature that thienylfentanyl is an analogue of thiofentanyl that was synthesized as a “designer drug”.1-4 The term “analogue” in relation to a controlled substance means a substance that has a substantially similar chemical structure and as shown above, the structures of thienylfentanyl and thiofentanyl are substantially similar. Given that thienylfentanyl is an analogue of thiofentanyl and that the substance displays the pharmacological properties5,6 of the fentanyls, the substance should be included under the heading “Fentanyls, their salts, derivatives, and analogues and salts of derivatives and analogues, including” of item 16 of Schedule I to the CDSA, despite not having all the elements of the core root structure that has been used previously to review similar substances.

Recommendation: Thienylfentanyl is included under item 16 of Schedule I to the CDSA and is a controlled substance.

July 14th 2010


