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# 1,4-Butanediol: legal date rape drug on the loose

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*To the Editor*—Gamma-hydroxybutyrate (GHB) is a central nervous system depressant with short-term hypnotic and euphoric effects. It is a notorious date rape drug that is extensively abused to enhance sexual activity and pleasure (colloquially known as ‘chemfun’) among men who have sex with men. Gamma-hydroxybutyrate overdose can cause drowsiness, respiratory depression, or coma.<sup>1</sup> Gamma-hydroxybutyrate and its pro-drug gamma-butyrolactone are dangerous drugs within the meaning of the Dangerous Drugs Ordinance.<sup>2</sup>

1,4-Butanediol, an industrial solvent, is converted to GHB by hepatic alcohol dehydrogenase and aldehyde dehydrogenase.<sup>3</sup> Generally, its onset of action is 5 to 20 minutes after ingestion with effects lasting for 2 to 3 hours.<sup>4</sup> Nonetheless there is inter-individual variability in its metabolism to GHB, mainly due to differences in alcohol dehydrogenase activity.<sup>3</sup> Importantly, concurrent ethanol intake inhibits conversion of 1,4-butanediol to GHB.<sup>5</sup> With a delayed onset of GHB-related desirable effects, inadvertent overdose may occur in those whose intention was to ingest GHB rather than 1,4-butanediol.<sup>3,6</sup>

At the time of writing, 1,4-butanediol is not listed as a dangerous drug. Our laboratory confirmed two cases of 1,4-butanediol misuse and poisoning related to ‘chemfun’ or suspected sexual assault. One of the cases had concurrent ethanol consumption. When encountering cases of suspected GHB poisoning, clinicians should be aware of the possibility of 1,4-butanediol ingestion and educate patients in high-risk groups about the dangers of misusing 1,4-butanediol. To prevent GHB-related crime, poisoning, or death,<sup>1</sup> the government should consider classifying 1,4-butanediol as a dangerous drug, given its accessibility and potential for misuse.

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All authors had full access to the data, contributed to the study, approved the final version for publication, and take responsibility for its accuracy and integrity.

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