U-47,700-related fatalities in Finland

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Postmortem toxicology in Finland

• Population: 5.5 million
• Deaths: ~51 000 per year
• Medico-legal cause-of-death investigations: 18%
  (98.3% in unintentional injury deaths and 99.5% in suicides*)
• Postmortem toxicology: 13%

→ ~6500 cases per year

Fatal poisonings (most common opioids & heroin)
U-47700

- Potent opioid
- First detected in Europe in 2014.
- EU EWS ALERT 8th June 2016.
- Deaths reported in the US, Belgium, Sweden, UK and Finland.

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U-47,700 in Finland / Pirkko Kriikku
U-47,700

$\text{C}_{16}\text{H}_{22}\text{Cl}_2\text{N}_2\text{O}$

3,4-Dichloro-N-[2-(dimethylamino)cyclohexyl]-N-methylbenzamide

AH-7921

$\text{C}_{16}\text{H}_{22}\text{Cl}_2\text{N}_2\text{O}$

3,4-dichloro-N-[[1-(dimethylamino)cyclohexyl]methyl]benzamide

Differences in fragmentation and retention time
Analysis

Post-mortem urine sample

Hydrolysis & SPE

UPLC-TOFMS screening

Quantification in urine or post-mortem blood with GC-MS or LC-MS/MS
Retrospective data analysis

- Substance was added to the method in March 2016
- Retrospective re-analysis of data from a 12 month period before the screening was initially started
- 2 additional cases were found (Feb’16 and Oct’15):
Observations

• Both ”new” cases had etizolam!
  → sold as a combination?
• Etizolam also present in some clinical cases

What to do with these new findings?

No blood available anymore for quantitative analysis.
Summary

- U-47700 appears to be a dangerous short-acting opioid that has caused deaths in several European countries and the US.
- In Finland in 12 death cases.
- Young males (23-32 years), other drugs affecting the CNS present in most cases.
- History of drug abuse, not only from the capitol.
- Blood concentrations: median 0.30 mg/L, range 0.15 – 2.0 mg/L.
- Retrospective data-analysis can give new insight into the time when a new drug was just recently introduced.