Parenteral abuse of buprenorphine preparations

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History of buprenorphine in Finland

• 1990’s first experiments in OMT by two physicians

• Early 2000, treatment with Subutex® (buprenorphine only) established

• In 2003 both Subutex® and Suboxone® (buprenorphine + naloxone) available

• Since 2009 Suboxone® used exclusively

• In 2011-2012 buprenorphine 62% methadone 38%
Heroin vs. buprenorphine – fatal poisonings
Study population

All post-mortem cases in 2010-2014

Original population
N = 33 420

Study population
N = 775

Buprenorphine in urine ≥ LLOQ

100% Buprenorphine
92% Norbuprenorphine
31% Naloxone
Buprenorphine user groups

- **“Parenteral BNX”**
  users injecting or snorting Suboxone®: urine naloxone c ≥ 100 µg/L,

- **“Parenteral BPN”**
  users injecting or snorting Subutex®: urine buprenorphine c ≥ 50 µg/L and no naloxone detected,

- **“Other BNX and BPN”**
  sublingual users of either preparation and unclear cases: the rest.

Grouping based on:
Buprenorphine user groups

- Parenteral BNX: 70
- Parenteral BPN: 153
- Other BNX or BPN: 552

Parenteral users 29%
Age and gender

![Bar chart showing age and gender distribution of buprenorphine abuse cases.](chart.png)
Age shift
Buprenorphine and alcohol

- Alcohol was present in 37% of all buprenorphine-positive cases
  - Parenteral BNX: 30%
  - Parenteral BPN: 33%
  - Fatal poisonings 45%

- Mean (range) BAC 1.33 (0.2-3.4) g/kg
Manner of death

![Bar chart showing manner of death](chart.png)
High buprenorphine-related mortality is persistent in Finland

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Why buprenorphine?

- Availability
- National drug scene, geographic differences, even between neighbouring countries
- Diversion from OMT not likely, nor much documented
  - Mostly tablets trafficked from abroad
  - Treatment policies extremely strict in Finland
  - A lot of seizures by the Police and customs
- Treatment demand for buprenorphine addiction
- Low blood concentrations in poisonings – low detection limits
Buprenorphine in OMT

• No registry
• Survey conducted in 2015 among treatment facilities:
  – 3293 patients ↔ Problem opioid user estimate 13 000–15 000 (2012)
  – 36% increase since 2011

Buprenorphine + naloxone 62%
Methadone 37%
Buprenorphine without naloxone 2%
Summary

• Of all studied cases, 29% were parenteral users

• No significant changes in the number of cases over the study period

• Mean age increased in all user groups over time

• Fatal poisoning and accidental death were more common among parenteral users