MISUSE AND ABUSE OF FENTANYL DEPOT TRANSDERMAL PATCHES
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Objective and methods
In order to illustrate the spectrum of unintended use of fentanyl patches and the dangers involved, all fentanyl cases reported to the Swedish Poisons Centre during 2000 - June 2013 were analyzed regarding age, gender, reason for the overdose, routes of exposure and outcome.

Results
183 cases with symptoms related to fentanyl patch formulations were identified.

Age and gender: The majority of patients were adults, 23 were older than 70 years, two were children and only one teenager. Males were slightly overrepresented.

Cause of poisoning and routes of exposure:
Drug addiction was the reason for the exposure in 74 cases (41 % of all patients). In already used fentanyl patches 30-85% of the active substance remains and they are therefore a potential source of opiate misuse. The route of exposure was oral (swallowed or chewed) - 39%, iv injection of patch content - 24%, smoking of the patch -15%, dermal - 12%, combined applications (mostly dermal + oral) - 8% and rectal in one case.

Accidental overdosing occurred in 53 cases (29 %) and was the most common cause of poisoning in elderly people. Multiple patches were applied due to forgetfulness or, in some cases, chewed by patients suffering from dementia.

Suicide attempt was the reason for the overdose in 38 patients (21 %).

Therapeutic doses induced toxic effects in 11 cases (6 %).

Treatment and outcome:
Severe opiate symptoms, when present, were treated with naloxone and in a few cases respiratory support. No fatalities occurred.

Illustrative case 1
An old man living in a home for the elderly was found unconscious with irregular and shallow respiration. The oxygen saturation measured by the paramedics was 50 %. Oxygen was given promptly. At arrival to hospital 40 %, had improved to 97 %, but hypercapnia required assisted ventilation. Miosis was noted and iv naloxon was given with positive results. Two fentanyl patches were found and removed from the patients body. The next morning he was fully awake.

Illustrative case 2
A one year old boy was found apnoic by his mother and transported to hospital where iv naloxon was given. Breathing returned and the boy woke up. During the following 6 hours iv naloxon was administrated at 4 occasions due to declining oxygen saturation. The next day the boy was still somewhat sedated, but after one more day he had recovered completely.

Ingestion of a fentanyl patch 12 µg/hr used for 3 days and thrown in the bin-liner was suspected. Fentanyl was found in the urine.

Conclusion
Fentanyl depot patches, including those already used for therapeutic purpose, can be misused in various ways and the risks involved are considerable. Although not observed in this material, fatalities have been reported elsewhere (1, 2). Elderly people are at higher risk for accidental overdoses and it can be questioned whether this fentanyl formulation is suitable for this age category. Furthermore, health care providers need better routines for the handling and discarding of already used fentanyl patches.

References