Integrated Drug Checking:

Analysis-based Interventions at checkit! in Vienna

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Federal Ministry
Labour, Social Affairs, Health
and Consumer Protection
Integrated Drug Checking (IDC)
Analysis-based Interventions

Analytical & toxicological measures

- Substance analysis
- Individual risk categorisation

Psychosocial interventions

- Information
- Advice & support

source: © Bojan Illic Fotografie
Integrated Drug Checking (IDC)
Analysis-based Interventions

Requirements for comprehensive addiction prevention and early interventions:

• Identity of pharmacologically active substances
• Quantitative composition of the drug
• Fast analysis and communication of results at the venue

Source: checkit!, Suchthilfe Wien gGmbH
Current developments & challenges

✓ Increasing number of different new psychoactive substances (NPS) on the market

✓ High complexity of samples

✓ High variability of dosage

✓ Appearance of highly potent psychoactive substances
Highly potent substances

New & reoccurring NPS in Vienna by year and substance group

Number of different NPS by group

- Synthetic Cannabinoids
- Synthetic Opioids
- Benzodiazepines
- Tryptamines
- Arylcyclohexylamines
- Other Substances
- Cathinones
- Phenethylamines
- Piperazines

Highly potent substances
Highly potent substances

Sample submitted as: Fentanyl

<table>
<thead>
<tr>
<th>Suchergebnis</th>
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<tbody>
<tr>
<td>Datum</td>
<td></td>
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<tr>
<td>Event</td>
<td></td>
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<tr>
<td>gekauft als</td>
<td>Fentanyl</td>
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<tr>
<td>Straßename</td>
<td>k.A.</td>
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<tr>
<td>Konsistenz</td>
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<td>weiß</td>
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<tr>
<td>bedenkliches Ergebnis</td>
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<tr>
<td>Ergebnis der Probe</td>
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</tbody>
</table>

UHPLC-MS chromatogram (SIM scan; m/z 395)
Highly potent substances

Carfentanil

Highly potent synthetic opioid (4,000 to 10,000 fold more potent than morphine)

4[(1-Oxopropyl)-phenylamino]-1-(2-phenylethyl)-4-piperidin-carbonsäuremethylester

Source: http://www.huffingtonpost.ca/2017/05/02/fentanyl-carfentanil_n_16397030.html
## Highly potent substances

<table>
<thead>
<tr>
<th>Brought to analysis as:</th>
<th>Actual constituents</th>
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</thead>
<tbody>
<tr>
<td>4-HO-MET</td>
<td>4-HO-MET &amp; Methoxyacetylfentanyl</td>
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<tr>
<td>Fentanyl</td>
<td>Carfentanil</td>
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<tr>
<td>Mephedrone / 4-MMC</td>
<td>4-CMC + 4-CEC</td>
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<tr>
<td>unknown Research Chemical</td>
<td>U-47,700</td>
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<tr>
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<td>U-47,700</td>
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<tr>
<td></td>
<td>Cyclopentylfentanyl &amp; Furanylffentanyl</td>
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<tr>
<td></td>
<td>Ethylphenidat + N-Ethylbuphedrone + Caffeine</td>
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<tr>
<td></td>
<td>4-CEC + 4-CMC + 3-MMC</td>
</tr>
</tbody>
</table>
Highly potent substances
Need for low detection limits

Direct MS: MALDI-IT-MS^n
User Reactions

“How do you react if the analysis of your tablet yields a warning because of harmful substances?”

- 71% of the respondents would not consume the pill at all
- 20% take less than usual
- 7% consume as usual
- 2% have other reactions

Source: checkit!, Suchthilfe Wien gGmbH