The development and operation of supervised heroin treatment at local and national level

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Declaration of interests

No conflict of interests to be declared

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Research protocol, implementation and evaluation results were controlled by an international WHO Expert Group

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Background and rationale

• **Heroin epidemic** late 1980ties, open drug scenes in cities («needle park»)
• **HIV epidemic**, largest increase of incidence and prevalence in drug injectors
• Growing proportion of **heroin users not in treatment** in spite of growing availability of drug-free treatment and agonist assisted therapy (Methadone, Buprenorphine)
• Concerns about the **image** of an otherwise well organised society

**Aims**

• **Optimize proportion of injectors in any kind of treatment**
• **Reduce nuisance and delinquency from injectors**
• **Improvements in health and social integration of injectors**
The research concept and design

**Concept**

- Prescribing pharmaceutical diamorphine in the **framework of a comprehensive assessment and treatment programme**
- Respecting politically defined conditions
  - Defined intake criteria (min. age 21, min. 2 former treatments failed, health/social problem)
  - No take-home of injectables (supervised injections at clinic sites only)
  - Participants have to deposit their **drivers licence** while being in the programme

**Design**

- **Cohort study, long-term prospective follow-up**
- **Randomised controlled substudies** (Geneva with waiting-list design, Bern randomising double blind to i.v. heroin and morphine, Basel randomising to i.v. heroin and methadone)
- **Continuous monitoring** of entries, discharges, side effects, comorbidities, interventions
Patient illegal drug use and status at follow-up

Illegal drug use at 8-year follow-up
T: patients still in treatment  A: discharged
(Gschwend et al 2003)

Social status at 6-year follow-up
T: patients still in treatment A: discharged
(Güttinger et al 2002)
### Mortality in heroin assisted treatment (CH)

*(Rehm et al 2006)*

#### Annual death rates

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Deaths</th>
<th>Annual Deaths</th>
<th>Crude Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>137.2</td>
<td>1</td>
<td>0.0073</td>
</tr>
<tr>
<td>1995</td>
<td>439.7</td>
<td>12</td>
<td>0.0273</td>
</tr>
<tr>
<td>1996</td>
<td>782.3</td>
<td>8</td>
<td>0.0102</td>
</tr>
<tr>
<td>1997</td>
<td>705.8</td>
<td>10</td>
<td>0.0142</td>
</tr>
<tr>
<td>1998</td>
<td>715.3</td>
<td>6</td>
<td>0.0084</td>
</tr>
<tr>
<td>1998</td>
<td>886.8</td>
<td>6</td>
<td>0.0068</td>
</tr>
<tr>
<td>2000</td>
<td>956.0</td>
<td>6</td>
<td>0.0063</td>
</tr>
<tr>
<td>1994-2000</td>
<td>4623.1</td>
<td>49</td>
<td>0.0106</td>
</tr>
</tbody>
</table>

#### Causes of death

<table>
<thead>
<tr>
<th>Cause</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV / Aids</td>
<td>17</td>
<td>34.7</td>
</tr>
<tr>
<td>Other infections</td>
<td>5</td>
<td>10.2</td>
</tr>
<tr>
<td>Other chronic disease</td>
<td>10</td>
<td>20.6</td>
</tr>
<tr>
<td>Accidents</td>
<td>4</td>
<td>8.14</td>
</tr>
<tr>
<td>Intoxication, overdose</td>
<td>5</td>
<td>10.26</td>
</tr>
<tr>
<td>Suicide</td>
<td>8</td>
<td>16.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>49</td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Results of special studies

• RCT sub-studies
  • Better retention and outcomes of i.v. heroin vs. i.v. methadone / morphine
  • Better outcome vs. Treatment as usual (waiting list design)

• Pharmacological studies
  • Low bioavailability of heroin „reefers“

• Clinical study
  • Applicability, effectivity and acceptability of oral diamorphine

• Criminological studies
  • Significant crime reduction (self-report & police data)
  • Reduction of drug-related crime in the city of Zurich

• Prison study
  • Feasibility & safety of HAT in prison wards
Cost-benefit analysis of heroin assisted treatment (CH 1996)
(Frei et al 2000)

Costs (SFr) per patient/day
- Direct costs: 9.39
- Staff: 35.37
- Other: 5.87
**Total**: 50.63

Benefits (SFr) per patient/day
- Housing, work: 6.31
- Health: 17.11
- Delinquency: 72.08
**Total**: 95.50
Changes at population level

HIV cases in ICDU
(Federal Office of public Health 2009)

Police notifications for drug use (per substance)
(Nr of cases, Federal Office Police 2007)
Negative effects which did not occur

• No indefinite prolongation of dependence
• No increasing dosages needed
• No increased attractiveness of heroin
• No replacement of other treatment approaches
Duration of participation and average daily dose by month

Retention in HAT, by sex
(up to 31.12.2005, including re-enrolment within 7 days)

Dose curves (average daily dose by month)

Regime 1: 88'610
Regime 2: 92'252
Regime 3: 317'211
Changes at population level (2)

Incidence of new heroin users per year
(Nordt & Stohler, The Lancet 2006)

Treatment slots for opiate users CH 1993-2008

- Drug-free residential
- Methadone maintenance
- Heroin assisted treatment
Selected publications


Selected publications (2)


## Heroin assisted treatment studies international

<table>
<thead>
<tr>
<th>Country</th>
<th>«Swiss model»</th>
<th>Design</th>
<th>Main outcome</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>+</td>
<td>No research project</td>
<td>-</td>
<td>Dan Med Agency 2009 Guidance nr 32</td>
</tr>
<tr>
<td>Belgium</td>
<td>+</td>
<td>Prepared RCT</td>
<td>-</td>
<td>University of Liège</td>
</tr>
<tr>
<td>Nevada</td>
<td>(+)</td>
<td>Pilot project</td>
<td>-</td>
<td>HAT Bill 463C-030</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Permanent program</td>
<td>-</td>
<td>HAT Bill 463C-040</td>
</tr>
</tbody>
</table>
Thank you !