Heroin Assisted Treatment

Heroin-Assisted Treatment (HAT) is a life-saving intervention for individuals struggling with addiction to illegal heroin when other treatments have not succeeded. Empirical studies demonstrate that HAT programs, as part of comprehensive treatment strategy, provide substantial benefits to long-term heroin users who have not been responsive to other treatment.

Academic Literature

Bammer, G., van den Brink, W., Gschwend, P., et al.What can the Swiss and Dutch trials tell us about the potential risks associated with heroin prescribing? *Drug and Alcohol Review*. 22(3): 363-71. 2003.

The Swiss started heroin prescription trials in 1994, the Dutch in 1998. In the Swiss trials, injectable heroin was provided in the context of substantial mandatory psychosocial and medical treatment, with oral methadone or slow-release heroin available as needed to provide additional stabilization. In the Dutch context, injectable or inhalable heroin was provided as an adjunct to oral methadone maintenance, with standard psychosocial treatment also available. Overall, the results suggest that fears about potential risks of heroin prescription were largely unfounded and that many potential risks can be minimized through prudent measures.

Blanken, Peter, Vincent M. Hendriks, Maarten W. J. Koeter, Jan M. van Ree, and Wim van den Brink. Matching of treatment-resistant heroin-dependent patients to medical prescription of heroin or oral methadone treatment: results from two randomized controlled trials. *Addiction* 100 (2005): 89-95.

To determine if baseline patient characteristics predicted different treatment responses to heroin-prescription treatment and methadone treatment, the authors conducted two, open-label, random, controlled trials of 430 heroin addicted patients. Patients who had previously participated and failed in abstinence oriented programs had much better responses to heroin-assisted treatment than methadone treatment (61% v. 24%). The authors conclude that "The effect of heroin-assisted treatment is not dependent on clinical characteristics, with the exception of previous abstinence-orientated treatment: medical prescription of heroin is most effective for those patients who have previously participated in abstinence-orientated treatment."

Brehmer, Cornelia & Peter X. Hen. Medical prescription of heroin to chronic heroin addicts in Switzerland - a review. *Forensic Science Interna tional* 121 (2001) 23-26.

This article reviews the first two years of the Swiss trial, which began in 1994. Heavy opioid users (800 out of 1,000 total patients) received heroin by prescription, supported by health and social services. Patients were given the option of heroin, morphine, methadone or a combination thereof; most chose injectable heroin (taken three times a day under supervision) plus oral methadone. "..[P]hysical and mental health of the addicts improved on average during treatment, an improvement also took place in their social reintegration, a significant decrease in consumption of illegal drugs took place and illegal activities declined massively.. Comparison of the treatment costs with the economic benefits shows that there is a total benefit per patient and per day of US $26."

Dijkgraaf, M. G., van der Zanden, B. P., de Borgie, C. A., et al Cost utility analysis of co-prescribed heroin compared with methadone maintenance treatment in heroin addicts in two randomised trials. *BMJ*, 330, 1297 -1302. 2005.

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To determine the cost utility of medical co-prescription of heroin compared with methadone maintenance treatment for chronic, treatment resistant heroin addicts, the authors randomized 430 heroin users at six sites in the Netherlands to either heroin plus methadone or methadone alone. Co-prescription of heroin was associated with 0.058 more QALYs per patient per year and a mean saving of 12,793 per patient per year. Higher program costs were compensated for by lower costs of law enforcement and damage to victims of crime.

Ferri M, Davoli M, Perucci CA. Heroin maintenance for chronic heroin dependents. *Cochrane Database Syst Rev*. 2005 Apr 18;(2).

Only four studies of 577 people were included. "No definitive conclusion about the overall effectiveness of heroin prescription is possible. Results favouring heroin treatment come from studies conducted in countries where easily accessible Methadone Maintenance Treatment at effective dosages is available. In those studies heroin prescription was addressed to patients who had failed previous methadone treatments."

Firestone Cruz M, et al. Public opinion towards supervised injection facilities and heroin-assisted treatment in Ontario, Canada. *International Journal of Drug Policy* 18 (2007) 54–61.

Public opinion towards Canada's SIF and heroin assisted treatment (HAT) programs was surveyed using telephone survey data among adults in Ontario (n=885). The authors found that approximately 60% of respondents supported SIFs and roughly the same supported HAT. Respondents with higher income and education levels, past-year use of cocaine or cannabis, favorable attitudes towards cannabis decriminalization and in-prison needle exchange, belief that drug users are medically ill people, and belief that drug users require public support were much more likely to have positive opinions of SIF and HAT.

Fischer B, Oviedo-Joekes E, Blanken P, Haasen C, Rehm J, Schechter M, et al. Heroin-assisted treatment (HAT) a decade later: a brief update on science and politics. *J Urban Health* 84:552-62. 2007.

This paper briefly reviews studies and their main parameters, including primary research objectives, design, target populations, outcome measures, current status and-where available-key results. The authors conclude by suggesting that there is a mounting onus on the realm of politics to translate the largely positive data from completed HAT science into corresponding policy and programming in order to expand effective treatment options for the high-risk population of illicit opioid users.

Fischer, B. Rehm J, Kirst, M, Casas M, Hall W, Krausz M, Metebrian N, Reggers J, Uchtenhagen A, Van Den brink W, and Van Ree. Heroin-assisted treatment as a response to the public health problem of opiate dependence. *European Journal of Public Health.* 2002. 12-228-234.

Article gives an overview of the status of existing or planned heroin maintenance trials in Australia, Canada and certain European countries. "The Dutch, Swiss, and UK experiences have clearly shown that such treatment is feasible. Moreover, the Swiss study has shown overall effectiveness of the combination of heroin and methadone pharmacotherapy and psycho-social care) and the Dutch trial provided data on differential effectiveness of heroin vs. methadone..."

Frick U, Rehm J, Kovacic S, Ammann J, and Uchtenhagen A. A prospective cohort study on orally administered heroin substitution for severely addicted opioid users. *Addiction* 101 (2006), 1631–1639.

This article is one of the first to assess the appropriateness, efficacy and safety of oral heroin versus injectable heroin with oral methadone. Many Swiss heroin addicts do not inject their heroin so oral heroin may be a way to better serve this population of refractory heroin addicts.

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The authors conducted an open-label, one-year prospective cohort study with two non-randomly assigned treatment groups in 21 treatment centers in the Swiss heroin program. They found that retention rates among patients receiving DAM (heroin) tablets only, and DAM tablets plus injections, were higher (over 80%) than historical controls (receiving only injections). All other measures were equal or better than other substitution treatments. The authors conclude, "DAM tablets seem to be an effective and safe application mode of heroin-assisted substitution treatment. Randomized clinical trials to compare its relative efficacy to other substances are necessary."

Gartry C, Oviedo-Joekes E, Laliberté N, Schechter MT. NAOMI: The trials and tribulations of implementing a heroin assisted treatment study in North America. *Harm Reduction Journal*. 2009: 6:2.

This case study describes the background of the NAOMI trials, what was required to get the study under way in Canada, the political and media hurdles to its commencement and implementation, the difficulties of securing a site, and a brief overview and update of the study.

Gschwend P, Rehm J, Lezzi S, et al. Development of a monitoring system for heroin-assisted substitution treatment in Switzerland. *Soz.- Praventivmed*. 47 (2002) 33-38.

When the Swiss introduced heroin substitution as a routine treatment for heroin-addicted patients, the evaluation tools evolved from a "detailed scientific project to a routine monitoring system." The authors briefly describe the process, finding that all 21 treatment centers at the time of their writing were participating in the new system of monitoring and performing high quality assessments. They conclude that "The described monitoring should provide continuous delivery of basic relevant data on patients." The authors believe the monitoring system—which is thought to be permanent and can serve as a model for other evaluation systems—will allow for long-term evaluation of heroin maintenance - critical given the international attention to the heroin-assisted treatment program.

Gschwend P, Rehm J, Blättler R, et al. Dosage Regimes in the Prescription of Heroin and Other Narcotics to Chronic Opioid Addicts in Switzerland – Swiss National Cohort Study. *European Addiction Research* 2004;10:41–48.

This naturalistic descriptive study of dosages of patients in the Swiss PROVE narcotic prescription program between 1994-1996 found that heroin was most common (77% as injection and 9% as inhalation) followed by oral methadone (usually in combination with heroin). The authors concluded, "During the course of treatment the mean dosage for injectable heroin per day decreased significantly and, depending on the treatment regime, almost linearly.. During the treatment period, dosages did not increase but generally decreased, indicating no further increase in tolerance." Dosages declined even when patients chose their own daily regime.

Güttinger Franziska, Patrick Gschwend, Bernd Schulte, Jürgen Rehm, Ambros Uchtenhagen. Evaluating Long-Term Effects of Heroin-Assisted Treatment: The Results of a 6-Year Follow-Up. *European Addiction Research* 2003; 9: 73-79.

Report of the long-term (six year) effects of heroin-assisted treatment administered to 366 patients in the Swiss trials (PROVE) between 1994-1995. Researchers assessed two groups: those patients continuously receiving heroin (or who had re-entered such treatment) and those who had discontinued the treatment. The authors found little difference between patients still in treatment and those who had discontinued, and that positive outcomes achieved in treatment persisted even after termination. Many who discontinued treatment later re-entered some form of treatment. Their results "showed a significant decrease in the use of illegal substances, illegal income and most other variables concerning social conditions [including delinquency] but they also showed an increase in unemployment and reliance on social benefits." The authors posit that unemployment is due to patients being more selective about choosing a new job as well as the structured and time-consuming nature of the heroin program.

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They conclude, "Heroin-assisted treatment is thus efficacious in the long-term course of treatment and is still effective after termination of treatment with respect to living conditions and use of illicit substances."

Haasen C, Verthein U, Degkwitz P, Berger J, Krausz M, Naber D. Heroin assisted treatment for opioid dependence: a randomised, controlled trial. *Br J Psychiatry* 191:55-62. 2007.

1032 consenting participants were randomized between March 2002 and December 2003 in Germany. The authors found that HAT of people with severe opioid dependence and treatment resistance more effectively improved health and reduced illicit drug use than methadone maintenance treatment. The main effect of heroin-assisted treatment on each primary outcome measure was seen within the first few months of treatment, and became more pronounced over the following months, thus indicating the necessity of long-term treatment to increase health benefits.

Haasen C, Eiroa-Orosa FJ, Verthein U, Soyka M, Dilg C, Schäfer I, Reimer J. Effects of heroin-assisted treatment on alcohol consumption: findings of the German randomized controlled trial. Alcohol. 2009 Jun;43(4):259-64.

The authors found a significant reduction in "consumption units" of alcohol and "carbohydrate-deficient transferring" in both HAT and MMT patients, but larger reductions in HAT patients. Addiction Severity Index composite scores significantly declined among HAT but not MMT patients. Authors conclude: "The greater benefit of HAT in reducing alcohol use may be due to the greater daily frequency of dispensing heroin coupled with a requirement of sobriety at each dosing occasion."

Haasen C, van den Brink W. Innovations in agonist maintenance treatment of opioid-dependent patients. Curr Opin Psychiatry. 2006 Nov;19(6):631-6.

High-quality studies demonstrate the effectiveness of a growing number of different agonist maintenance treatments for opioid dependence such as methadone and buprenorphine. In addition, there is new evidence for the effectiveness of other agonists, mainly slow-release morphine, intravenous and inhalable diamorphine and possibly oral diamorphine. Maintenance treatment with intravenous or inhalable diamorphine should be implemented into the healthcare system to treat a group of severely dependent treatment-resistant patients.

Killias, Martin and Rabassa J. Less Crime in the. Cities Through Heroin Prescription? Preliminary Results from the Evaluation of the Swiss Heroin Prescription Projects. *The Howard Journal* Vol 36 No 4. 1997.

The authors present preliminary results of the Swiss heroin trials from interview data of victimization and self reporting of criminal behavior, which indicate considerable reductions in criminality.

Killias, Martin and Ambrose Uchtenhagen. Does medical heroin prescription reduce delinquency among drug addicts? On the evaluation of the Swiss heroin prescription projects and its methodology. *Studies on Crime and Crime Prevention*. 1996. 5(2): 245-256.

This article describes the evaluation of the first year of the Swiss heroin program, in which over 500 subjects were interviewed to assess whether heroin prescription effects a reduction in individual rate of criminal offending. Only preliminary results could be reported, suggesting crime reductions.

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Killias, Martin, et al, Effects of Heroin Prescription on Police Contacts among Drug-Addicts. *European Journal on Criminal Policy and Research*. 1998; 6: pp. 433-438.

To assess whether self-reported declines in crime were due to actual reductions in criminal behavior or lax police recording, the authors interviewed 253 participants of the Swiss heroin trial and compared their responses to local police records. Their analysis confirmed self reports of crime and data on victimization. "According to police files, the drop in serious property crime was indeed comparable."

Killias, M. and Marcelo F. Aebi. The Impact of Heroin Prescription on Heroin Markets in Switzerland. *Crime Prevention Studies* 11 (1999): 83-99.

The authors report on the impact of the Swiss heroin prescription program on the Swiss illicit heroin market. Based on data from the program evaluations – which showed significant decreases in illegal drug use and drug related criminal activity—the authors conclude that users in the program likely "accounted for a substantial proportion of consumption of illicit heroin, and that removing them from the illicit market has damaged the market's viability." While not a large number of people, the trial participants were heavy users, whose use likely represented a disproportionately large percentage of heroin demand in Switzerland. Their participation also decreased other forms of criminal activity related to the illegal heroin market. Because many of these individuals also sold heroin to support their dependency, the authors further concluded that the program "additionally disrupted the function of the market by removing retail workers. The workers no longer sold drugs to existing users, and equally important, no longer recruited new users into the market. The heroin prescription market may thus have had a significant impact on heroin markets in Switzerland."

Klous MG, Van den Brink W, Van Ree JM, et al. Development of pharmaceutical heroin preparations for medical co-prescription to opioid dependent patients. *Drug Alcohol Depend 2005; 80: 283-95*

This article reviews the pharmacological profile of various forms and clinical routes of administration of heroin for suitability in heroin-assisted treatment programs. "Patient acceptability of the formulation is essential, because heroin-assisted treatment is aimed at treatment-resistant addicts, who often have to be encouraged to participate (or to maintain participation) in a treatment program. This means that the most suitable products would have pharmacokinetic profiles mimicking that of diacetylmorphine.. Diacetylmorphine for inhalation after volatilization.. seems to be a suitable candidate, while intranasal and oral diacetylmorphine are currently thought to be unsuitable. However, oral and intranasal delivery systems might be improved and become suitable for use by heroin dependent patients."

Lintzeris, Nicholas. Prescription of Heroin for the Management of Heroin Dependence: Current Status. *CNS Drugs*. 23(6):463-476. 2009.

This review article provides a summary of the efficacy, cost effectiveness and safety of heroin assisted treatment from Randomized Controlled Trials (RCTs). At the time of writing, six RCTs with more than 1,600 patients in addition to various cohort studies have been conducted on injected or inhaled heroin. The article concludes with a discussion of the current status of heroin-assisted treatment. "Despite methodological shortcomings, RCTs generally indicate that heroin treatment results in a comparable retention, improved general health and psychosocial functioning, and less self-reported illicit heroin use than oral methadone treatment. Cost-effectiveness studies indicate heroin treatment to be more expensive to deliver but to result in savings in the criminal justice sector." The author highlights some disagreement about how heroin-assisted treatment should be used, but points to an emerging consensus that – in jurisdictions with effective treatment systems—heroin should be a second-line treatment for heroin-addicted people who fail to respond to methadone or buprenorphine.

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Lintzeris N, Strang J, Metrebian N, et al. Methodology for the Randomised Injecting Opioid Treatment Trial (RIOTT): evaluating injectable methadone and injectable heroin treatment versus optimised oral methadone treatment in the UK. *Harm Reduction Journal* 2006; 3: 28-33.

This article describes the methodology for the Randomised Injectable Opioid Treatment Trial (RIOTT), "a multisite, prospective open-label randomised controlled trial (RCT) examining the role of treatment with injected opioids for the management of heroin dependence in patients not responding to conventional substitution treatment." The authors provide an extensive overview of the existing literature on HAT and discuss 'how much evidence is enough?' to overcome political considerations regarding HAT.

Löbmann R, Verthein U. Explaining the Effectiveness of Heroin-assisted Treatment on Crime Reductions. *Law and Human Behavior* 33:1 83-95. 2009.

This study examines the relationship between heroin-assisted treatment versus methadone maintenance and the criminal activity of 1,015 individuals participating in a German model project. The main objective is to investigate how these treatments contribute to a decline of criminal behavior. The analyses are based upon self-reported criminal offence and police data on alleged criminals. The results clearly show a decline of criminal offences among participants receiving maintenance treatment; this decline was significantly greater in the heroin group with respect to property crimes and drug offences. The multivariate analysis suggests that the effects are due to a decrease of illegal drug use and absence from the drug scene.

March JC, Oviedo-Joekes E, Perea-Milla E, Carrasco F. Controlled trial of prescribed heroin in the treatment of opioid addiction. *J Subst Abuse Treat*. 31(2):203–211. 2006.

In this small (n=62), open, randomized controlled study of heroin-assisted treatment in Granada, Spain, participants received either heroin (DAM) plus methadone or methadone alone. Comprehensive clinical, psychological, social, and legal support was given to both groups. Those in the experimental group showed greater improvement in terms of in physical health, HIV risk behavior, street heroin use, and days involved in crime, DAM plus methadone was more efficacious than methadone alone.

Metrebian N, Shanahan W, Wells B, Stimson G. Feasibility of prescribing injectable heroin and methadone to opiate-dependent drug users: associated health gains and harm reductions. *MJA* 1998;168(12):596-600.

Fifty-eight patients admitted to a London clinic between 1 June 1995 and 31 December 1996 were permitted to choose either HAT or methadone. Thirty-seven patients (64%) chose heroin and 21 (36%) chose injectable methadone. Among those in treatment at three months, there were significant reductions in illicit drug use, illicit drug-injecting risk behaviour, and criminal activity, and significant improvements in social functioning, health status and psychological adjustment.

Metrebian N, Carnwath T, Stimson G & Thomas Storz. Survey of doctors prescribing diamorphine (heroin) to opiate-dependent drug users in the United Kingdom. *Addiction*, 97, 1155–1161 (2002).

Authors conducted a postal survey of physicians authorized to prescribe heroin for opioid/opiate dependence in the United Kingdom in order to determine the scope and practice of such prescription in 2000. Of 111 physicians surveyed, 70 held licenses to prescribe heroin, and only 46 were currently prescribing heroin to 448 patients. These results indicate that "prescribing of diamorphine to opiate dependent drug users remains rare in the United Kingdom. Not all eligible doctors seek a licence to prescribe, and not all those with licences actually prescribe it. There is no clear consensus on who should be treated with diamorphine and in what way."

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Oviedo-Joekes E, Nosyk B, Marsh D, Guh D, Brissette S, Gartry C, Krausz M, Anis A, Schechter M. Scientific and political challenges in North America's first randomized controlled trial of heroin-assisted treatment for severe heroin addiction: Rationale and design of the NAOMI study *Clinical Trials* 6: 261-271. 2009.

Describes the NAOMI study, which randomized 253 participants to two intervention arms: (1) MMT alone or (2) injectable opioids (DAM or hydromorphone) plus adjunctive MMT if deemed appropriate. The planned study duration was 3 years, with a 1-year intake period, 1 year of treatment, and an additional year of follow-up. The authors discuss the rationale behind the NAOMI study design, as well as the scientific and political issues and methodological challenges arising from the conduct of a trial that involves the prescription of a controlled substance to individuals with dependence on that substance.

Oviedo-Joekes E, Nosyk B, Brissette S, Chettiar J, Schneeberger P, Marsh D, Krausz M, Anis A, and Martin T. Schechter. The North American Opiate Medication Initiative (NAOMI): Profile of Participants in North America's First Trial of Heroin-Assisted Treatment. *Journal of Urban Health* 85.6 (2008).

The authors randomized 251 individuals from the NAOMI study cohort (from both Vancouver and Montreal) in order to analyze the profile of NAOMI participants and compare them to heroin-assisted treatment patient profiles from European studies. The NAOMI cohort were similar to patients in European trials, but included a far greater percentage of women patients and patients with unstable housing situations. Also, more NAOMI participants reported cocaine (especially crack cocaine) use. The authors conclude that "the NAOMI study successfully recruited participants with a profile indicated for HAT. It also raises concern about the high levels of crack cocaine use and social marginalization."

Perneger TV, Giner F, del Rio M, et al. Randomised trial of heroin maintenance programme for addicts who fail in conventional drug treatments. *BMJ* 1998; 317: 13-8

This early publication of results from the Swiss heroin program found significant reduction in illicit drug use and improvements in mental and physical health. Authors conclude, "A heroin maintenance programme is a feasible and clinically effective treatment for heroin users who fail in conventional drug treatment programmes."

Plaza A, Oviedo Joekes E, Carles March J. Nursing in an Intravenous Heroin Prescription Treatment *Journal of Addictions Nursing: A Journal for the Prevention and Management of Addictions*, 1548-7148, 18.1, 2007 13 – 20.

This article is the first (and perhaps only) to describe the central role of nurses in a heroin prescription program. The authors describe the performance of nurses caring for patients in the experimental drug prescription program in Andalusia, Spain (in the city of Granada), or PEPSA.

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Nurses were responsible for the patients' overall care; care was individualized; the nursing protocol involved administering the heroin treatment and other harm reduction actions, counseling, and patient monitoring and assessment of the patient response to treatment. Authors conclude that nurses play an especially important role in the patient's success and retention in heroin prescription treatment – not just through the nurse's knowledge but through her/his ability to forge effective, therapeutic relationships with patients.

Rehm, Jürgen, Patrick Gschwend, Thomas Steffen, Felix Gutzwiller, Anja Dobler-Mikola, Ambros Uchtenhagen. Feasibility, safety, and efficacy of injectable heroin prescription for refractory opioid addicts: a follow-up study. *Lancet* 2001; 358: 1417–20

Investigators performed a cohort study in 21 treatment centers of 1,069 opioid dependent people in heroin-assisted treatment. They found, "More than 70% (1378) of patients remained in treatment for more than a year. Treatment showed positive effects with respect to health and social outcomes. A long stay in treatment was related to a higher chance of starting abstinence-oriented therapy than a short stay." Authors conclude that heroin-assisted treatment is likely an efficacious option for addicted people that have not succeeded in other forms of treatment.

Rehm J, Fischer B. Should heroin be prescribed to heroin misusers? Yes. *BMJ* 336:70. 2008.

The authors relate the positive evidence from the Swiss, Dutch and German trials, and conclude that "..we see no convincing reason why heroin assisted maintenance treatment should not be part of a comprehensive treatment system for opioid dependence."

Rehm J, Frick U, Hartwig C, Gutzwiller F, Gschwend P, Uchtenhagen A. Mortality in heroin-assisted treatment in Switzerland 1994-2000. *Drug Alcohol Depend* 79:137-4. 2005.

Over the 7-year period 1994-2000, mortality in heroin-assisted treatment was low compared to the mortality rate of Swiss opioid users overall and opioid users in other maintenance treatments in other countries. The low mortality rate is all the more noteworthy as heroin-assisted treatment in Switzerland included only refractory opioid addicts with existing severe somatic and/or mental problems.

Reuter, P, MacCoun R. Heroin maintenance: Is a U.S. experiment needed? Presented at "One Hundred Years of Heroin," Yale Medical School, September 1998.

Extensively recounts the history of heroin maintenance in the United States and abroad as well as the evidence gathered from existing programs. The authors conclude that the "downside risks of a trial in the United States seem slight and the potential benefits substantial," but note that any such proposal would likely face fierce political opposition.

Reuter, P. Can Heroin Maintenance Help Baltimore? What Baltimore can learn from the experience of other countries. Abell Foundation (2009).

This recent report provides an historical overview and review of the international evidence of heroin maintenance from the published literature, as well as the potential impact of this intervention on Baltimore's illicit heroin problem. Author concludes that sufficient evidence exists to merit the consideration of heroin maintenance in Baltimore and the United States more broadly. Excellent overview of HAT worldwide.

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Romo, N et al. From illegal poison to legal medicine: A qualitative research in a heroin-prescription trial in Spain. *Drug and Alcohol Review* (2009) 28: 186-195.

In order to evaluate the attitudes and opinions of participants in the experimental drug prescription program in Andalusia, Spain (in the city of Granada), or PEPSA, the authors conducted qualitative, multi-disciplinary, ethnographic field work of 21 patients and their relatives. Their results showed that "the administering of heroin in a therapeutic context manages to break the habit of consuming heroin obtained illegally, thus changing the significance given to the substance and bringing about improvements in aspects such as the workplace, family relations and physical and mental health…The move from 'substance addiction' to chronic 'illness' upon beginning the treatment provides a chance for a population with a long history of rejection and exclusion to become part of society once again."

Small, D and Drucker, E. Policy makers ignoring science and scientists ignoring policy: the medical ethical challenges of heroin treatment. *Harm Reduction Journal* 2006, 3:16.

This essay presents evidence from research over the past decade from Switzerland, Germany, Spain, and the Netherlands, which

"now constitutes a massive body of work supporting the use of heroin treatment for the most difficult patients addicted to opiates." Despite differences in protocols and sampling, the outcomes from Europe are "quite clear—and uniformly positive…. prescribed pharmaceutical heroin does exactly what it is intended to do: it reaches a treatment refractory group of addicts by engaging them in a positive healthcare relationship with a physician, it reduces their criminal activity, improves their health status, and increases their social tenure through more stable housing, employment, and contact with family." The authors argue that it is unethical for Canada to continue to prohibit this successful treatment, and is unacceptable for NAOMI participants to be required to switch back to less effective treatments to which they had not responded in the past.

Steffen T, Blättler R, Gutzwiller F, Zwahlen M. HIV and hepatitis virus infections among injecting drug users in a medically controlled heroin prescription programme. *Eur J Public Health*. 2001 Dec;11(4):425-30.

This article presents data from the Swiss PROVE study on prevalence of HIV and hepatitis infections among study participants. "The tests conducted showed high prevalence and incidence rates of HIV and hepatitis B/C among patients who had consumed intravenous drugs for years. The descriptive analysis in heroin-assisted treatment showed a reduction in infection risk for viral hepatitis corresponding to the lower risk behaviour of patients."

Stimson, Gerry V. and Metrebian, Nicky. Prescribing heroin: What is the evidence? York, England: Joseph Rowntree Foundation. 2003.

Report outlines arguments for/against prescribing heroin, gives an overview of heroin prescription in Europe and presents results of trials/evaluations to 2003. Authors believe the rationale for prescribing heroin has changed from "a primary concern to improve health to a concern to reduce crime."

Van den Brink W, Hendriks V, Blanken P, Koeter M, van Zwieten B, van Ree J. Medical prescription of heroin to treatment resistant heroin addicts: two randomised controlled trials. *BMJ* 327–310. 2003.

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To determine whether supervised medical prescription of heroin can successfully treat addicts who do not sufficiently benefit from methadone maintenance treatment, the authors randomized 549 heroin users at six sites in the Netherlands to heroin plus methadone or methadone alone. They found that12 month treatment with heroin plus methadone was significantly more effective than treatment with methadone alone. Discontinuation of the co-prescribed heroin resulted in a rapid deterioration in 82% (94/115**)** of those who responded to the co-prescribed heroin. The incidence of serious adverse events was similar across treatment conditions.

Verthein U, Bonorden-Kleij K, Degkwitz P, et al. Long-term effects of heroin-assisted treatment in Germany. *Addiction* 103: 960–6. 2008.

This study describes the association between 2 years of heroin treatment and improvements in health and social stabilization, as well as illicit drug use. Of the ~55% who retained after two years, investigators found improvements in physical and mental health and a decline of illicit drug use. In these areas, the greatest progress had occurred already during the first months of treatment, while improvements of the social situation occurred continuously over the entire 2-year period. Three-quarters of 'dropouts' of the program actually left for another form of treatment (e.g., methadone).

Non-Academic Literature

SALOME FAQ
Available at http://www.naomistudy.ca/pdfs/SALOME_FAQs_v4.pdf

NAOMI FAQ
Available at http://www.naomistudy.ca/pdfs/naomi_faq.pdf

NAOMI Status Report, October 2008
Available at http://www.naomistudy.ca/pdfs/NAOMI_Update_October_2008%20.pdf

Buerki C. Prescription Heroin: Ten Years of Treatment Experience in Switzerland.
Available at http://www.info-sam.qc.ca/utilisateur/documents/Colloque%202008/R%C3%A9sum%C3%A9s%20AFC/AFC%2015%20-%20Christoph%20Burki.pdf

The German project of heroin assisted treatment of opiate dependent patients: Short description of the study design.
Available at http://www.heroinstudie.de/english.html

Presentations

Lintzeris N, Metrebian N, Hallam C, van der Waal R. 'There's a RIOTT going on': running injectable clinics the experience of staff and clients and injecting practice. Presented at the 2005 National Conference on Injecting Drug Use. Available at http://www.exchangesupplies.org/conferences/NCIDU/2005_NCIDU/speakers/lintzeris_metrebian_hallam_waal.html

Hosek M. HAT in Switzerland: Guidelines and Protocols. Available at http://www.ccbh.nl/netwerkconferentie_juni2002/MartinHosekWorkshopGuidelinesProtocols.pdf.

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Heroin Assisted Treatment

Video and Audio

NAOMI informational video
(14 min)
Available at http://www.naomistudy.ca/documents.html

Peter Jourdan on heroin maintenance
Available at http://www.videojug.com/interview/medical-heroin-2

Video on Swiss trials
(18 min)
Available at: http://www.youtube.com/watch?v=u-00kU4a4sc

ICAAT Podcasts
A collection of great podcasts, many dealing with maintenance
http://www.opiateaddictionrx.info/news/podcasts.html

A Short Discourse on Heroin Maintenance
The Lindesmith Center, 1998.

Needle Park
Segment on Zurich's Platzspitz experiment
CBS - 60 Minutes. January 3, 1999.

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