

ETHAN NADELMANN  
212-887-0693/4  
212 262-7580 FAX

**DRAFT**

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METHADONE QUESTIONS (literature review and discussion)

The following paper has been developed to assist in defining the optimal use of methadone as part of a harm reduction continuum for injection drug users in Vancouver's Downtown Eastside.

There is a well documented outbreak of HIV infection in this community. The outbreak was and is associated with a concurrent "epidemic" of injection cocaine use, which began in the early 1990's. Users in Vancouver inject either cocaine or heroin, or mixtures of both. Cocaine use appears to have a greater association than heroin with HIV seroprevalence in this population.

This outbreak has occurred in the context of a very weak substance abuse treatment capacity for injection users, including very limited local access to methadone. There is now an opportunity to assist users in reducing their harmful behaviours. What role should methadone play in this effort? This paper briefly and critically reviews published information about various aspects of this question, especially the relationship between methadone and cocaine use.

ASSUMPTIONS:

In this paper we are assuming that:

1. Methadone maintenance can reduce heroin usage, i.e. can be effectively substituted for heroin, thereby reducing injection frequency in heroin users.
2. Cocaine use, injected or smoked, is associated with increased risk of HIV transmission.

QUESTIONS TO CONSIDER:

Given that heroin usage continues to be part of the local drug use pattern, and that cocaine use is the major driver of the HIV outbreak, we have looked for information on the following questions:

1. What impact can methadone treatment have on HIV transmission?
2. What is known about the pharmacological relationship between methadone and cocaine?

3. Does methadone treatment reduce cocaine usage?
4. Are there any effective treatments for cocaine addiction?
5. How should methadone treatment be done?
6. How does methadone fit with other services and interventions?
7. Are there any potential risks to the community of a methadone program?

Under each question, there are "belief statements", i.e. commonly expressed opinions which may or may not be supported by published evidence. Under each statement, relevant papers and their conclusions are briefly summarized, along with short methodological critiques. At the end of each section are some summary conclusions to assist in development of recommendations.

#### METHODOLOGICAL ISSUES

There are many problems in substance abuse research, such as the presence in the study group of multiple problems, the potential for multiple interventions ( and multiple intervention philosophies), and the great ethical difficulties of randomization and follow-up. In other words, studying this area is difficult, and some research designs provide more information than others.

"Critiques" are presented here only as a way of understanding the evidence as it is available to us, and the fairly limited conclusions which can be used to guide our programming. Sometimes, the problem with study information is in the way it is interpreted by those reading it and not by the researchers.

Some design problems we have encountered in this literature are:

1. Most studies are "uncontrolled". This means there is no matched comparison group; without a comparison, the results can only describe the participants in the study, and cannot be generalized.
2. Many studies are subject to "survivorship" bias. That is, a favourable effect of treatment is sometimes declared because people who have been in the program longest have the best improvements. The problem is that those who are positively pre-disposed to stay in the program may have had a better prognosis in the first place. People who drop out of a program are also important to defining program success, and must be part of the analysis if the effectiveness of the treatment is being evaluated. This is known as "intention to treat" analysis.
3. Some studies required a higher severity of drug (cocaine) use at enrolment. There is a natural tendency in human populations towards

more average behaviour, which can be mistaken for treatment effect if there is no control group. This phenomenon is known as "regression toward the mean."

4. Self-reported behaviour is frequently used as a principal outcome but may be inaccurate. Participants in studies tend to answer in a "normative" way, i.e. in the way they are expected to answer. This may be even more of a problem in methadone programs, because of the desire of participants to get their prescription.

Greenfield et al (1995) demonstrated this:

- . comparison of structured interview and urinalysis both retrospectively and prospectively in 281 IDU's (146 on MM)
- . almost half of reported change in injection abstinence was disconfirmed by urinalysis
- . there was increasing discrepancy as the study went on; ? regression to the mean

5. Urine testing can itself be an inaccurate outcome indicator because of variables such as the sensitivity of the test and the rapidity with which a drug is eliminated from the body after use. A study with infrequent (e.g. weekly) testing may miss detecting a substance use which occurs long enough before sample is obtained.

6. Many studies provide descriptions of large treatment groups or other populations. These may be one time only (cross sectional) or repeated (longitudinal) observations over time. Statistical analyses are often done on such observations and these may demonstrate that one variable (e.g. methadone program participation) is associated with another (e.g urine drug screen results). Such studies may show associations and provide directions for further research. However, particularly in the absence of a matched comparison group, they do not prove a causal relationship.

7. Some studies do a large number of analytic comparisons on the data. The greater the number of comparisons performed, the more likely it is that some of them will show associations with "statistical significance". This can happen by chance alone, if there are enough mathematical comparisons done. This is statistical the problem of "multiple comparisons".

1. What impact can methadone treatment have on HIV transmission?

a. "methadone maintenance reduces HIV transmission"

Moss 1993:

- . observational study of rate trends over 5 years in 2351 MM and MT clients
- . trend to reductions in both HIV incidence and prevalence over time
- . decreased risk of infection in patients having more than 1 year in methadone maintenance
- . decrease in reported cocaine use and increase in heroin use over same period
- . self-reported risk behaviours also decreased over time

\*\*\*critique: observational study showing trends only, no "external" control and no info about external trends; survivorship bias i.e. long term patients more compliant and HIV sick individuals referred out; seroincidence likely to be underestimated because of bias in sampling (calculated for individuals in program long enough to get repeat tests)

Survey of ex-prisoners in Australia revealed that methadone maintenance reduces injecting and syringe sharing in prison when inmates were given at least 60mg of methadone for entire duration of incarceration, OR=0.4 [0.2 to 0.9]. The authors states methadone maintenance could be an effective method of decreasing blood-borne pathogen transmission in prison (13).

2. What is known about the pharmacological relationship between methadone and cocaine?

a. "Methadone enhances the rush from and craving for cocaine"

i. Preston 1996:

- . pharmacologic study of 22 i.v. cocaine users not seeking treatment
- . 11 on methadone, and 11 not
- . all received 0, 12, 25, 50 mg iv cocaine
- . subjects were blinded to drug dose and recorded subjective feelings on visual analogue scale
- . methadone users had higher scores on rush from cocaine and craving

\*\*\* ?? critique

ii. Foltin 1995:

- . study of 16 cocaine using MM patients

- . comparison of cocaine given 1 and 22 hours after daily methadone
- . cocaine doses of 0, 8, 32, and 48 mg
- . subjects on > 60 mg methadone reported larger cocaine effects ( e.g. "liking", "stimulated")

\*\*\* critique: danger of multiple comparisons; however, association was very strong (  $p < .01$  )

b. " cocaine accelerates elimination of methadone"

Tennant 1995: hypothesis to explain subject response to higher doses

3. Does methadone treatment reduce cocaine usage?

a. " Increasing methadone dosage reduces cocaine use"

i. Tennant 1995:

- . study of 74 cocaine-using MM patients
- . 28.4% ceased cocaine when methadone dose increased from < 80 mg to 160 mg/day
- . hypothesized that cocaine appears to accelerate elimination of methadone

\*\*\* critiques: no control group, regression to mean, reliance on weekly urine testing

ii. Strain 1993:

- . Randomized double-blind placebo controlled study
- . 274 opiate dependent patients with high rate of cocaine use
- . after 5 weeks of active therapy were stabilized on 50, 20, or 0 mg daily methadone
- . counselling and group therapy included
- . by week 20, treatment retention rate was 52.4% for 50 mg, 41.5% for 20 mg and 67 % for 0 mg
- . by week 20, cocaine positive urines were 52.6% for 50 mg, 62.4% for 20 mg, and 67 % for 0 mg

\*\*\* critique: survivorship bias, failure to provide intention to treat analysis, doses did not include current recommended range; but otherwise a good design to show a dose relationship between methadone dose and treatment retention, and to raise question about methadone and cocaine relationship

\*\*\* (study) authors' comment: in this group, preferred way of

cocaine use was in "speedballs", i.e. heroin and cocaine together; hence positive effects on cocaine testing; more study needed.

iii. Saxon 1996:

- . a complicated randomized trial described below
- . showed positive association between methadone dosage and fewer cocaine positive urines
- . target population were all heroin users: 41.9% also use speedballs, 28.5 % reported injecting cocaine alone

**\*\* critique:** no intention to treat ( survivorship) analysis; authors themselves noted the association only, no cause-effect implied

b. " Methadone maintenance patients use less cocaine than out of treatment IDU's"

Avants 1994

- . review article
- . multisite studies show very high prevalence of cocaine use in methadone maintenance clients, between 20% and 80%.
- . cocaine use related to poor retention in treatment and poor treatment outcome
- . report that up to 50% of MM patients have psychiatric disorders, especially depression  
(. Possible reasons for increased use (speculation): cocaine euphoria is not dampened by MM, cocaine may mitigate side effects of MM, MM allows extra money for cocaine, and MM facilitates congregation of clients to access/buy cocaine.)
- . reports on various pharmacologic/psychosocial cocaine interventions (see below)

Meandzija 1994:

- . non-randomized, cross sectional survey of 2 groups: 327 "out of treatment"users and 107 MM's;
- . patients on current methadone maintenance reported less drug injection, less speedball use, less cocaine use and less cocaine injection and had similar HIV prevalence to those out of treatment

**\*\*\*critique:** non-controlled ( no matched comparison group); non-randomized; high potential for biases: self-selection, survivorship, self-reported behaviour. No generalizable conclusions can be drawn from this report.

Kidorf 1993:

- . summarized self reports re behaviour change in methadone maintenance patients
- . self-reports of cocaine use indicated less use than that reported in an unrelated group of non-MM patients

\*\*\*critique: descriptive analysis of self-reported behaviours; with no control group; spurious comparison

c. " Cocaine use reduces with time in methadone programs"

Kosten 1987:

- . 361 opioid users targeted for 2.5 year follow-up, of which 268 were relocated and participated
- . initial evaluation was at entrance to any of a variety of treatment facilities (detox, MM, residential facility, "drug free" outpatient care)
- . "any cocaine use" reports decreased from 56 to 41% in overall group
- . "weekly cocaine use" reports increased from 13 to 26% in overall group
- . both MM and detox patients had net increase in cocaine; significantly more MM patients reported an increase in cocaine use in follow-up period

\*\*\*critique: interventions were not consistent, e.g. many MM drop-outs, therefore lots of potential intervention overlap between groups; no information about external trends; information derived very inconsistent

Gottheil 1993:

- . urinalysis over time in 229 MM patients showed no change in cocaine use over time though opiates decreased

\*\*\*critique: no drop-out analysis so potential survivorship bias; observational study, no conclusions.

"How does HIV risk behaviour change in cocaine using methadone maintenance patients over time?"

1. Camacho, 1996.

- 327 opioid users in MM (57% of previously eligible clients had terminated Rx within 180 days and were not included in analysis).
- program included counselling.
- reductions in injection and sex related risk between admission and months 3 and 6 in both cocaine using and non-cocaine using subjects.

Problems with interpretation:

Selection bias; failure to evaluate on intention to treat basis; behaviour is self reported.

Conclusions:

Hypothesis generating study that suggests but is not sound enough to prove a benefit of methadone maintenance and/or counselling in reducing HIV risk behaviour.

Chaisson 1989:

. repeated surveys and HIV serology on a group (initially 664, but then down to 163), i.e. cross-sectional observations.

. 61 % of MM pts receiving methadone for less than 1 year and 62% on meth for more than 1 year reported "ever using cocaine"

. 68% of < 1 year MM group and 57% of > 1 year MM group reported reduced cocaine use

. 26 % in long term MM began cocaine use and 6% reported increased cocaine use

\*\*\* critique: potential for bias in sample, repeated cross sections with no comparison groups and no info re drop-outs, findings based on self report (normative bias): Actually not a very useful report

Moss 1993 (see Question 1 a above):

. noted a trend to decreased reported cocaine use, which may have reflected a similar trend in the larger community

. ditto self-reported decrease in risk behaviours.

5. Fairbank, 1993.

- Prospective study of 513 heroin users admitted to MM in 10 US cities and followed a minimum of 1 year, had to have completed fu interview - TOPS interviewed a much larger 12,000 people at time of admission to drug use programs.
- Also followed up those who left MM programs one year after termination.
- Interviews assessed drug use at admission and follow-up.
- Self-reported declines in use of cocaine from 36%  
● to 22% overall and similar reductions seen in patients not enrolled in methadone maintenance in following year (although not statistically significant - Odds ratio for cocaine use of being in program was 1.44).



### Problems in interpretation:

No "zero-exposure" control group; data do not expound on differences between those who did and did not submit a follow-up interview -> self-selection could well account for apparent declines; self-reported behaviour.

#### 6. Pahij, 1996.

- From program evaluating both bromocriptine and cognitive behavioural model in methadone maintenance.
- Looked at 39 or 50 patients who participated in medication study and who had data to 42 days (others did not get that far).
- Found declines in use of cocaine with time in program.

### Problems with interpretation:

Survival bias; no control group; self-reported behaviour; confounding by other treatment effects - was it cognitive behavioural therapy or MM?

### Conclusions:

Reported data are quite mixed and those studies which made efforts to find vaguely appropriate comparison groups found no important differences. The above evidence cannot be used to infer a time-dependent treatment effect of methadone maintenance on cocaine use.

#### 4. Are there any effective treatments for cocaine addiction?

##### a. " Incentives improve compliance"

Silverman 1996

- . randomized controlled trial of 37 cocaine users on MM, assigned (using stratification) to one of 2 treatment groups
- . ( non-monetary) vouchers of increasing value for progressive cocaine-negative urines given to treatment group; non-treatment (control) group received vouchers of comparable value but not contingent on urine results
- . rewarded group did better, i.e. more sustained cocaine abstinence; however, half of this rewarded group could not abstain

\*\*critique: very small study group with no discussion of "power" of study to show difference; large numbers of computations on these small numbers  
authors note: relapse was common in both groups; this study points the way for more research

Stitzer (NIDA monograph)

- review article?
- reviews behavioural methods of reinforcement have, i.e. "contingency management"
- "Adverse contingencies" (reduction in treatment or rewards with "negative" behaviour) in treatment are associated with poor performance in patients that are often the neediest and most drug-dependent, leading to the termination of their treatment.
- "Positive contingencies" such as medication take home dose with drug free urines, has been found to be effective in increasing the drug free urinalysis rates without alienating those that still have drug positive urines. (34)

Rawson, 1991

- review of treatment modalities
- discuss treatment modalities for cocaine abusers in MM as progress with methadone is "severely disrupted" by cocaine related problems.
- Negative Contingency (confrontation of users with positive urines) results in persons terminating methadone maintenance.
- Positive contingency (vouchers contingent on negative urines exchangeable for retail items) had a powerful effect for persons with lower pretreatment levels of drug use, but is not effective for severe users.

Note:

Contingency management, i.e., behaviour modification techniques, are always reported within the drug treatment paradigm, and not as part of a harm reduction approach. Abstinence is the goal.

(b) "Antidepressants can be helpful in treating Cocaine Use"

Avants 1994

- . review article (see above)
- . tricyclic antidepressants may help depressed cocaine users reduce cocaine use
- . other drugs being studied: "dopaminergic", Mazindol
- . Acupuncture in uncontrolled trial has an impressive (urine confirmed) abstinence potential; multi-centre control trial now underway; possibly more effective with women with children?
- . notes huge variability in types and amount of counselling supports studied; offers the comment that relevance may be a key factor: do the interventions address the real needs of inner city populations? Concludes that counselling plus MM is not enough,

contingency management may be useful, and psychotherapy may help with those with the highest levels of psych impairment.(25)

Arndt, 1992

- randomized double blind, placebo controlled trial of desipramine Rx of cocaine dependence among MM patients.
- no benefit of pesipramine.

Conclusion:

Desipramine is not effective for heterogeneous populations of MM patients in reducing cocaine dependence. Studies aimed at subsets with depression would be valuable.

(c) Buprenorphine may have greater potential than methadone for controlling cocaine abuse among individuals dependent on opioids".

1. Foltin, 1996

- 12 pts started on 60 mg per day of methadone.
- half first tested on buprenorphine 8 mg per day with methadone placebo and half on methadone 60 mg per day with buprenorphine placebo.
- testing consisted of 3 daily sessions of fixed cocaine dosing 0, 16 or 48 mg/day and 3 days of self administration of 16, 32 and 48 mg vs \$5.
- buprenorphine reduced "I want cocaine" scores: subjective effects of drug not changed between regimens; decreased cocaine self-administration when on buprenorphine unless higher does cocaine available.

Problems with interpretation:

Some physiological habituation to methadone could hang over and impact apparent efficacy of maintenance; although some withdrawal experienced going from meth to buprenorphine - were doses similar in terms of morphine equivalent?

2. Strain, 1994.

- randomized, double-blind double dummy trial of 26 weeks buprenorphine 8-16mg vs methadone 50-90 mg.
- cocaine assessed by thrice weekly urines - no differences between groups.
- 28 patients remained in over time and had decreases in cocaine urines from baseline.

Problems in interpretation - study has poor statistical

power to detect a difference.

Conclusion:

The better designed study (Strain) cannot allow us to conclude a differential benefit of buprenorphine. Larger (bigger sample size) study required for conclusive answer.

(d) Cognitive behavioural therapy programs can decrease cocaine use within methadone programs".

1. Rosenblum, A, 1995.

- uncontrolled study of 77 cocaine using methadone patients (referred to some kind of controls who were not reported on in the paper - look for subsequent publication).
- assessed by dividing group into quartiles based on number of sessions attended.
- those with most sessions had most decrease in cocaine use.

Problems for Interpretation:

Self-election; unmeasured confounders; self-reported behaviour; multivariate model had paucity of real explanatory variables.

Conclusions:

Big methodological problems in establishing cause and effect. Need to review publication of controlled study.

Kosten 1993

- . review article summarizing cocaine pharmacotherapy research
- . 2 rationales for the treatment of cocaine: clinical effects of cocaine and for associated depression
- . clinical effects = neurochemical effects of cocaine on dopaminergic reinforcement in the brain: Desipramine, Amantidine, Flupenthixol, nifedipine are drugs under investigation for reducing cocaine induced euphoria and reducing "craving"; results are mixed
- . depression: cocaine addicts who have a psychiatric diagnosis of depression may be able to reduce cocaine use when taking an anti-depressant such as desipramine

Kolar 1992

- . conducted a 12 week randomized controlled trial (double

blind) using Desipramine, Amantadine, and placebo;  
. all participants attended weekly counselling sessions.  
. Desipramine was most effective, (but still not very effective,)  
. saw decreased cocaine use with placebo as well, leaving authors to conclude that counselling helps. (22)

Batki 1993

.writes that cocaine use predicts poor outcome in methadone maintenance programs and in methadone treatment programs.  
.Reduced cocaine use was seen with fluoxetine.

\*\*\*critique: This study had no control group and a small sample size.(23)

## 5. How should methadone treatment be done?

a. " When a user asks for substance abuse treatment, it should be provided as soon as immediately "

Bell 1994

. comparison done on rapid intake vs. wait list and formal assessment intake procedures for a methadone maintenance program  
. clients entering by rapid intake (same day) did better than the formal assessment cohort.  
. rapid intake cohort was less likely to have urine positive for drugs (1.79 OR), was more likely to stay in methadone maintenance for 400 days (vs dropping out or being expelled), and was more likely to leave after 400 days. T  
.conclusion: formal intake and prolonged assessment is associated with increased treatment heroin use and increased risk of premature discharge in expulsion.  
. follow - up was done 2-3 years later on users initially turned away from methadone maintenance because they were not considered to be heavy enough users. Of the 86 turned away, 4/86 were dead, 50% were in MM and 4/86 were abstinent from opiate for past 6 months (10).

\*\*\* critique

b. Dosage

Hartel

.studied 652 methadone maintenance treatment patients in New York  
.the odds of heroin use on a low dose of methadone were greater than on a high dose, OR=2.1 [1.3, 3.4].  
. As well, the odds of heroin use was greater in persons

who used cocaine regardless of methadone dose, OR=5.9 [3.8, 9.1].

- . no association found between methadone dose and cocaine use

- . higher drop out rate in participants on low dose methadone

- . conclusion: high dose methadone maintenance is critical in cessation of heroin while in treatment, and for increased retention in treatment. (26)

\*\*\*critique:

author's note: wonder if an interaction between cocaine and heroin may counteract the blockade of the high dose methadone, which is consistent with the street knowledge that "cocaine eats up the methadone."

c. "psychosocial support services improve outcomes for methadone maintenance patients"

i. Saxon 1996:

- . a complicated randomized trial with 353 subjects assigned to 6 different treatment categories

- . analyzed for pretreatment characteristics and responses to various treatment approaches

- . pre-treatment characteristics associated with less retention in program: younger age, severity of psychopathology .

- . prior cocaine use: more cocaine use while in treatment

- . program characteristics associated with better outcomes: higher methadone doses, psychosocial support (threshold effect only),

- . threat of discharge from program associated with poorer outcomes

\*\*\*critique: many, many analyses, and too little of the differences in outcomes were explained by the variables; survivorship bias not examined

ii. McLellan 1993

- . randomized comparison of 3 small groups (about 30 men), each receiving a different level of psychosocial support after being stabilized on a methadone dose

- . ASI indices and urine testing indicated that the greater the counselling intervention applied, the better the outcomes both during the intervention and some weeks after

\*\*\*critique: well designed study with good accounting for

intention to treat, possible issue with regression to mean but comparison groups help with that, comparison (control) group was not matched but personal characteristics were comparable; intervention applied in hospital setting, psychiatric clients not included

iii. Arif and Westermeyer

. international review of "Methadone Maintenance in the Management of Opiate Dependence."

. " while methadone maintenance may help to decrease the risk of HIV transmission, the programs must provide other modalities to produce or facilitate lifestyle change"

. Outcome predictors of positive outcome include quality of therapeutic relationship, compliance with treatment requirements, length of stay in treatment, and quality of treatment.

. Authors postulate that MM without establishing a stable therapeutic relationship will be less effective in obtaining intended behavioral changes concerning injection hygiene, sexual contacts, etc.

\*\*\*critique: review article, not study

d. Harm reduction/treatment vs.. maintenance

. detox vs. maintenance

A harm reduction policy approved in 1991 facilitated many harm reduction measures in Geneva including syringe exchange, easier access to oral methadone, pharmacies distributing methadone, distribution of methadone in hospitals and jails, and the consumption of heroin became a misdemeanour. For HIV+ drug users in Geneva, methadone maintenance clearly facilitates access to health care.

Research on methadone maintenance (MM) has been shown to retain persons in treatment, i.e. a 15% drop out rate in MM vs. 50% drop out in drug free treatment in the first three months, (45).

. contingent vs. non-contingent prescription

Note: Contingency management, i.e. behaviour modification techniques, are always reported within the drug treatment paradigm, and not as part of a harm reduction approach. Abstinence is the goal.

. urine testing vs. self-report; monitoring

d. program evaluation; definition of success

Arif and Westermeyer (see above)

. issues to delineate before starting a MM program: Sociocultural factors, criteria for admission, who provides methadone, concomitant psychosocial treatment and support services, urine testing- how and if used, driving permitted by participants, MM in hospital and jail, duration and terms of treatment, referral of pt's between programs and how this works, side effects of prescribed substances and actions for each, risks of methadone, rules of treatment, impact on other treatment modalities, cost and financing. (11)

. goals must be clearly delineated: i.e. decrease suffering, increase health and social function, elimination of drug use or risk behaviours, decrease in drug associated problems, with outcome variables to track these goals.

. Treatment long and short term goals also should be stated (i.e. harm reduction or treatment.)

. Unanswered questions by current research to date: characteristics of individual likely to benefit from certain modalities, effectiveness of blood levels in MM, criteria for non-drug treatment, characteristics of pts who need to be treated with drugs and counselling and social rehab, duration of Rx, and predictors of responsiveness, vocational training effect, and social environment interventions. (11)

6. How does methadone fit with other services/interventions?

Batki writes methadone programs may afford access to HIV+ individuals in a way the health care system does not, as many users distrust the health care system. Methadone programs offer the opportunity to constructively intervene in their lives by providing medical, psychiatric, and social services. Furthermore, some evidence that HIV+ patients do better with their HIV illness if they stop using injected drugs. The author questions if methadone can play a role in helping HIV+ users to stop injecting (49).

7. What are the risks to the community of methadone programming?

Binchy et al 1994

. between November 1989 and March 1993, there were 44 episodes of methadone overdose in 42 children ranging in age from 11 to 84 months in the Liverpool area. 32 obtained the methadone from a parent, the remainder from a partner or friend of the parent. Most OD's were during the day, the 2 deaths resulted from delay in bringing the child to hospital. 17 children were asymptomatic,



Naloxone and Ipec given to the others.

. the number of accidental ingestions increased 2-fold from 1990 to 1992.

. author suggests changing methadone to an unattractive taste, and educating parents. Parents may not realize that the danger of the drug to the child, the delay in seeking medical help could be avoided. Parents fear the "bad parent" label and may be afraid to seek health care. Liverpool now designed posters with suitable warnings and advice.(35)

## CONCLUSIONS

1. Methadone maintenance can be useful if done well and in context of multiple supports and options.

2. There is little evidence supporting a direct benefit of MM for cocaine users.

3.

## RECOMMENDATIONS

1. Coordinated, quality controlled methadone programming for DES Adds, with evaluation and accountability

2. Methadone maintenance as a harm reduction modality, vs contingent, abstinence- focused approach.

(There is a differentiation in the literature between low-dose and high-dose methadone maintenance. Low dose is < 60 mg/day, enough to prevent withdrawal for some users, but not enough to block the effects of heroin. High dose usually refers to > 60-80mg/day, a dose that will block the effects of heroin. Low dose maintenance is controversial as has not been shown to decrease illicit drug use (4). There is also ambiguity in the literature between methadone maintenance treatment programs, and methadone maintenance programs.

3. Supports, e.g. medical, methadone anonymous, recreation are necessary part of the program

4. Specifically designed cocaine management trial

## ADDITIONAL PAPERS OF INTEREST IN PLANNING PROGRAMS

Moolchan ET and Hoffman KA. *Phases of Treatment: a Practical approach to Methadone Maintenance Treatment* Int J of addictions 1994;29(92), 135-160

-presents a very structured approach for management of opiate addiction; not a study

Latkin et al *The Long Term Outcome of a Personal Network-Oriented HIV Prevention Intervention for Injection Drug Users: The SAFE Study*, AM J Community Psychology 1996 Vol 24 No.3

-well designed study but all sorts of problems with attrition of participants; idea was to ask the experimental group to bring in their risk-sharing cohort for specific risk reduction counselling; self reported behaviour for the intervention group improved in comparison with control group

Avants 1994

- reports on a Connecticut drug therapy program which includes the following modules: physical and emotional health, substance abuse treatment, community development, development of alternate reinforcers basic daily living skills

Arif et al

- clinics are more effective than GP's because of extended services and less manipulation by clients of GP's.  
- community acceptance of a methadone program can be a problem, best results are seen when the community has frequent contact with leadership of the clinic.

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