Evaluation of heroin-assisted substitution treatment for opioid dependence in Switzerland – an overview

Presentation at the Conference on „Models of medication supported treatment for opioid addicts“ – WHO / BMG / DLR

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Evaluations

- **WHO**
  - **Process including adherence to Helsinki, GCP etc.**
  - **Outcome**

  Summary paper **Ali et al., 1999**

- **Swiss**
  - **Process**
  - **Outcome**

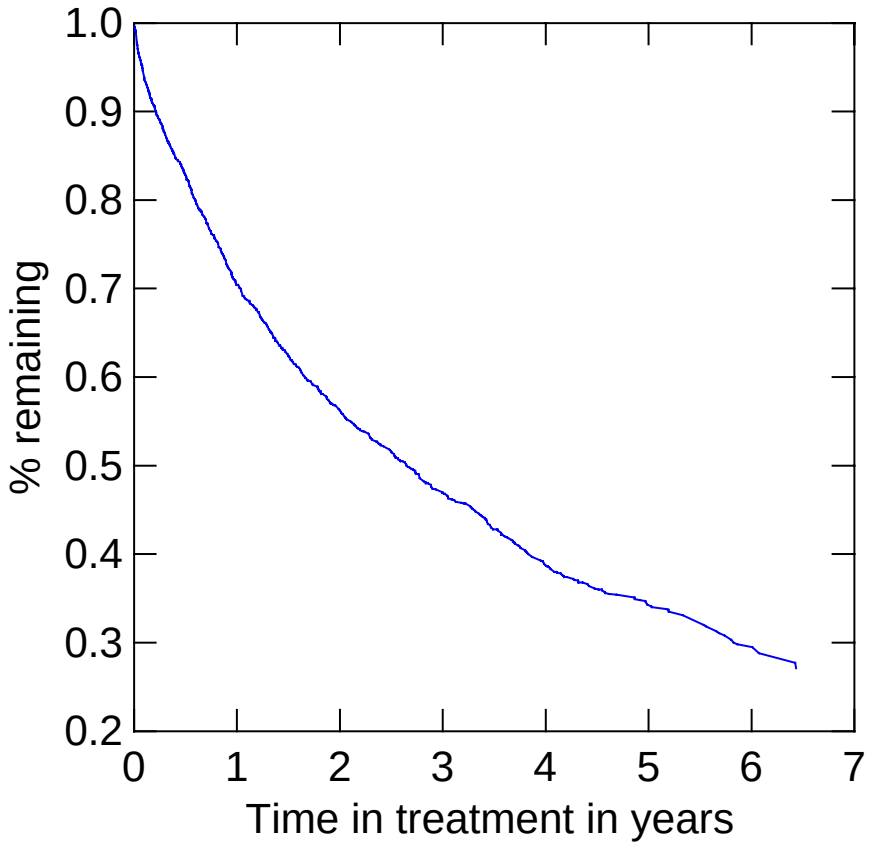
Topics to be covered

- “Survival curve” of treatment remainders
- Admissions and discharges into heroin-assisted treatment
- Characteristics of admissions and discharges
- Length of stay for remainders and discharges
- Reasons to leave and length of stay
- Improvements in therapy
  - –Medical variables
  - –Social and structural variables
  - –Consumption of illegal substances
- Long term improvements
- Conclusions

Heroin-assisted treatment in Switzerland

- Opioid addicts: 30’000 – 40’000
- In treatment: more then 18’000
  - In methadone treatment: more than 15’000
  - In abstinence-based treatment: more than 1’000
  - In buprenorphine-based treatment: about 1’000
  - In heroin-based treatment: about 1’000

Remainders in treatment by time



Admissions and discharges from heroin-assisted treatment in Switzerland 1994-2000 ($n_{admissions}$=2166;$n_{discharges}$=1175)

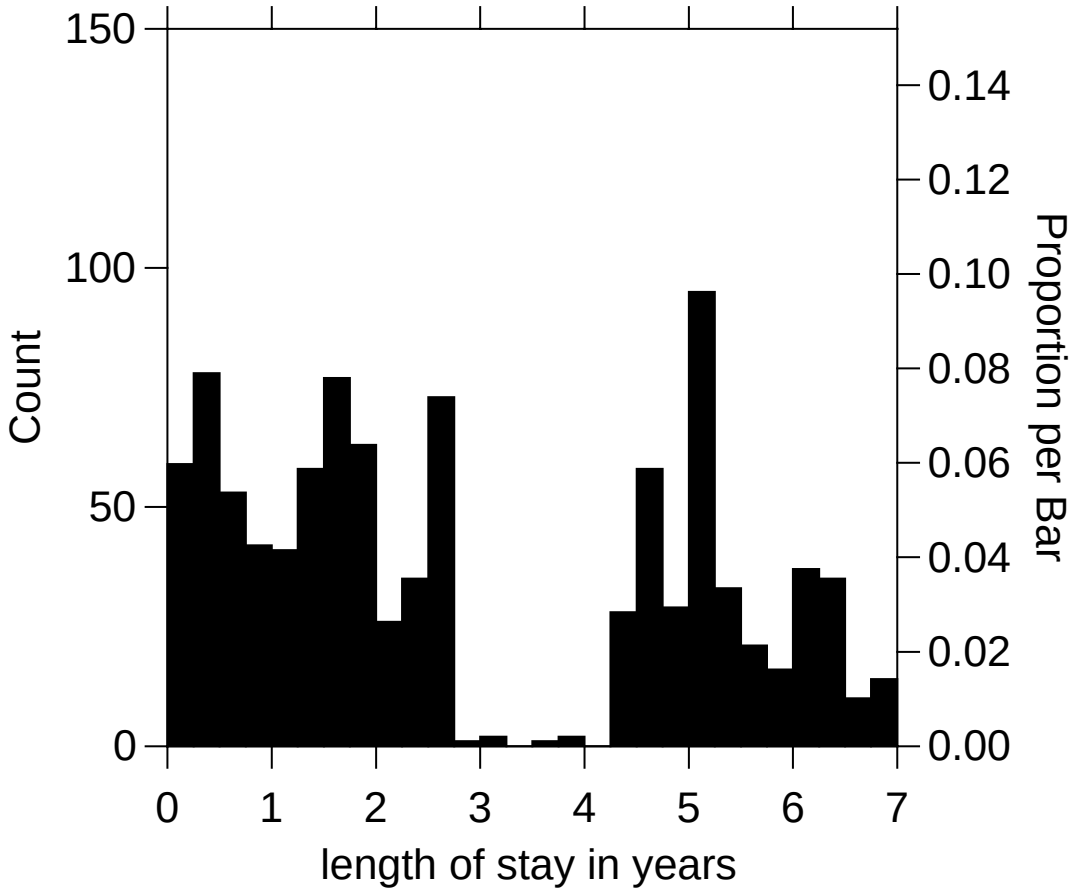
	N patients	% Males	% Females	% in treatment December 00
Admitted people total	1969	72.0	28.0	
1 admission	1788	72.0	28.0	50.1
2 admissions	165	72.1	27.9	50.9
3 admissions	16	68.8	31.3	56.3
Discharged people total	1071	70.9	29.1	
1 discharge	974	70.5	29.5	8.4
2 discharges	90	76.7	23.3	10.0
3 discharges	7	42.9	57.1	0.0

Characteristics of discharged patients and treatment remainders ($n_{admissions}$=2166)

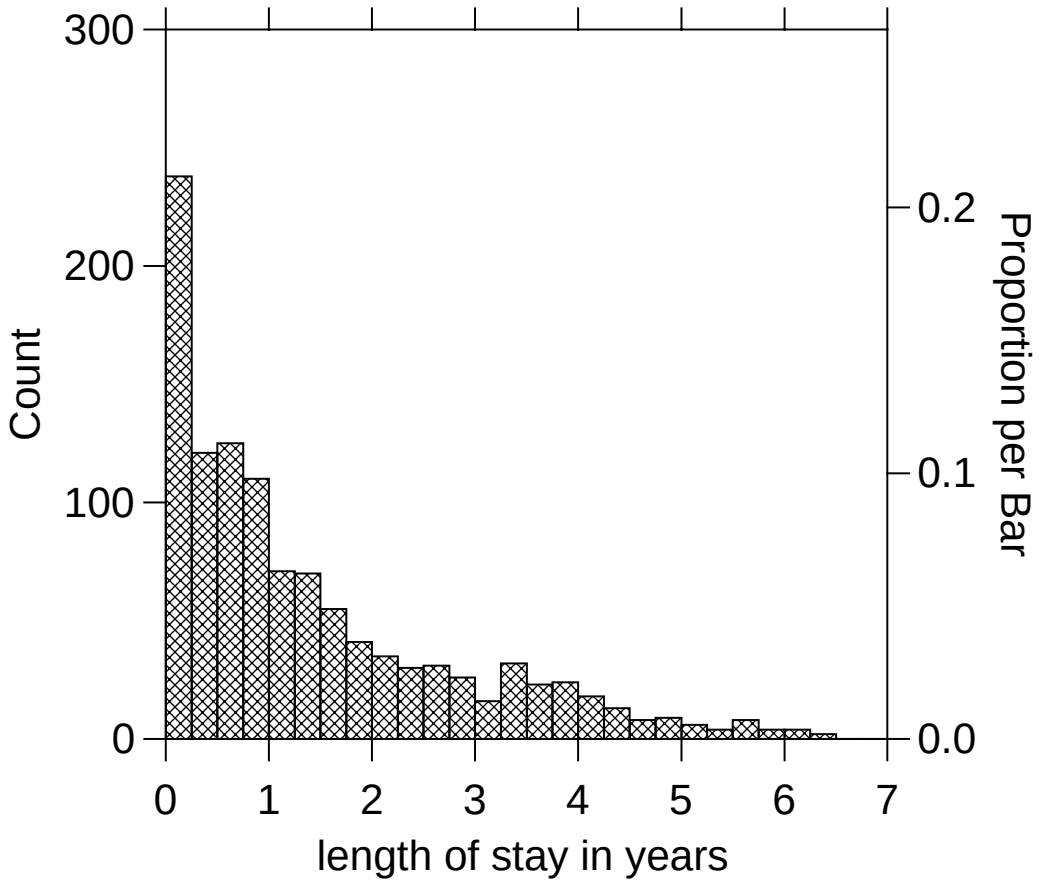
Characteristics	discharges (N=1175)	treatment remainders (N=991)	total sample	missing values
% males	70.9% (SE 0.01)	73.2% (SE 0.01)	71.9% (SE 0.01)	0
Age in years at treatment entry	31.1 (SD 8.1)	32.0 (SD 5.9)	31.5 (SD 7.2)	6
Duration of heroin addiction before treatment entry in years (median and 25th and 75th percentiles)	10.0 (7.0 – 14.0)	10.0 (8.0 – 14.0)	10.0 (7.0 – 14.0)	249
% daily or almost daily consumption of cocaine before treatment entry	35.4% (SE 0.02)	29.3% (SE 0.02)	32.6% (SE 0.01)	269
% HIV positive at treatment entry	20.9% (SE 0.01)	12.6% (SE 0.01)	17.1% (SE 0.01)	290

SD=Standard Deviation.
SE=Standard error.

Length of stay in years for treatment remainders



Length of stay in years for discharged patients



Reasons for being discharged by time of discharge Part I ($n_{discharges}$=1031; missing value=144)

Reason for discharge	Statistic		Time	Of	Discharge	
		first 4 months	>4 months - 1 year	>1 year – 3 years	more than 3 years	Total
Abstinence treatment	Count	21	74	82	47	224
	Expected frequency	48.9	73.7	66.7	34.8	224
	Column %	9.3	21.8	26.7	29.4	21.7
	Stand. residuals	-27.9	0.3	15.3	12.2	
Methadone maintenance treatment	Count	79	128.0	112.0	60.0	379
	Expected frequency	82.7	124.6	112.9	58.8	379
	Column %	35.1	37.8	36.5	37.5	36.8
	Stand. residuals	-3.7	3.4	-0.9	1.2	
Other treatment	Count	3	3.0	14.0	8.0	28
	Expected frequency	6.1	9.2	8.3	4.3	28
	Column %	1.3	0.9	4.6	5.0	2.7
	Stand. residuals	-3.1	-6.2	5.7	3.7	

Reasons for being discharged by time of discharge Part II ($n_{discharges}$=1031; missing value=144)

Reason for discharge	Statistic		Time	Of	Discharge	
		first 4 months	>4 months - 1 year	>1 year – 3 years	more than 3 years	Total
Death	Count	4	12	10	4	30
	Expected frequency	6.5	9.9	8.9	4.7	30
	Column %	1.8	3.5	3.3	2.5	2.9
	Stand. residuals	-2.5	2.1	1.1	-0.7	
Excluded because of violence or illegal trafficking	Count	20	32	25	10	87
	Expected frequency	19.0	28.6	25.9	13.5	87
	Column %	8.9	9.4	8.1	6.3	8.4
	Stand. residuals	1.0	3.4	-0.9	-3.5	
Imprisonment	Count	7	15	6	6	34
	Expected frequency	7.4	11.2	10.1	5.3	34
	Column %	3.1	4.4	2.0	3.8	3.3
	Stand. residuals	-0.4	3.8	-4.1	0.7	

Reasons for being discharged by time of discharge Part III ($n_{discharges}$=1031; missing value=144)

Reason for discharge	Statistic		Time	Of	Discharge	
		first 4 months	>4 months - 1 year	>1 year – 3 years	more than 3 years	Total
Health reasons	Count	12	9	12	8	41
	Expected frequency	8.9	13.5	12.2	6.4	41
	Column %	5.3	2.7	3.9	5.0	4.0
	Stand. residuals	3.1	-4.5	-0.2	1.6	
Treatment beak off, refusal, lack of compliance	Count	68	51	29	6	154
	Expected frequency	33.6	50.6	45.9	23.9	154
	Column %	30.2	15.0	9.4	3.8	14.9
	Stand. residuals	34.4	0.4	-16.9	-17.9	
Other reasons	Count	11	15	17	11	54
	Expected frequency	11.8	17.8	16.1	8.4	54
	Column %	4.9	4.4	5.5	6.9	5.2
	Stand. residuals	-0.8	2.8	0.9	2.6	
Total		225	339	307	160	1031

Expected frequencies were determined under the assumption of no relation between the variables.

Medical data for treatment cohort on admission and during treatment (n=237)

Variables	Admission (%)	6 months (%)	12 months (%)	18 months (%)	Averge difference between admission and follow-up (%)	Significance tests (based on last observation carried forward technique)
Severe somatic problems	22.1	11.5	12.8	12.8	9.7	Cochran's Q: 17.0; df=3; p=0.001
	missing values=11	missing values=19	missing values=18	missing values=47		
Severe mental problems	36.9	19.8	16.7	19.4	18.3	Cochran's Q: 38.3; df=3; p=0.000
	missing values=15	missing values=14	missing values=16	missing values=46		
Body mass index under 20	34.7	20.2	21.1	24.1	12.9	Cochran's Q: 41.4; df=3; p=0.000
	missing values=9	missing values=17	missing values=15	missing values=43		

The N for each analysis is based on the N for admission, as the last observation carried forward technique imputes missing values at follow-up measurement points.

Structural integration for treatment cohort on admission and during treatment (n=237)

Variables	Admission (%)	6 months (%)	12 months (%)	18 months (%)	Averge difference between admission and follow-up (%)	Significance tests (based on last observation carried forward technique)
Unstable housing situation	43.2	31.4	24.2	20.8	17.7	Cochran‘s Q: 45.0; df=3; p=0.000
Homelessness	17.7	8	1.3	1.3	14.2	Cochran‘s Q: 77.0; df=3; p=0.000
No employment	73	47.7	43.9	44.7	27.6	Cochran‘s Q: 80.8; df=3; p=0.000
Receiving disability pension	21.5	22.4	25.3	27.4	-3.5	Cochran‘s Q: 17.4; df=3; p=0.001
Receiving welfare payments	62.9	60.3	61.2	54.4	4.3	Cochran‘s Q: 8.5; df=3; p=0.035
No debts	26	26.2	27.5	33.05	-2.9	Cochran‘s Q: 9.2; df=3; p=0.026
Illegal income	69.2	16.7	13.5	10.6	55.5	Cochran‘s Q:302.1; df=3; p=0.000
No visit to illegal drug scene last month	14.2	45.9	51.5	58.8	-37.9	Cochran‘s Q:139.8; df=3; p=0.000

Contact to drug scene had 4 missing values at admission and 1 missing value for the last two follow-ups. The question on debts had in between 2 and 6 missing values. Only one other value was missing (housing situation at admission). The N for each analysis is based on the N for admission, as the last observation carried forward technique missing values at follow-up measurement points.

Nearly daily consumption of psychoactive substances for treatment cohort on admission and during treatment (n=237)

Variables	Admission	6 months	12 months	18 months	Averge difference between admission and follow-up (%)	Significance tests (based on last observation carried forward technique)
Cocaine*	29.4	6.8	3.8	5.1	24.2	Cochran's Q:
	missing values=2	missing values=10	missing values=13	missing values=13		126.9; df=3; p=0.000
Street Heroin	81.7	9.4	4.3	5.5	75.3	Cochran's Q:
	missing values=2	missing values=13	missing values=21	missing values=7		472.3; df=3; p=0.000
Benzodiazepine	18.6	12.3	14.8	9.3	6.5	Cochran's Q:
	missing values=1	missing values=12	missing values=14	missing values=15		14.9; df=3; p=0.002

*Self-reported data, corrected by results of urinanalysis.

The N for each analysis is based on the N for admission, as the last observation carried forward technique imputes missing values at follow-up measurement points.

Comparison of patients and discharged ex-patients of heroin-assisted treatment 6 years after entry Part I

	Patients n=132		Discharged ex-patients n=112		Tests of significance and number of missing values (mv)
Variables	Entry (in %)	6-year follow-up (in %)	Entry (in %)	6-year follow-up (in %)	Patients vs. Ex-patients
Homeless	9.8	1.5	8.0	0.9	(mv=0) Fisher's Exact test:n.s.
	(mv=0) McNemar (binominal);p<0.05		(mv=0) McNemar (binominal);p<0.05		
Unemployed	31.1	34.1	29.5	33.9	(mv=0) Chi^2=0.0; df=1; n.s.
	(mv=0) McNemar= 0.2; n.s.		(mv=0) McNemar= 0.3; n.s.		
Mostly illegal income	53.0	9.8	42.2	11.6	(mv=0) Chi^2=0.2; df=1; n.s.
	(mv=1) McNemar= 35.6; p<0.001		(mv=1) McNemar= 48.6; p<0.001		
Living from social welfare and other subsidies	19.1	39.7	23.4	31.5	(mv=0) Chi^2=1.8; df=1; n.s.
	(mv=1) McNemar= 12.3; p<0.001		(mv=1) McNemar= 1.8; n.s.		

Comparison of patients and discharged ex-patients of heroin-assisted treatment 6 years after entry Part II

	Patients n=132		Discharged ex-patients n=112		Tests of significance and number of missing values (mv)
Variables	Entry (in %)	6-year follow-up (in %)	Entry (in %)	6-year follow-up (in %)	Patients vs. Ex-patients
Illegal heroin consumption	84.7	3.8	76.1	18.9	(md=2) Chi^2=14.3;df=1;p<0.001
	(md=2) McNemar= 101.1; p<0.001		(md=4) McNemar= 50.3; p<0.001		
Illegal cocaine consumption	27.5	5.3	30.8	9.8	(md=0) Chi^2=1.8; df=1; n.s.
	(md=1) McNemar= 22.4; p<0.001		(md=5) McNemar= 13.8; p<0.001		
Illegal benzodiazepine consumption	18.8	4.5	16.3	3.6	(md=2) Chi^2=0.1; df=1; n.s.
	(md=4) McNemar= (binominal);p<0.001		(md=10) McNemar= (binominal);p<0.01		

Conclusions

- Heroin assisted treatment (HAT) in Switzerland has been associated with a low rate of drop outs.
- The longer the length of stay, the more positive the reasons for discharge. Most notably, start of an abstinence based therapy was most common among patients discharged after several years.
- HAT has been shown to improve not only the health condition of patients, but also social conditions and illegal substance use.
- Improvements have persisted as long as six years.

-> HAT seems to be a valuable part of an overall treatment system for opioid addicts, specifically directed to addicts with severe problems and treatment non-responders