

Is supervised consumption an expensive barrier to substitution treatment? Results from SUPER C trial

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On behalf of Holland R, Maskrey V, Notley C, Robinson A, Swift L, Gale T, Rosenbloom K.

The dilemma-local level

Advantages

Reduces diversion

Safety during
induction

Use in behavioural
modification

Disadvantages

Barrier for
engagement/retention

High cost

Compromise of
therapeutic relationship

Evidence base 1

Scottish experience:

- Edinburgh: minimal supervision
- Glasgow: supervision for 12 months
- Fewer methadone-related deaths in Glasgow (17) than Edinburgh (30)
and other opiate deaths were much higher in Glasgow (suggesting higher prevalence)

Weinrich M, Stuart M. Provision of methadone treatment in primary care medical practices: review of the Scottish experience and implications for US policy.[see comment]. JAMA 2000; 283(10):1343-8

Evidence base 2

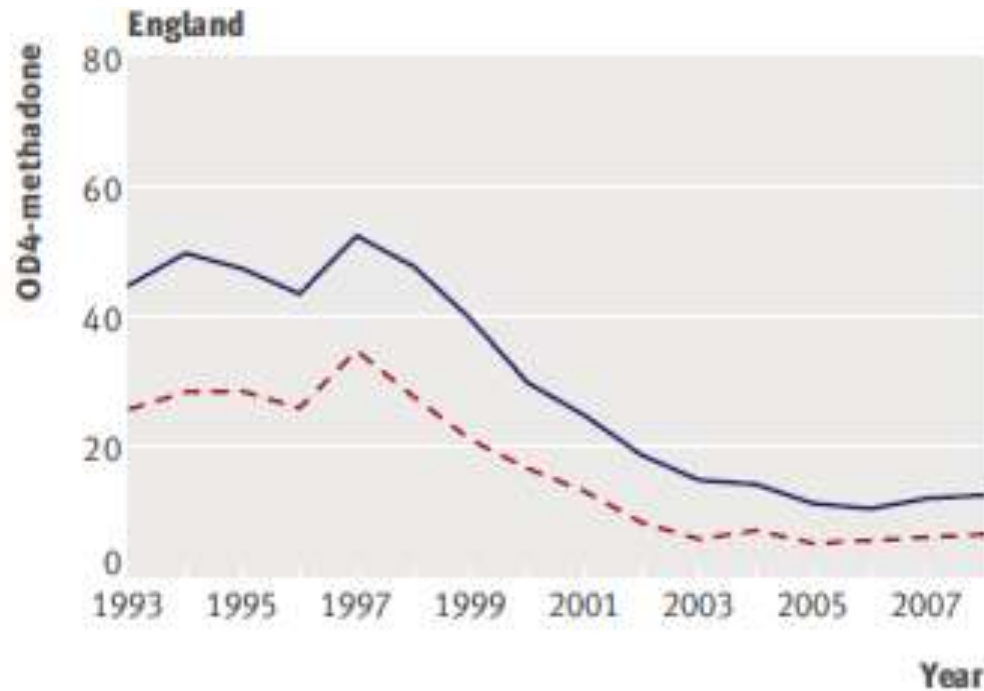
Scottish experience

- Methadone related deaths fell by almost 50% after introduction of SC
- Amongst those receiving MM, death rates appeared to fall from 0.53% to 0.15% per person-year.

BUT other treatment changes at the same time:
more adequate methadone doses

Seymour A, Black M, Jay J, Cooper G, Weir C, Oliver J. The role of methadone in drug-related deaths in the west of Scotland. *Addiction* 2003; 98(7):995-1002.

Evidence base 3



overdose deaths
per million defined daily
doses of methadone

BUT

decreasing trend
appeared before SC

was widely introduced

Fig 2 | OD4-methadone index, Scotland and England, 1993-2008

Evidence base 4 - RCTs

- **Rhoades trial (US trial)**

- Factorial design: 50 vs 80mg methadone
Twice per week vs. 5 days per week supervision
- 150 patients
- Worst outcome in low dose, 5 days supervised
- Best retention in those twice weekly supervised
- Least opiate use when dose higher

Rhoades HM, Creson D, Elk R, Schmitz J, Grabowski J. Retention, HIV risk, and illicit drug use during treatment: methadone dose and visit frequency. *Am J Public Health* 1998; 88(1):34-9.

- **Bell trial – suboxone supervision (Australia):**

- 119 subjects
- 61% supervised retained vs. 57% unsupervised
- No difference in use of heroin
- Overall little difference except in cost
- BUT many exclusions

Bell J, Shanahan M, Mutch C *et al.* A randomized trial of effectiveness and cost-effectiveness of observed versus unobserved administration of buprenorphine-naloxone for heroin dependence. *Addiction* 2007.

Service users' experience

Understood need for SC but privacy within pharmacies and possibility of moving away from supervision considered to be important.

BUT views in advance of entering supervised treatment
Results confirmed using consensus views from Methadone Alliance and local users group

Stone E, Fletcher K. User views on supervised methadone consumption. *Addiction Biology* 2003; 8(1):45-8.

Interviews with 86 clients

A generally positive response to SC and agreement that SC reduced amount of methadone on “the street”.

Lovell S, Sheridan J, Harris J, Best D, Strang J. Methadone maintenance clients and the acceptability of supervised consumption of methadone. *Journal of Substance Use* 1999; Vol. 4(2), 92-97.

Current practice

- Minimum of 3 months, to be relaxed only when compliance is assured (Clinical guidelines on Drug Misuse and Dependence, 2007; NICE, 2007)
- Minimum of 6 months (ACMD, 2000)
- Practice in the UK varies: some rural areas often unable to provide SC, whilst in other areas SC is mandatory for very prolonged periods.

A randomised controlled trial, economic evaluation and qualitative study of supervised consumption in patients managed with opiate maintenance treatment. The SUPER C trial

Research questions

1. Is there a significant difference in retention between supervised and unsupervised substitution treatment?
2. How do clients and staff view supervised consumption? (Qualitative study)
3. What is the cost effectiveness of supervised consumption?

RCT methods – inclusion/exclusion criteria

- Inclusion criteria:
Confirmed opioid dependency and electing to enter maintenance treatment (not detoxification).
- Exclusion criteria:
 - Chronic injectors refusing oral therapy
 - Under 16 years
 - Incapacity to give informed consent
 - Those deemed to definitely require supervision
 - Those who could not receive supervision (e.g. due to geographical location)

Intervention

- SC 7-28 days
(titration & stabilisation)
- SC in clinic/pharmacy
6-7 days per week
- Changes if clinical
issues

Control

- SC 7-28 days
(titration & stabilisation)
- unSC 6-7 days per week
- Changes if clinical issues

Withdrawal from the study

No pick up for 5 consecutive days.

Last day in the study = last day of medication.

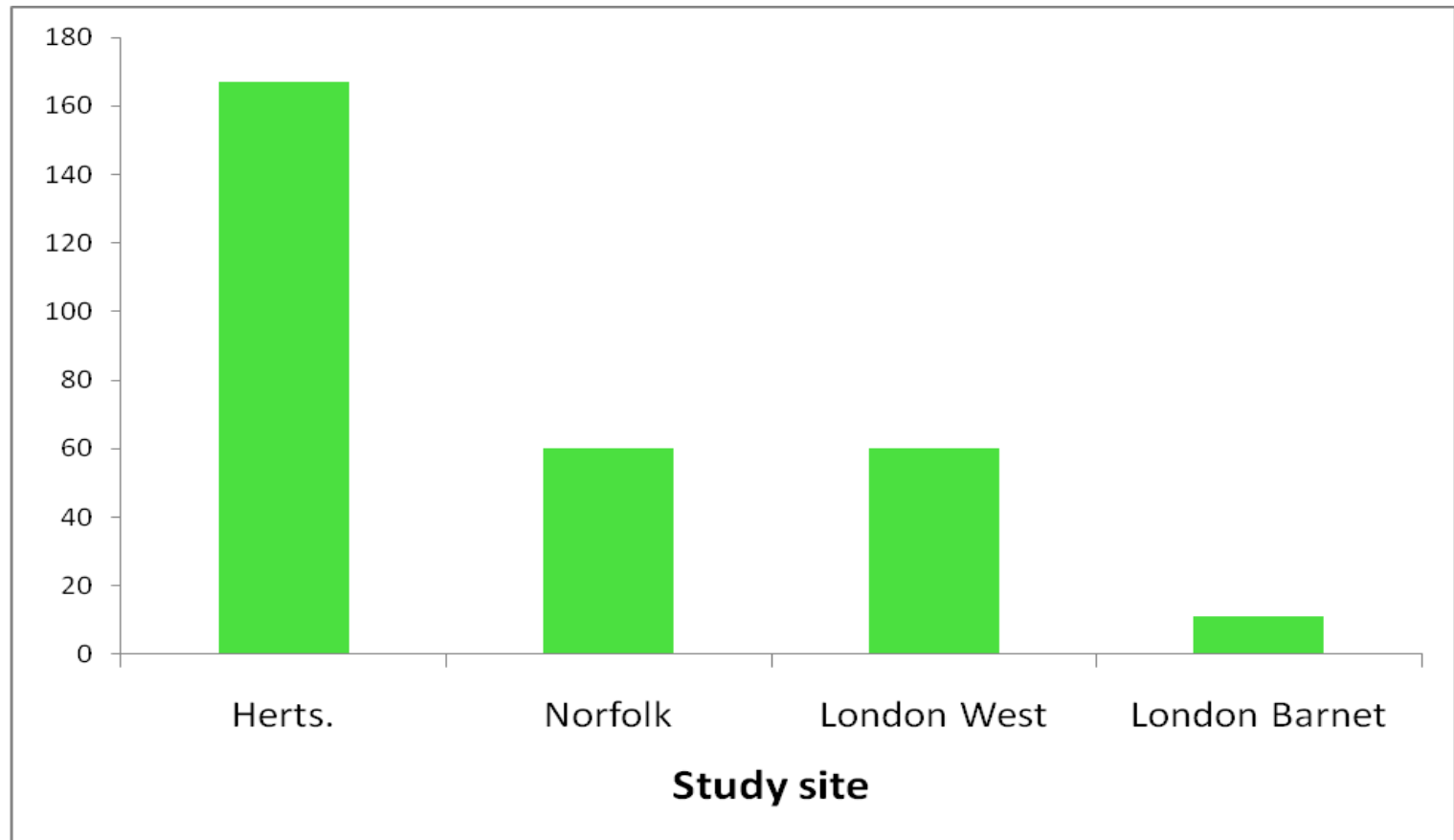
Outcome measures

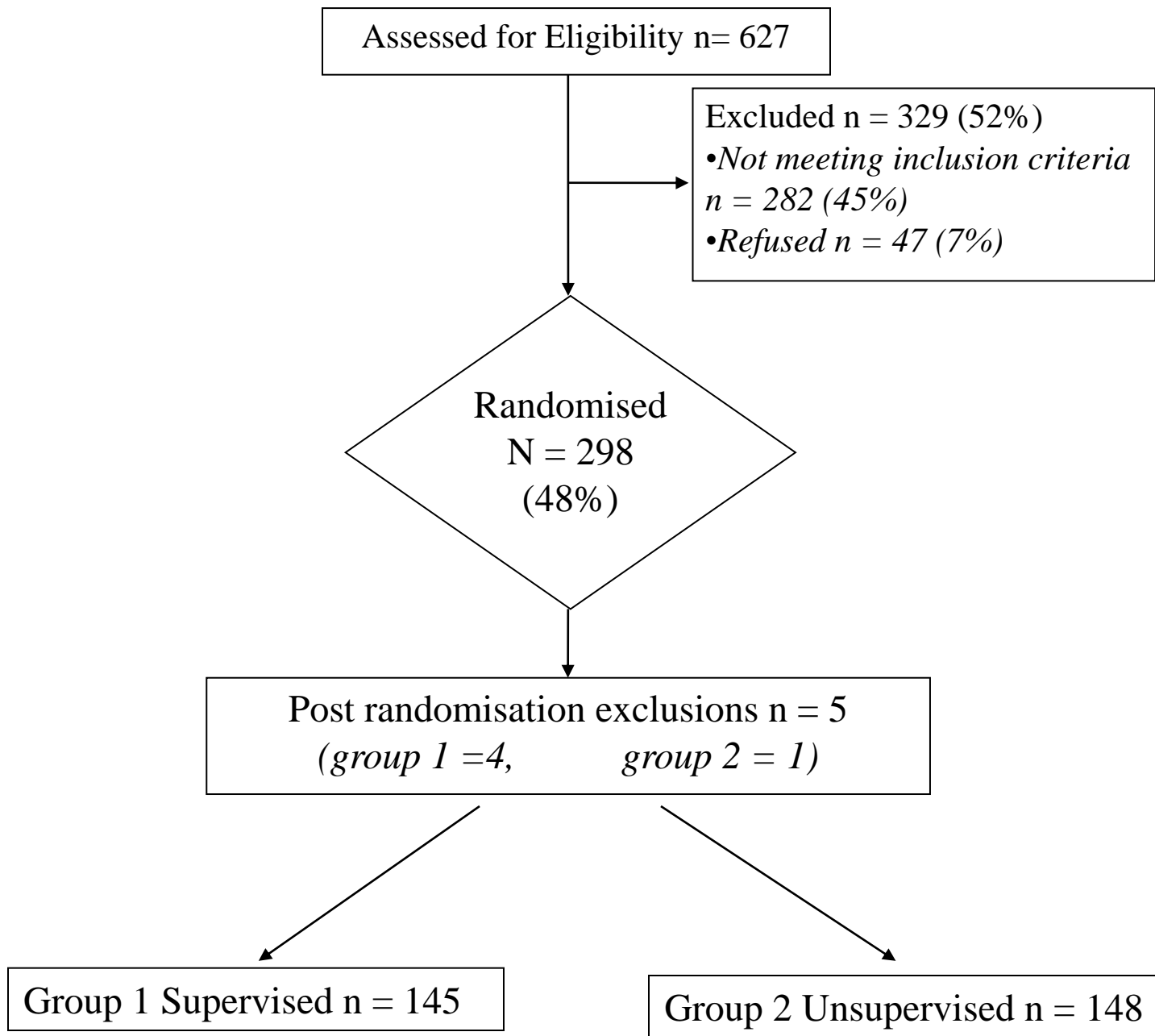
- Primary outcome: retention at 3 months
- Secondary outcome: retention at 6 months
- Additional outcomes:
 - Reduction in illicit opioid use (drug screening & MAP)
 - Use of other illicit drugs (drug screening & MAP)
 - Changes in psychological functioning (MAP)
 - Criminality (MAP)
 - Quality of life (SF-12) & capability index

Sample size

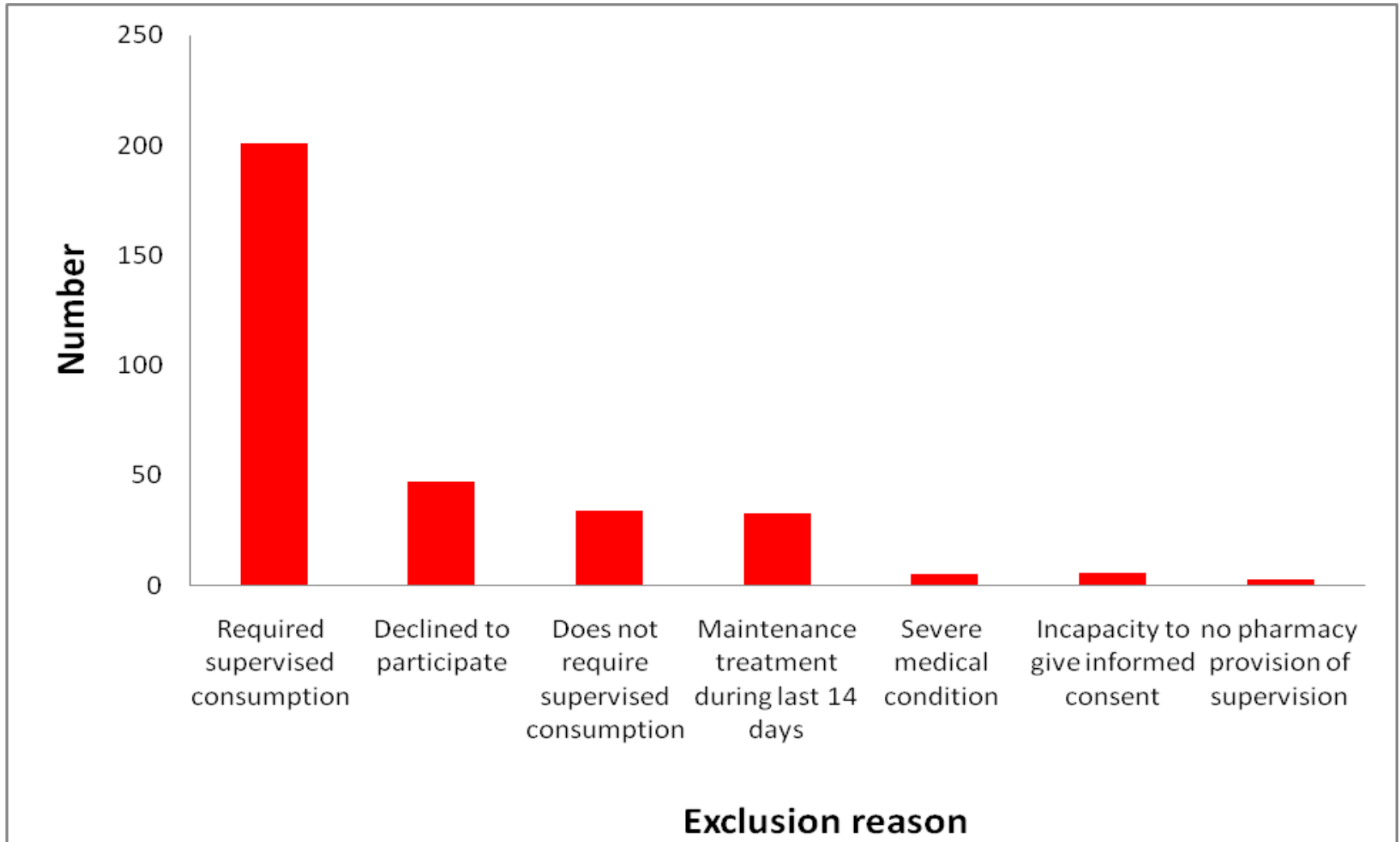
- Norfolk data from observational study suggested 62% retained if supervised vs. 54% if unsupervised (wide confidence limits -13% to +28%)
- We considered 20% difference important
- Sample size of 256 would give 90% power to detect such a difference at 5% level if 55% retained at 3 months.

Sites of recruitment





Reasons for exclusion



Baseline table

	Supervised, n=145 (%, or SD)	Unsupervised, n=148 (%, or SD)
Age	33.5 (0.65)	34.9 (0.70)
Male	106 (73.1%)	120 (81.1%)
Methadone treatment	98 (67.6%)	96 (64.9%)
Marital status: -Single	88 (61.1%)	85 (57.8%)
Ethnic group - White	119 (82.6%)	123 (83.7%)
Employed	19 (13.1%)	22 (14.8%)
Age left full-time education	16.1 (1.9)	16.3 (2.4)
Previous no. meth. scripts	1.4 (1.9)	1.3 (1.4)
Partner drug user	39 (26.9%)	26 (17.9%)
Criminal convictions	13.9 (30.2)	14.3 (25.8)
Crack /cocaine use	91 (62.8%)	100 (67.8%)

Questionnaire follow-up

Group	Retained	Retained followed up	Withdrawn	Withdrawn followed up	Overall Response
Supervised	100	82 (82%)	45	24 (53%)	106 (73%)
Un-supervised	109	87 (80%)	39	17 (44%)	104 (70%)
Total		169 (81%)		41 (49%)	210 (72%)

Retention

- **3 months**

- Supervised: 100 (69.0%)

- Unsupervised: 109 (73.7%)

Odds ratio = 0.75 (95% CI = 0.44-1.28, p = 0.29)

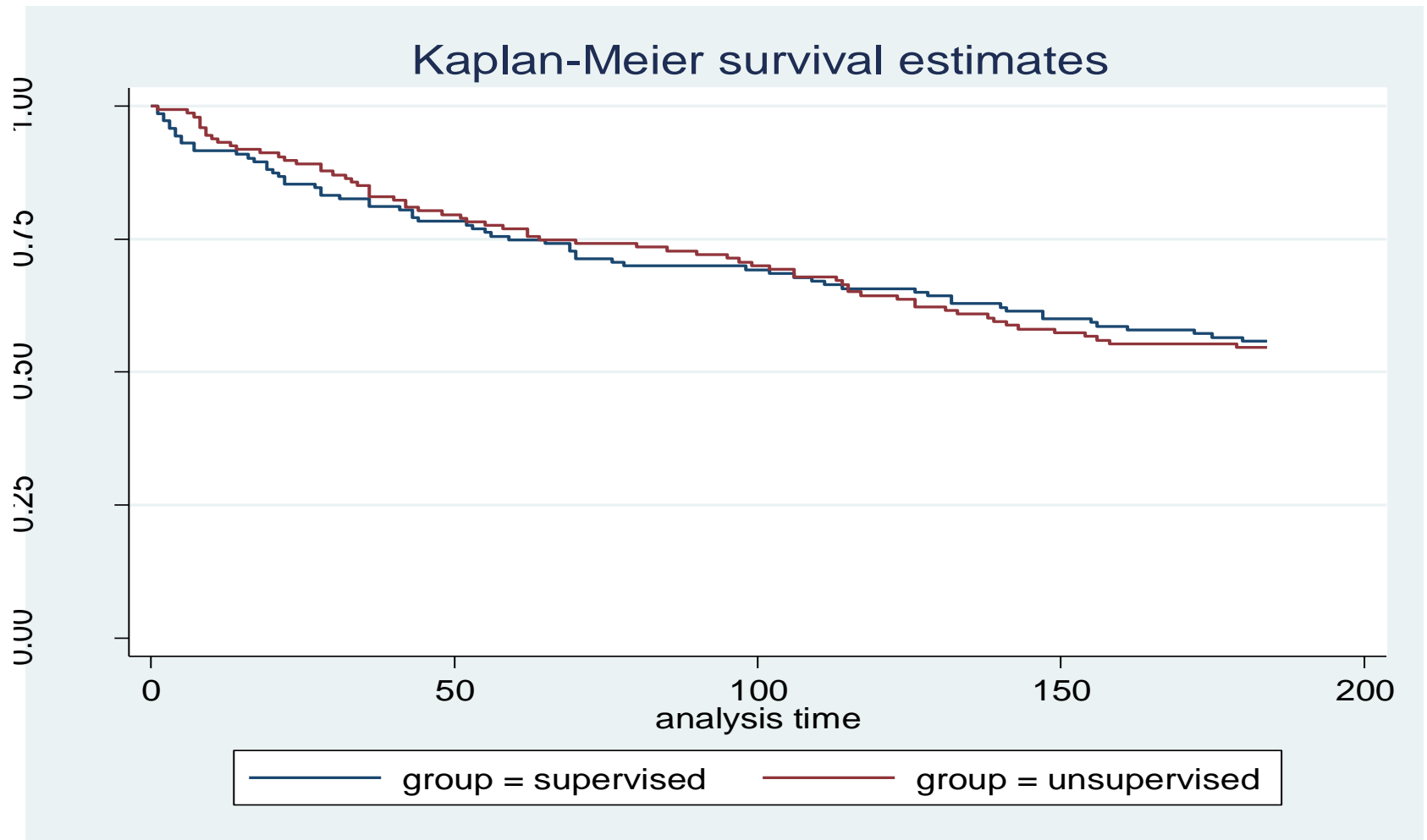
- **6 months**

- Supervised: 79 (54.9%)

- Unsupervised: 80 (54.8%)

Odds ratio = 1.00 (95% CI = 0.63-1.59, p=0.99)

Survival analysis - ITT



% illicit heroin (self-report, MAP)

Outcome	Supervised %	Unsupervised %	OR (95% CI)	Adjusted OR*
Heroin				
Baseline	92%	94%	1.371	1.299
3 Months	67%	60%	(0.73-2.57) p=0.325	(0.68,2.48) p=0.428

*adjusted for baseline value, site and drug prescribed

Total crimes /month (self-report, MAP)

No. Crimes	Supervised Mean / month	Unsupervised Mean / month	Mann-Whitney test
Baseline	16.7	14.9	
3 Months	5.5	0.2	
Change*	-7.6	-15.4	p = 0.016

(*3 Months – baseline)

Physical health (self-report, SF-12)

[higher score = worse health state]

SF-12	Supervised (sd)	Unsupervised (sd)	Mean Difference (95% CI)	*Adjusted mean difference
Baseline	48.0 (10.6)	45.6 (10.0)		
3 Months	49.1 (11.5)	47.6 (9.6)	1.494 (-1.78 to 4.88) p=0.369	-0.275 (-3.25 to 2.70) p=0.855

*Adjusted for site, drug and baseline value

What did the groups get?

- Supervised group:
 - Mean days supervised = 60
 - Median days = 77
- Unsupervised group:
 - Mean days supervised = 34
 - Median days = 29

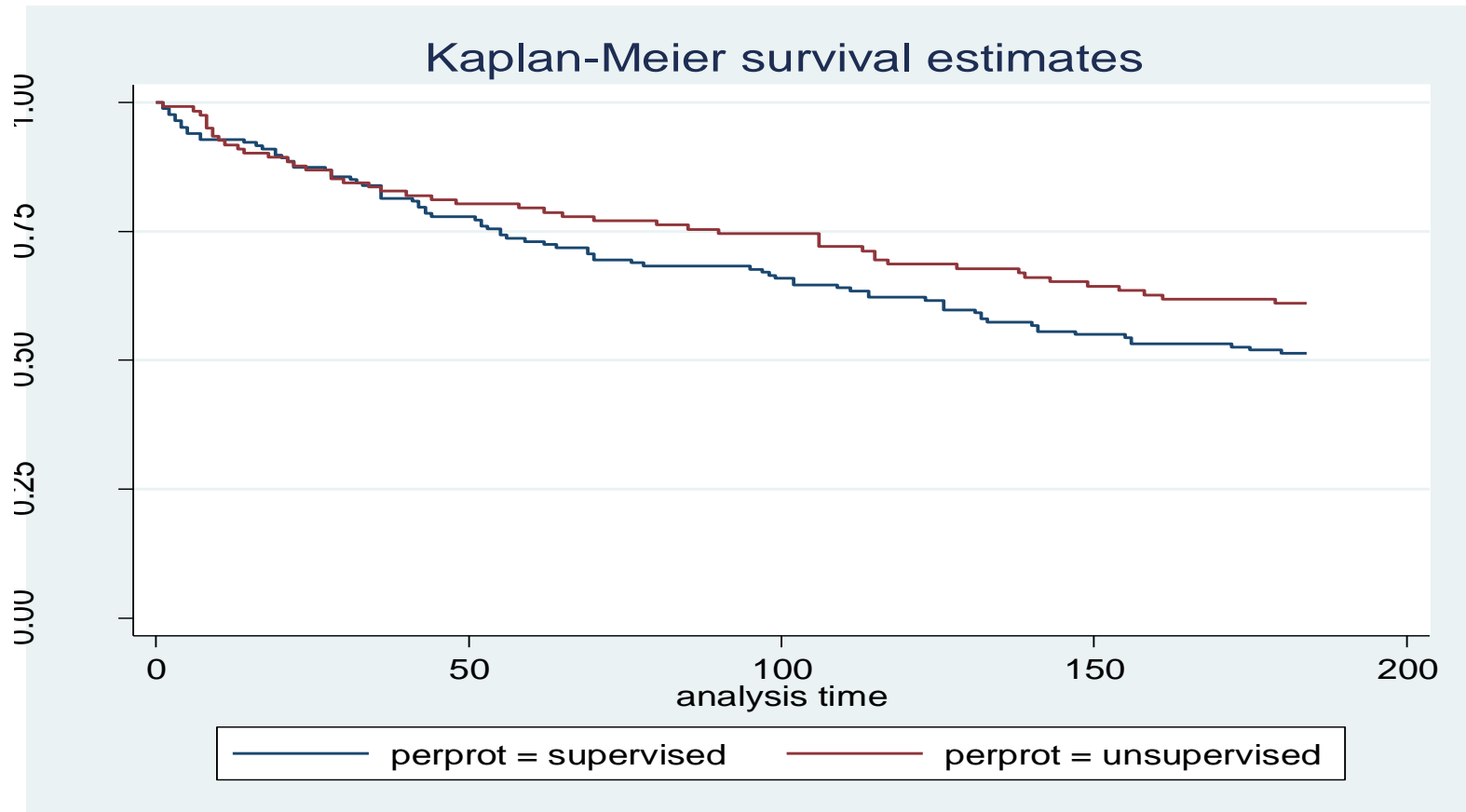
Change in groups

ITT Per protocol	Supervised	Unsupervised
Actual supervision	127 (88%)	42 (28%)
Actual unsupervised	18 (12%)	106 (72%)

Reason for not following randomisation

Reason	Randomized group		Grand Total
	Supervised	Not supervised	
Clinical decision	11	15	26
Key worker error	5	18	23
Client dropping out of treatment	0	3	3
?Error/?Clinical reasons	0	3	3
Swap to randomized treatment too late	0	3	3
Client moved & pharmacy didn't supervise	2	0	2
Grand Total	18	42	60

Survival analysis – per protocol



Hazard ratio = 1.42 (1.00-1.98, **p=0.049**)

Per protocol % illicit heroin (self-report, MAP)

Outcome	Supervised %	Unsupervised %	Odds Ratio (95% CI)	Adjusted OR*
Heroin				
Base	95%	91%	2.549	2.07
3 Months	73%	52%	(1.34,4.85) p=0.004	(1.05,4.06) p=0.035

*adjusted for baseline value, site and drug prescribed

Per protocol

Total crimes /month (self-report, MAP)

No. Crimes	Supervised Mean / month	Unsupervised Mean / month	Mann-Whitney test
Base	18.0	12.8	.
3 Months	5.0	0.2	
*Change	-9.4	-14.1	p = 0.015

(*3 Months – baseline)

Per Protocol

Physical health (self-report, SF-12)

[higher score = worse health state]

SF-12	Supervised (sd)	Unsupervised (sd)	Mean Difference (95% CI)	*Adjusted mean difference
Baseline	46.9(10.7)	46.7(10.0)		
3 Months	47.2(12.1)	49.5(8.5)	-2.24 (-5.5 to 1.0) p=0.178	-3.00 (-6.4 to 0.0) p =0.053

*Adjusted for site, drug and baseline value

Limitations of quantitative study

- Secondary outcomes were self-report (response rate = approx 81%)
- Delivery of intervention was challenging
- Per protocol analysis should be treated with some caution

Summary - quantitative study

- First UK trial of supervised vs. unsupervised consumption
- About one third of clients deemed to require supervision – excluded from study
- No difference in retention by ITT
- Suggestion of some improved secondary outcomes if unsupervised
- Per protocol analysis suggests improved retention if not supervised

Qualitative study of clients and clinicians' views

Aim: “to illuminate the quantitative findings by providing a broader descriptive and explanatory framework for the quantitative outcome measures”

- ‘Narrative’ style semi-structured interviews at 3-6 months after entry into study
- Clients & clinicians’ views of **supervised consumption**
- Grounded theory analysis:
 - line by line coding for meaning, aided by NVivo8
 - Triangulation & verification of coding

Key findings – client views

Positive	Negative
acceptance of supervision	lack of trust
acknowledgement of usefulness of supervision	embarrassment at being watched
approval seeking through supervision	difficulty of daily pick up
helpful to get out - new routine	lack of privacy
positive relationship with pharmacy staff	supervision / employment juxtaposition
reduction in alcohol use	difficulty with locums
enjoys regularity of pick up	
strategies to control timing of dose	
strategies to reduce embarrassment	

Supervised compared to unsupervised client views

- *Caution! Most clients discussed both supervision and non-supervision, as all were supervised for a period of time*
- ***Unsupervised –***
- *Preferable to supervision*
- *Freedom to self manage*
- *Unsupervised self-dosage (timing, dose level, split dose)*
- *Flexibility (dose and pick up times)*
- *Sense of trust and responsibility*
- *Diversion of methadone*
- *Appreciation and/or acceptance of supervision in the short term, but importance of moving on to being unsupervised*

Key findings – professional views of supervision

- **Advantages:**

minimises additional illicit use; assists with reducing alcohol use; best for new clients; compulsory supervision eases difficulties; **confidence in consumption; confidence in prescription level;** prevents diversion; **supervision helpful as sets boundaries**

- **Disadvantages:**

intricacies of individuals; experienced worker should be able to decide; inexperienced worker = possible misuse of supervision; **tendency to stay supervised for longer; lack of initial client trust;** compromise to achieve change of life

- **Need for continual review:**

move to unsupervised as positive chance to build trust; need for flexibility in treatment; need to build trust

Key findings – pharmacists views of supervision

- client-pharmacist relationship key
- pharmacist as front line informant
- pharmacist ‘here to help’
- additional advice role
- client preference for less formal advice service
- partnership between pharmacist and key worker
 - establishing ground rules
 - strategies to ensure compliance
 - strategies to minimise client embarrassment
 - client difficulties with locums

Conclusions – qualitative study

- Supervision embedded within treatment services – widely ‘accepted’ by clients and professionals
- Consensus view that supervision necessary at start of treatment, but need for regular review and to move on from supervision. Need to be responsive to individual need
- Client perspective sees relationship with pharmacist / key worker as critical. Regularity of contact & quality of relationship more important than supervision per se
- Strong expressed need for wider support beyond prescription

Cost –effectiveness study

ITT:

- overall costs*: SC **£153,144** & unSC **£164,670**
- excl cost of court cases: SC **£122,814** & unSC **£124,511**

PP:

- overall costs*: SC **£179,779** & unSC **£138,036**
- excl cost of court cases: SC **£145,690** & unSC **£101,636**

* NHS, participant costs and costs of court appearances

Conclusion - Cost-effectiveness

- ITT: despite increased costs of providing pharmacy supervision, cost was swamped by other costs such as clinic provision.
- PP: gain in retention + reduced costs (significant);
not supervising would appear to “dominate” supervising

Is it an expensive barrier?

- Not a barrier
- Not expensive

But

- Not effective
- Not cost-effective

Policy drive to supervise as standard **may** be misplaced
More flexible, theory based, client centred approaches
might be more beneficial

Research team

- **Dr Richard Holland:** Reader in Public Health Medicine and MB BS Course Director, School of Medicine, Health Policy and Practice, University of East Anglia
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- **Dr Louise Swift:** Medical Statistician, School Of Medicine Health Policy & Practice, University of East Anglia
- **Prof. Tim Gale:** Senior Manager, Research & Development, Hertfordshire Partnership NHS Trust. Visiting Professor, Department of Psychology University of Hertfordshire
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