



Pacini Editore & AU CNS

Regular article

Heroin Addict Relat Clin Probl 2012; 14(4): 23-38

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Quality of care provided to patients receiving Opioid Maintenance Treatment in Europe: Results from the EQUATOR analysis

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Summary

Patients receiving treatment for opioid dependence are prone to relapse into illicit drug use, risking significant harms to themselves and to society. The European Quality Audit of Opioid Treatment (EQUATOR) analysis assessed aspects of opioid maintenance treatment (OMT) delivery and the quality of care offered to patients undergoing OMT across 10 European countries. Findings suggest quality of care may be improved by: ensuring patients and physicians discuss the range of available treatment options, achieving the appropriate balance between control and patient flexibility, reducing the likelihood of misuse and diversion, and providing appropriate psychosocial care in conjunction with pharmacotherapy.

Key Words: diversion, misuse, psychosocial counselling, supervision, time on treatment.

1. Introduction

Opioid dependence can be a chronic, relapsing disorder which is associated with long-term changes to brain structure and function. Consequently, individuals with opioid dependence experience cravings which can occur long after their last use of opioids (4). One of the most effective treatment strategies involves opioid maintenance treatment (OMT) delivered in conjunction with psychosocial support (21). These interventions are aimed at reducing patients' use of opioids, with a longer-term goal of abstinence and recovery, although, in many cases patients cycle between treatment compliance and relapse. Heroin users can achieve recovery, however, and there is a growing evidence base and policy drive which recog-

nises this (10). It is critical to understand why treatment 'cycling' occurs if we are to achieve optimal treatment and patient recovery outcomes.

OMT has been shown to reduce opioid use and retain patients in treatment (14) until they can attempt abstinence; enforced withdrawal of OMT may lead to relapse and increase in drug-related harm including overdose (1,5). However, as demonstrated elsewhere in the European Quality Audit of Opioid Treatment (EQUATOR) analysis (see article by Goulão & Stöver in this issue), patients receiving OMT across Europe have similar demographics to opioid users who are out of treatment, and both groups show histories of repeated treatment and relapse. This cycling between treatment and relapse may be a consequence of the chronic, relapsing nature of opioid dependence

and recovery. A similar ‘revolving door’ phenomenon has been documented for other long-term health conditions such as diabetes and chronic mental-health disorders (9,20). However, it is also possible that aspects of OMT delivery may contribute to variations in the quality of care, and, ultimately, to how likely it is that patients will repeatedly cycle through treatment (14,15). The EQUATOR analysis reveals indirect support for this hypothesis by demonstrating that the number of previous OMT episodes patients have undertaken shows significant variation between countries (see article by Fischer, Nava & Stöver in this issue).

Other articles in this series document important between-country differences relating to treatment, such as whether OMT occurs predominantly in the setting of specialist clinics or in doctors’ surgeries. In addition to the care setting, there are many other important OMT delivery variables that may impact on treatment quality and retention, and several of these have been assessed in the EQUATOR analysis. These include: the role that patients and physicians play in selecting the OMT medication; whether patients are sufficiently aware of and informed about the range of available OMT options; patient satisfaction with their OMT; ease of access to care; and utilisation of psychosocial support in addition to pharmacotherapy.

1.1. Informed choice and access to different OMT options

An important consideration concerns the extent to which patients have information and access to a range of opioid medication and psychotherapeutic interventions, and whether these are used in an evidence-based fashion. The pharmacotherapy options, methadone, mono-buprenorphine, buprenorphine–naloxone and heroin (diacetylmorphine), have all been shown to be effective but have distinct pharmacological profiles with respect to safety and abuse liability (14,15,18,19).

National and international treatment guidance and regulations reinforce the importance of considering all available evidence-based options, taking into account the clinical needs of each patient (3,11,16,21). However, there are known to be major variations in treatment delivery across different countries, including the use of different OMT medications and the extent to which psychosocial and other support is an integral component of treatment. Rather than being due to differences in patient populations, these variations appear to reflect non-clinical factors including histor-

ical practices, national guidance, physician education and cost. Although system-level statistics regarding the relative use of different options are available for many European countries, there remains a need for individual-level data regarding medication awareness levels, preferences and satisfaction among patients and physicians.

1.2. Balancing access to OMT medication with control and supervision

It is important to consider the conditions under which access to available OMT medications is granted as this can impact on patient entry, retention and outcomes during treatment. In particular, a careful balance must be struck between the need for appropriate monitoring and controls, for example, to limit safety risks associated with initiation onto opioid medication (6) and harms related to misuse (injecting or snorting) or diversion (selling, swapping or giving away) of prescribed OMT medications, and the potential negative impact that strategies such as supervised dosing can have on patients. The way in which supervised dosing is managed and implemented, such as requirements for daily attendance at certain times, may present barriers to patients accessing or remaining in treatment, and may also interfere with efforts to reintegrate into society and obtain employment. The EQUATOR analysis has enabled a snapshot to be taken of current levels of daily supervised dosing, in addition to historic rates of misuse and diversion among OMT patients, as a means of informing efforts to achieve this optimal balance.

1.3. The importance of psychosocial support

Evidence demonstrates that better outcomes are generally achieved when pharmacotherapy is combined with psychosocial support; indeed, UK guidelines and German regulations state that treatment for drug misuse should always involve a psychosocial component (3,6). Elsewhere, while best-practice guidelines propose that psychosocial support should not be mandatory, they also state that it should be available to all opioid-dependent patients in association with pharmacological treatments (21). Indeed, given the complex nature of opioid dependence, widespread provision of medications without psychosocial assistance may constitute a lost opportunity to optimise care, maximise recovery and respond to the total needs of the patient (21). However, there are limited data at present to determine the extent to which pa-

tients are willing and able to access psychosocial support throughout Europe.

1.4. EQUATOR

Differences in the above treatment-delivery variables might be expected to have an impact on the acceptability and effectiveness of OMT and thus contribute to rates of cycling between treatment and relapse. If treatment systems fail to attract and retain patients until they gain sustained benefit, they are likely to fail in achieving the desired reductions in drug use, associated crime, injecting and other risk behaviour, and improvements in health and well-being may be limited. The current article presents results from the EQUATOR analysis pertaining to the quality of care and OMT delivery across Europe and addresses the following key questions: ‘are patients making informed treatment choices based on the full range of opioid pharmacotherapy options available?’; ‘to what extent are opioid pharmacotherapies delivered under supervised versus unsupervised conditions?’; ‘how frequently do patients report having diverted or misused their OMT medication?’; ‘how satisfied are patients with their OMT medications?’; and ‘to what extent are opioid pharmacotherapies being delivered in conjunction with psychosocial support?’

2. Methods

The methodology for the EQUATOR analysis has been described in detail previously (7). Briefly, questionnaires were compiled comprising a core set of questions specific for three target groups: physicians involved in the treatment of opioid-dependent patients (60 questions per survey), opioid-dependent patients currently in OMT (50 questions per survey), and opioid users not currently in OMT (50 questions per survey).

Outcomes on quality of care in OMT across ten countries in Europe were assessed by collating responses to questions regarding patient requests for, awareness of, use of, and satisfaction with, different OMT medications; levels of dosing supervision; OMT diversion and misuse; and utilisation of psychosocial support. The specific questions around different OMT medications that were posed to patients were as follows:

- ‘Did you explicitly ask your substituting doctor for a certain drug?’
- ‘Did the doctor give you what you asked for?’

- ‘In your opinion, how well informed were you prior to beginning the treatment?’
- ‘Which of the following substitution medications had you heard of prior to beginning your therapy?’
- ‘Which substitution medication are you using for your current treatment?’
- ‘All in all, how satisfied are you with this substitution medication?’

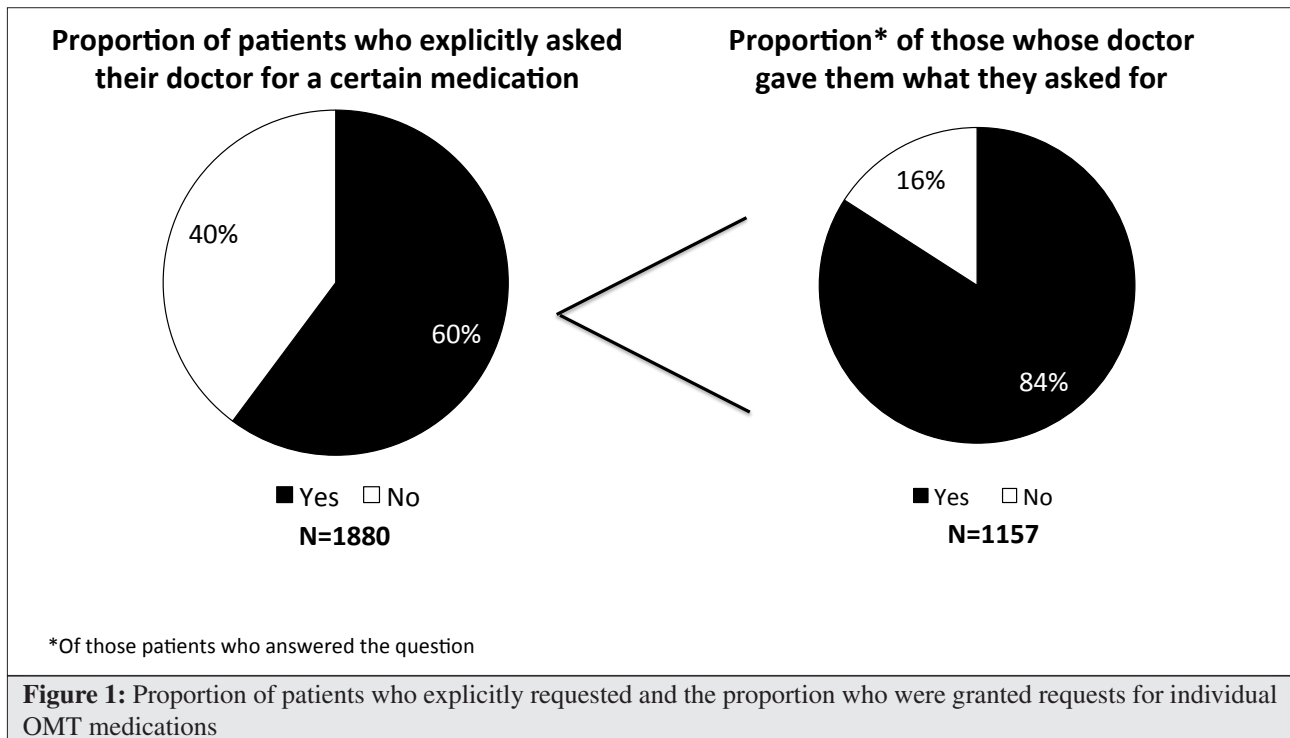
Physicians were asked:

- ‘How often do your patients expressly request a specific substitution therapy preparation?’
- ‘And in which percentage of these cases, when a patient requests a specific preparation, do you follow the request?’

Levels of dosing supervision were assessed by asking patients: ‘Which of the following best describes where you take your substitution drug doses? 1) Every dose is under a doctor’s supervision; 2) Every dose is under a pharmacist’s supervision; 3) I am allowed take-home doses at weekends and/or holidays; or 4) I am allowed take-home doses not only at weekends and/or holidays, but more often’. OMT diversion was assessed by asking patients: ‘Have you ever sold or given your substitution medication to someone else?’ and misuse was assessed by asking patients: ‘Have you ever injected or snorted your substitution drug?’. Patients were asked: ‘Are you currently receiving psychosocial counselling of any kind?’, and a definition of psychosocial counselling was provided relevant to each country in order to assess utilisation of psychosocial support.

Data were collected in each country in accordance with the European Pharmaceutical Market Research Association (EphMRA) code of conduct and the Declaration of Helsinki. Data are presented as frequencies or means for the purposes of comparisons between countries and between OMT medications.

Statistical comparisons were performed on categorical data by Pearson’s chi-square and using standardised residuals to identify individual instances of significant variation of proportion. For linear data, analysis of variance (ANOVA) was used for comparisons and post-hoc tests (Tukey’s) were performed to identify any significant country interactions. Significance was ascribed for $p \leq 0.05$.



3. Results

3.1. Patient requests for, and awareness of, specific opioid pharmacotherapies

Patients frequently reported requesting a specific OMT medication and often being granted this request by their physician. Sixty per cent of patients in the European sample (n=1880) reported explicitly asking their physician for a particular OMT medication (Figure 1). Of those patients who provided additional information in a follow-up question (n=1157), 84% (n=972) reported receiving the medication they had asked for (Figure 1).

The majority of physicians agreed that their patients always (6%) or often (51%) expressly requested a specific OMT preparation (n=698), and physicians reported following through with specific requests on 55% of occasions. Thus, both patient and physician data indicate that patients are playing a significant role in medication selection.

Before starting OMT, patients generally considered themselves to be well informed of OMT medication options, with 73% of patients believing they were well (49%) or very well (24%) informed (n=1657). Only 20% and 7% considered themselves poorly informed or very poorly informed of OMT medications, respectively.

In contrast, data on actual knowledge of OMT medication options indicates that most patients were

not aware of all OMT options available to them. Levels of knowledge regarding OMT medication options varied between countries, with the level of knowledge tending to follow the pattern of prescribing within each country. For example, levels of awareness of methadone liquid were high (ranging from 82–98% of patients) across all countries from which data was collected (Table 1), with the exception of France where only 62% of patients were aware of this formulation. Whereas methadone is the most commonly used OMT medication in most countries, mono-buprenorphine is the most commonly used OMT medication in France. France was the only country in which patients had a higher level of awareness of mono-buprenorphine than methadone (82% of patients had heard of mono-buprenorphine but only 62% had heard of methadone). Levels of awareness of buprenorphine–naloxone were generally low in most countries (Table 1).

Levels of awareness of ‘other’ medication, which included slow-release oral morphine (SROM), were high in Austria. SROM is the most commonly prescribed OMT option in Austria and the country-level data indicate that 75% of patients surveyed were aware of one formulation of SROM (Substitol® and 47% were aware of another formulation (Compensan®).

Table 1: Patient awareness of OMT options from country samples

Proportion of patients aware of the following options:	Austria N=225	Denmark N=103	France N=130	Germany N=200	Greece N=601	Italy N=378	Norway N=98	Portugal N=160	Sweden N=128	UK N=248
Methadone	81.8%	96.1%	61.5%	97.5%	97.3%	96.6%	88.8%	90.6%	87.5%	94.0%
(Mono)-buprenorphine	68.4%	51.5%	82.3%	61.5%	83.9%	67.2%	86.7%	80.6%	80.5%	73.0%
Buprenorphine-naloxone	36.0%	35.9%	4.6%	26.0%	53.6%	38.1%	64.3%	50.6%	52.3%	46.0%
Diamorphine	1.3%	48.5%	2.3%	22.5%	42.4%	0.0%	0.0%	0.0%	0.0%	37.9%
Codeine	1.8%	0.0%	30.0%	76.5%	0.2%	14.8%	0.0%	0.0%	0.0%	60.1%
Naltrexone	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	53.1%	0.0%	23.8%
Other	82.2%	6.8%	3.8%	2.5%	0.2%	2.9%	11.2%	0.6%	14.1%	36.3%
I hadn't heard of any such substance	1.8%	1.0%	3.8%	0.0%	2.0%	2.1%	2.0%	3.8%	1.6%	4.0%

Table 2: Proportion of patients receiving different OMT options by country

Proportion of patients receiving the following options:	Europe	Austria N=228	Denmark N=103	France N=130	Germany N=200	Greece N=601	Italy N=378	Norway N=98	Portugal N=160	Sweden N=152	UK N=248
Methadone	59.7%	19.3%	71.8%	32.3%	72.0%	70.4%	66.1%	38.8%	59.4%	48.7%	75.4%
Mono-buprenorphine	21.0%	21.5%	6.8%	69.2%	15.0%	20.8%	10.3%	32.7%	21.3%	25.0%	15.3%
Buprenorphine-naloxone	14.6%	13.6%	12.6%	0	13.0%	8.8%	23.3%	29.6%	18.8%	23.0%	12.1%
SROM	4.6	46.1%	0	0	0	0	0	0	0	0	0
Other	3.0	11.0%	15.5%	0	0.5%	0	0.3	0	0.6%	6.6%	6.0%

Some country data add up to >100% as patients may have indicated they were currently receiving more than one OMT medication

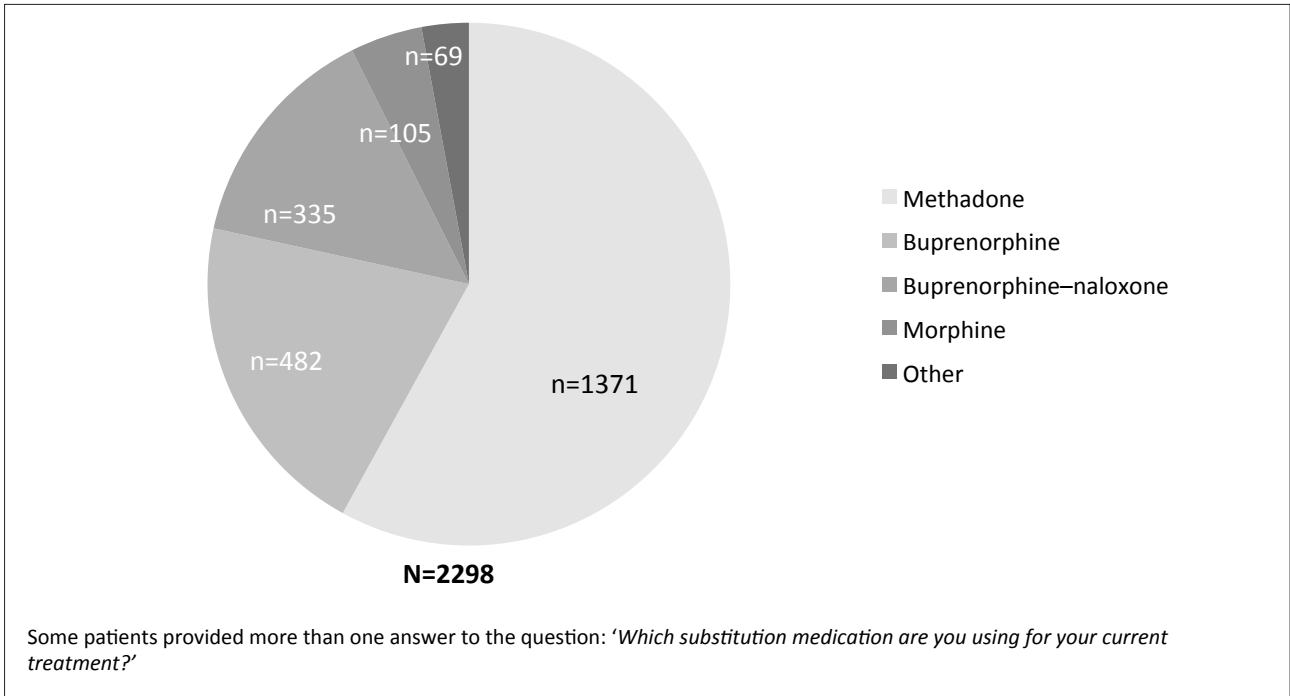


Figure 2A. Number of patients surveyed who received specific OMT medications

3.2. Use of specific opioid pharmacotherapies

The majority of patients included in the analysis (60%) were receiving methadone, whereas mono-buprenorphine was the current OMT medication for 21% of patients and buprenorphine-naloxone for 15% of patients (Figure 2A). It is important to note

that recruitment strategies required a minimum of 30 patients per major OMT medication to allow for meaningful comparisons, which may have resulted in oversampling for some options. A minority of patients (8%) reported receiving other medications, including SROM, diamorphine, codeine or other non-opioid medications.

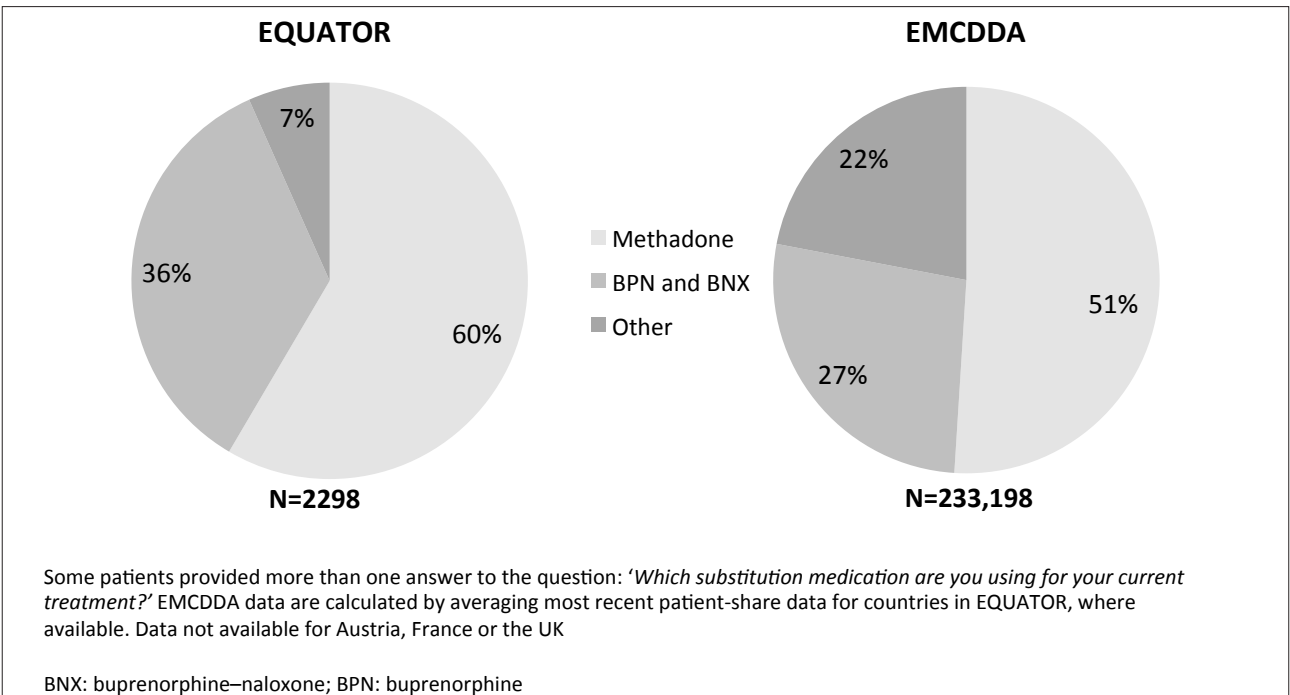


Figure 2B. EQUATOR data and EMCDDA data showing proportion of patients receiving specific OMT medications.

Table 3: Demographic and treatment profile of OMT patients according to OMT medications for the European sample¹

	Metadone N=1371	Mono- buprenorphine N=482	Buprenorphine- naloxone N=335	SROM N=90	Other N=69	Difference between 5 treatment options
Demographics						
Mean age (SD), years	37.7 (8.3)	35.7 (8.4)	33.9 (8.6)	33.3 (9.4)	42.9 (12.3)	ANOVA: F=18.54, df=4, 1977, p<0.001
Male sex, %	75.2%	74.7%	74.9%	72.5%	66.7%	X ² =4.00, df=4, n=2208; p=0.405
Education, %						X ² =90.03, df=4, n=2082; p<0.001
No high school	50.8%	35.7%	49.8%	3.9%	37.1%	
High school or equivalent	30.5%	41.4%	30.2%	35.3%	25.8%	
Vocational	6.5%	13.1%	8.1%	53.9%	24.2%	
Some college	7.9%	5.7%	7.8%	0.0%	6.5%	
College degree	4.0%	3.5%	3.7%	6.9%	6.5%	
Grad/Prof degree	0.3%	0.7%	0.3%	0.0%	0.0%	
Marital status						X ² =7.87, df=4, n=2202; p=0.097
Single	55.4%	50.8%	55.1%	61.8%	68.4%	
Cohabiting/married	28.2%	36.8%	35.6%	25.5%	5.3%	
Divorced/widowed	16.4%	12.4%	9.3%	12.7%	26.3%	
Employment						X ² =31.09, df=4, n=2189; p<0.001
Full time	14.6%	22.2%	20.9%	10.5%	7.7%	
Part time	11.0%	12.7%	14.9%	11.4%	4.6%	
Self-employed	0.3%	0.4%	0.3%	0.0%	0.0%	
Student	1.6%	3.0%	5.7%	0.0%	3.1%	
Unemployed	72.5%	61.8%	58.2%	78.1%	84.6%	
Number of prior OMT episodes – Mean (SD)	1.4 (2.4)	1.0 (2.1)	1.2 (2.0)	1.3 (1.9)	2.7 (3.0)	ANOVA F=4.54, df=4, n=2060, p=0.001
Supervision levels						X ² =81.67, df=4, n=2201; p<0.001
Every dose supervised	48.2	42.4	22.8	28.6	46.6	
Take-aways on weekends/holidays only	20.2	18.3	12.6	41.9	23.1	
Unlimited take-aways	31.6	39.3	64.6	29.5	32.3	
Receiving psychosocial support	67.3	60.4	59.8	33.3	46.4	X ² =54.40, df=4, n=2075; p<0.001

¹For each variable, the group's Ns vary slightly. The maximal N is shown in the header for each treatment group. SROM: slow-release oral morphine.

Table 4: Diversion, misuse and levels of supervision reported by patients from each country and the European sample

	Europe N=2298	Austria N=228	Denmark N=96	France N=128	Germany N=200	Greece N=601	Italy N=375	Norway N=98	Portugal N=160	Sweden N=144	UK N=248	Difference between countries
Any diversion*	24.0%	28.1%	37.5%	39.1%	23.0%	16.0%	26.4%	25.8%	15.6%	24.3%	30.2%	$\chi^2=69.81$, df=9, n=2298, p<0.001
Selling	11.1%	11.0%	32.3%	6.3%	8.0%	7.2%	11.5%	10.3%	6.3%	12.5%	21.0%	$\chi^2=80.55$, df=9, n=2298, p<0.001
Swapping ‡	1.4%	0	0	0	0	0	0	0	0	0	12.9%	n/a
Giving away	18.7%	21.9%	32.3%	32.8%	19.5%	10.5%	21.6%	21.6%	10.0%	23.6%	19.4%	$\chi^2=65.18$, df=9, n=2298, p<0.001
Any misuse†	20.8%	48.7%	50.5%	15.3%	26.0%	4.5%	13.3%	37.8%	7.5%	38.8%	22.9%	$\chi^2=326.25$, df=9, p<0.001
Injection	14.6%	37.7%	38.8%	7.7%	18.5%	1.5%	11.1%	26.5%	6.3%	25.7%	14.1%	$\chi^2=276.23$, df=9, p<0.001
Snorting	9.8%	18.0%	14.6%	6.9%	11.5%	3.2%	3.2%	17.3%	1.9%	26.3%	18.1%	$\chi^2=155.38$, df=9, n=2298, p<0.001
Any supervision	62.0	57.7%	52.0%	41.0%	57.8%	89.9%	44.4%	67.0%	29.5%	44.9%	71.1%	$\chi^2=474.44$, df=9, n=2270, p<0.001
Daily supervised	41.9%	20.4%	15.0%	26.0%	39.7%	77.9%	27.6%	46.4%	20.7%	29.7%	40.2%	$\chi^2=474.44$, df=9, n=2270, p<0.001
Take-aways on weekends/ holidays only	19.4%	37.3%	37.0%	15.0%	18.0%	12.0%	16.8%	20.6%	8.8%	17.2%	30.9%	$\chi^2=122.60$, df=9, n=2270, p<0.001
Unlimited take-aways	37.5%	42.2%	48.0%	59.1%	42.2%	10.1%	55.7%	33.0%	70.6%	53.1%	28.9%	$\chi^2=374.44$, df=9, n=2270, p<0.001
No info	1.2%	1.3%	2.9%	2.3%	0.5%	0	2.1%	1.0%	0	4.6%	0.8%	
Mean length of time on current OMT, years	3.7	5.2	5.9	n/a	4.6	2.2	4.4	2.9	4.7	4.6	2.7	ANOVA: F=29.07, df=8, n=2048, p<0.001

*Selling and/or swapping and/or giving away; †Injecting and/or snorting; ‡only provided as an option in the UK questionnaire
n/a: not available

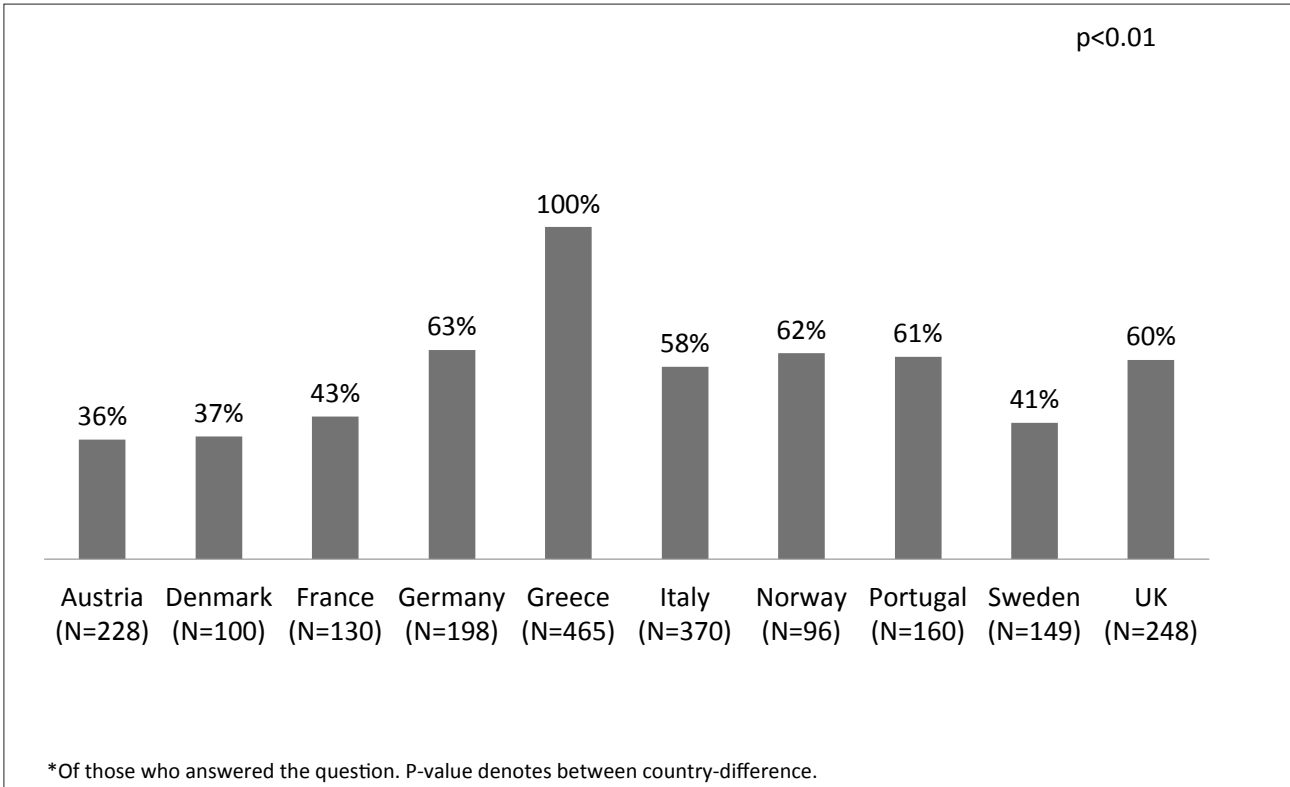


Figure 3: Proportion of patients* reporting they were currently receiving psychosocial counselling

Compared with data available from the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), there was greater relative use of methadone or buprenorphine (mono- or combination product) and less relative use of other options in the EQUATOR analysis (Figure 2B), although it should

be noted that EMCDDA data were unavailable for France (a country with a large population of clients and predominant usage of mono-buprenorphine) and Austria (a country with high usage of SRM).

The proportion of patients receiving specific OMT options varied substantially between countries

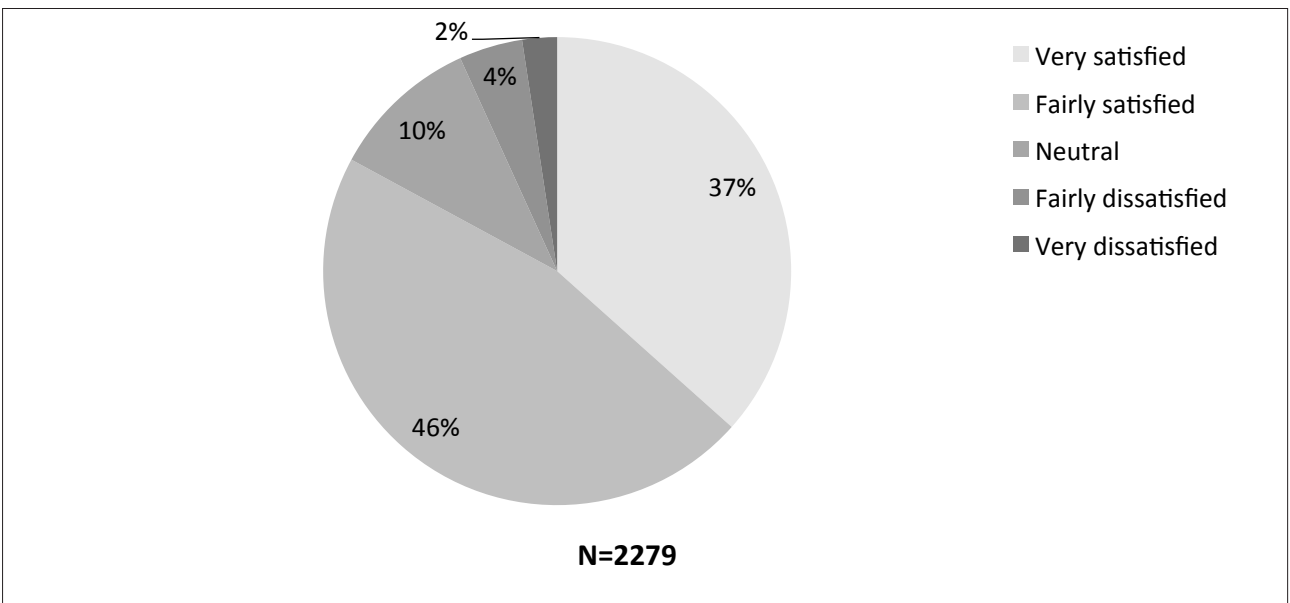


Figure 4: Satisfaction with current OMT among patients in the European sample

(Table 2). The majority of patients in Denmark, Germany, Greece, Portugal and the UK were receiving methadone, whereas almost half of patients in Austria were receiving SROM and almost 70% of patients in France were receiving mono-buprenorphine. In Sweden, nearly half of patients were receiving methadone with the remainder evenly split between mono-buprenorphine and buprenorphine–naloxone, and in Norway there was a roughly even distribution of patients receiving methadone, mono-buprenorphine and buprenorphine–naloxone.

3.3. Profile of patients according to OMT medication received

Patient demographics and treatment variables according to OMT medication received are shown in Table 3. Across all the OMT medications, patients were predominantly male (mean 74.6%); there was no difference in sex ratio between the treatment types ($\chi^2=4.00$, $df=4$, $n=2208$, $p=0.405$). The mean age ($\pm SD$) of patients was 36.6 ± 8.5 years, ranging between 33.3 and 42.9 years across OMT options. Age of patients varied between OMT medications ($F=18.54$, $df=4,1977$, $p<0.001$). The proportion of patients with at least a high school education varied by OMT medications ($\chi^2=28.03$, $df=2$, $n=1976$, $p<0.001$). Marital status of patients did not vary by OMT medications ($\chi^2=7.87$, $df=4$, $n=2202$; $p=0.097$). Employment status varied by OMT medications ($\chi^2=31.09$, $df=4$, $n=2189$, $p<0.001$); a higher proportion of patients receiving mono-buprenorphine and buprenorphine–naloxone reported that they were in full-time or part-time employment or were self-employed compared with patients receiving methadone, SROM or ‘other’.

The number of previous OMT episodes reported by patients before their current OMT episode varied across the OMT options (ANOVA $F=4.54$, $df=4$, $n=2060$, $p=0.001$). Patients in the ‘other’ treatment group reported receiving the most previous OMT episodes of any treatment group, having received, on average, 2.7 previous OMT episodes; this may reflect the fact that patients may be treated with less widely used OMT options if they have undertaken multiple, unsuccessful treatment episodes on the more conventional OMT options.

The level of OMT supervision varied by OMT medication ($\chi^2=81.67$, $df=4$, $n=2201$, $p<0.001$). The level of supervision reported by patients receiving methadone was significantly greater than expected ($p<0.05$). Also, patients in the buprenorphine–

naloxone and SROM groups received significantly less supervision. Patients receiving SROM for their current OMT reported a high level of freedom in their dosing, with the highest proportion (42%) having take-away doses at weekends or during holidays. The majority of buprenorphine–naloxone patients (65%) reported that they had unlimited take-away doses.

3.4. Levels of dosing supervision and medication misuse, diversion and time on current OMT

Table 4 summarises patient-reported past levels of medication misuse and diversion, current levels of dosing supervision and time on OMT. For the European sample as a whole ($N=2298$), 24% of patients reported ever having sold, swapped or given their OMT medication to someone else.

Rates of diversion differed significantly between countries ($\chi^2=69.81$, $df=9$, $p<0.01$). For most countries, 23–30% of patients reported having diverted their medication, with slightly lower levels evident in Portugal and Greece (16%) and higher levels in Denmark (38%) and France (39%).

Levels of OMT supervision varied between countries ($\chi^2=603.99$, $df=18$, $p<0.01$). At a country level, there was a significant association between reported levels of supervision in each country and levels of past medication diversion: lower rates of diversion were associated with higher levels of supervision ($\chi^2=602.18$, $df=18$, $p<0.01$). Patients from Portugal had the equal lowest rate of diversion within those countries assessed but also one of the lowest levels of dose supervision, whereas Greece had the equal lowest rate of diversion and the highest level of supervision. The situation in Greece may relate to the long waiting list for OMT: patients motivated to endure lengthy waits for treatment may also be motivated to comply with therapy to derive benefit and avoid doing anything that would jeopardise continued treatment access.

For the European sample as a whole, 21% of patients included in the analysis reported ever having misused (i.e., injected or snorted) their OMT. Levels of patient-reported misuse varied substantially between countries ($\chi^2=326.25$, $df=9$, $p<0.01$), with less than 10% of patients in Greece (5%) and Portugal (8%) having ever misused their medication compared to approximately half of patients in Austria (49%) and Denmark (51%).

The highest levels of misuse by injection were evident in Austria (38%; possibly reflecting the high

usage of SROM in Austria, and the attractiveness of SROM to those looking to abuse their medication by injection), Denmark (39%), Norway (27%) and Sweden (26%), whilst the lowest levels were reported in Greece (2%) and Portugal (6%) ($\chi^2=276.23$, $df=9$, $p<0.01$).

The mean length of time patients had been on their current OMT was 3.7 years, ranging from 2.2 years in Greece to 5.9 years in Denmark.

3.5. Psychosocial support

The proportion of patients receiving psychosocial support was found to deviate between the treatment options ($\chi^2=54.40$, $df=4$, $n=275$, $p<0.001$). Sixty-seven percent of patients receiving methadone reported receiving psychosocial support, while only 33% and 46% of patients receiving SROM or 'other' treatment, respectively, reported receiving psychosocial support.

Patient-reported rates of participation in psychosocial counselling differed significantly across Europe (Figure 3; $\chi^2=34.54$, $df=4$, $p<0.01$), with the lowest levels evident in Austria (36%), Denmark (37%), Sweden (41%) and France (43%), and the highest level seen in Greece (100%); it should be noted that these percentages are of those patients who answered the question. For the sample as a whole, 61% were participating in psychosocial counselling.

3.6. Patient satisfaction with OMT medications

The majority of patients reported being satisfied with their current OMT medication (Figure 4), with 83% very or fairly satisfied among the 2279 who answered the question.

4. Discussion

4.1. Variation in opioid treatment delivery practices across Europe

EQUATOR has revealed significant disparities in OMT practices between different countries across Europe. These include: differences in the opioid medications used; how frequently these medications are administered under controlled, supervised conditions; and whether the medications are delivered in the context of adjunctive psychosocial support.

The level of variation in OMT practices is notable, given that the underlying condition of opioid dependence being treated is assumed to be similar ir-

respective of geography, and in view of the similar demographic profile of patients receiving OMT in each country (see article by Goulão & Stöver in this issue). Variations in treatment practice may thus reflect a range of non-clinical influences (e.g., history, politics) and also the absence of universally adopted clinical guidelines or evidence-based training across Europe.

4.2. Are patients making informed choices about OMT medication?

Where available, treatment guidelines for OMT commonly emphasise the importance of clinical factors in choosing a treatment strategy, such as the needs of the individual patient and the benefits and risks associated with different treatment options (16,21).

The UK National Institute for Health and Clinical Excellence (NICE) guidelines, for example, recommend that '*the decision about which drug to use should be made on a case-by-case basis, taking into account a number of factors, including the person's history of opioid dependence, their commitment to a particular long-term management strategy, and an estimate of the risks and benefits of each treatment made by the responsible clinician in consultation with the person*' (16). Similarly, the Portuguese National Plan Against Drugs And Addiction recommends that '*a number of diversified treatment and care programmes are made available, covering a wide range of psychosocial and pharmacological approaches, based on ethical standards and scientific evidence*' (11). German regulations state that only registered, 'substitution', drugs should be used and that different profiles of efficacy and side effects should be considered when commencing therapy (3).

Ensuring patients are educated about the range of treatment options available to them in order to make an informed choice is also mandated in the General Medical Council Good Practice in Prescribing Medicines Guidelines (8). However, findings from EQUATOR suggest that many patients remain unaware of the full range of OMT medication options available, despite typically having been in OMT several times. 'Methadone' may, in fact, have become a generic term for medications used to treat opioid dependence due to its long history and universal awareness among patients, and patients may not be as aware of alternative OMT options. Supporting this supposition, most patients (an average of 89% for the countries across Europe) reported being aware of methadone, which has been available for several decades in most coun-

tries, but less than half (an average of 41% for the countries across Europe) were aware of more recently introduced options for OMT such as buprenorphine–naloxone. Patient awareness of OMT is of course likely to be affected by availability of OMT options in their country.

Despite this lack of patient awareness, patients play a significant role in medication selection. Patient-reported data in the current analysis suggest that the selection of medications used in OMT is heavily influenced by patients explicitly requesting a specific medication, and, in the vast majority (84%) of cases, being granted their request. This phenomenon was acknowledged by physicians themselves, albeit to a lesser degree, who reported following patient requests for specific OMT medications 55% of the time. These findings are of concern since patients appear to be influencing the choice of medication whilst having limited knowledge of the available OMT options. Increased dialogue between physicians and patients at the outset of OMT is required to improve patient awareness of treatment options.

4.3. Variation in OMT prescribing practice in the treatment of heroin addiction

EQUATOR has also confirmed that physicians' patterns of prescribing differ markedly between countries, despite the notably similar demographic profile of patients. For example, most countries in Europe predominantly use methadone for OMT, whereas physicians in France appear to prefer mono-buprenorphine and those in Austria prefer SRM. The pattern of medication use observed in this analysis was broadly comparable to that reported by the EMCDDA. Not all OMT options are approved for use in all countries included in EQUATOR, which may explain some of the variation between countries in their use of OMT options. Notwithstanding this fact, it appears that OMT selection is being driven by local and national guidelines (which differ), habit, history and familiarity with specific options. In the case of patients who are returning to treatment following previous failed treatment episodes, the current data do not shed light on whether alternative pharmacological and psychosocial strategies with potentially increased chance of success are actually being offered.

Overall, these findings point to a need for physicians to be empowered to discuss the full range of therapeutic options with their patients in order to ensure that the most appropriate clinical decisions are reached. In this regard, clear national guidelines may

be beneficial or, where these do not exist, European or other international (e.g., World Health Organization) guidelines on OMT should be followed.

4.4. Misuse and diversion occurs by a minority in all countries despite supervision

Another important area of variation in OMT delivery practices concerns the use of supervised dosing. If patients do not take their medication, or do not take it correctly, they are unlikely to derive full therapeutic benefit. Indeed, in other chronic disorders, such as schizophrenia, non-compliance with medication has been associated with the 'revolving door' phenomenon whereby patients enter and exit several rounds of treatment (17).

Supervised dosing is recommended in some OMT guidelines as a means to improve safety (particularly with methadone) and to limit misuse and diversion. However, supervised dosing can also have a negative impact on the acceptability and accessibility of treatment for patients (21), and may potentially interfere with employment opportunities and reintegration.

The findings of the current analysis reveal significant variation between countries (15–78%) in the proportion of patients receiving daily supervised dosing (and in the extent of unsupervised dosing in general), which may have important consequences for patient outcomes. Time on OMT might explain in part these variations, but the correlation between time on OMT and level of supervision was not universal. Since data were not collected on comorbid drug or alcohol dependence and other complexities, it was not possible to determine whether patients with more complex issues or chaotic habits were supervised more closely. Our findings also demonstrate that misuse and diversion of OMT occur in all countries, albeit at different levels, with 16–39% of patients ever having diverted and 5–51% of patients ever having misused their OMT medication. As reported elsewhere in this series, patients reported that they diverted medications primarily to help others to treat themselves, to satisfy their cravings or to achieve a high. For a minority of patients, diversion was used as a source of income.

The highest proportions of patients reporting previous injection misuse were observed in the Austrian and Danish samples. Injection misuse carries particular concerns regarding the potential for injection-related harms (e.g., blood-borne virus transmission). The high rate of injection misuse in Austria may be associated with the widespread use of SRM,

the most frequently used OMT in this country. Morphine has a low oral bioavailability (~30%), which may make it more attractive to individuals seeking to abuse their medication by injection. It is noteworthy that SROM preparations are relegated to second-line treatment in Austria, behind methadone and buprenorphine, but still comprise the majority of prescriptions. Indeed, in many cases patients may be requesting SROM because of the potential for misuse. Although it is important that patients are consulted on their prospective treatment options for opioid dependence, the final choice of treatment should be made by the physician with consideration for the potential of individual patients to misuse their medication. Among alternatives to methadone, buprenorphine has a stronger evidence base than SROM (12,15) and is also available in a formulation that minimises the potential for injection through the addition of naloxone (18).

Whilst supervision undoubtedly can make it more difficult to divert medication, all of the sampled countries showed at least some degree of unsupervised dosing. This analysis failed to show clear evidence that countries investing in supervision derive a substantial benefit with respect to the proportion of patients who engage in diversion of their OMT. In terms of clinical outcomes, a previous randomised controlled trial failed to find significant differences between supervised and unsupervised buprenorphine–naloxone dosing regimens with regard to treatment retention or use of illicit opioids (2).

4.5. Many patients are not accessing psychosocial support

Providing patients with the necessary range and intensity of support also means ensuring that options for psychosocial support and recovery are available. Accumulated evidence suggests that greater benefits are derived from OMT when opioid pharmacotherapy is offered in conjunction with psychosocial support (21). In the present analysis, we found that a significant proportion of patients (37% of those surveyed) were not currently receiving any psychosocial counselling or support of any kind. Although psychosocial support may be beneficial, most treatment experts believe it should be provided on a voluntary basis. Even in Germany, where psychosocial counselling was a mandatory requirement at the time of the survey, a significant proportion of patients was not receiving this support. Based on the current findings, there is insufficient information to determine whether those not receiving psychosocial interventions would

benefit from doing so, or alternatively whether they previously received counselling which was later stopped. The high proportion of patients not receiving psychosocial interventions nonetheless raises the possibility that important opportunities to optimise the benefits of treatment and maximise recovery are being missed.

4.6. Patient dissatisfaction with OMT does not account for cycling phenomenon

Opioid dependence can be a chronic relapsing condition (13). Thus, many patients cycle between treatment and relapse. A key aim in the treatment of opioid dependence is therefore to maximise treatment retention, until a patient is ready to attempt abstinence, thus potentially maximising long-term remission or recovery. Paradoxically, patient satisfaction with their OMT medications was found to be high in this analysis, suggesting that dissatisfaction with treatment is unlikely to be the driver for patients cycling between treatment and relapse. Based on the variable rates of prior OMT per country, a more likely explanation is that entry into, or retention within, treatment is influenced by the different ways in which medications are used and the different treatment structures that apply in each country.

5. Conclusions

Individuals who are trying to overcome or recover from opioid dependence have a difficult journey, often characterised by periods of relapse into illicit drug use, risking significant harms to themselves and to society. A key task for those involved in opioid-dependence treatment, therefore, is to optimise opioid treatment to reduce relapse and promote recovery.

Evidence suggests that the quality of patient care can be improved in a number of ways, such as: by ensuring patients and physicians discuss the range of OMT options; by getting the appropriate balance between control and patient freedom; by reducing the likelihood of misuse and diversion; and by providing appropriate psychosocial interventions in conjunction with pharmacotherapy to maximise recovery outcomes.

This analysis illustrates great variation between European countries in OMT and implies that countries participating in the EQUATOR analysis may not have optimised certain aspects of treatment for opioid dependence. A key step in improving patient outcomes in opioid-dependence treatment is to iden-

tify the impact that differences in treatment approach have on quality of patient care.

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Acknowledgements

The authors would like to thank all the participants (physicians, treatment centres and user support groups); the research collaborators/advisers, Chive Insight and Planning (for market-research consultancy); Synovate and GFK (for market-research data collection); Health Analytics (for data analysis); and Real Science Communications (for editorial support)

Role of the funding source

Financial support for the implementation of the survey and medical writing of this manuscript was provided by Reckitt Benckiser Pharmaceuticals.

Contributors

ADP and JG analysed and interpreted the data, critically reviewed the manuscript and had final responsibility for the decision to submit the paper for publication. HS designed the original Project IMPROVE questionnaires, participated in the survey, analysed and interpreted the data, critically reviewed the manuscript and had final responsi-

bility for the decision to submit the paper for publication.

Conflict of interest

ADP and JG report no conflict of interest; HS has received travel and accommodation support for one meeting from Reckitt Benckiser Pharmaceuticals.

Received September 10, 2012 - Accepted November 20, 2012

