

# Polypharmacy and high-dose antipsychotic regimes in the community<sup>†</sup>

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**Aims and method** To determine the pattern of psychotropic prescribing in a group of people with psychosis who were living in the community under community mental health team (CMHT) care. Case-note entries over the previous 12 months were examined.

**Results** Only a third of individuals were on one psychotropic medication. Atypical antipsychotics were prescribed to 80.6%. Polypharmacy was common. A third of people were taking three or more psychotropic drugs and 13.7% were on high-dose regimes, mostly involving two atypical antipsychotics.

**Clinical implications** The use of atypicals has not eliminated polypharmacy or high-dose antipsychotic regimes. Clinicians need to be aware of this long-standing problem.

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Prescribing more than one antipsychotic medication remains a common practice in psychiatry and has been labelled psychiatry's 'dirty little secret'.<sup>1</sup> It is estimated that up to 40% of people with schizophrenia take two or more antipsychotics.<sup>2</sup> A survey of in-patients in 49 UK mental health services showed that 50% were receiving two antipsychotics.<sup>3</sup> A prevalence of 69% has been observed in Japan.<sup>4</sup> One of the undesirable consequences of the use of combinations of antipsychotic drugs is high-dosage regimes.

Guidelines acknowledge that high doses of antipsychotic medications may have a limited role in the treatment of schizophrenia.<sup>5</sup> However, the practice is strongly discouraged.<sup>6</sup> The extent of the use of high-dose antipsychotic regimes varies depending on the patient group surveyed. An in-patient survey of UK hospitals<sup>3</sup> showed that 10.4% of individuals were prescribed doses above *British National Formulary (BNF)* recommendations (<http://bnf.org/bnf/>). A rate of around 28% was observed in a survey involving four European countries.<sup>7</sup>

## Method

Most previous studies of antipsychotic polypharmacy and high-dosage regimes have been hospital based. Our study concerns individuals living in the community. The study was conducted within five community mental health teams

(CMHTs) in urban and rural parts of North East Wales. On average each CMHT had 274 patients. Data were gathered retrospectively. Case-note entries for the previous 12 months (September 2006 to August 2007) were examined. All prescriptions and dosages of psychotropic medications were recorded.

The aim of the study was to observe the pattern of prescribing of psychotropic drugs and to determine the extent of high dose and polypharmacy regimes for individuals with schizophrenia and related disorders and bipolar disorders who are under the care of a CMHT. Although the use of some medications may have been transitional, we did not attempt to determine the rationale behind such regimes.

High-dose antipsychotic use was determined using chlorpromazine equivalents (CPZeq)<sup>8,9</sup> and aggregated percentages of *BNF* maximum doses. Anyone receiving over 1000 mg of CPZep or above 100% aggregated *BNF* percentage was considered to be on a high dose. The percentage calculation alone was used for risperidone long-acting injection and zotepine.

## Results

The case notes of 211 individuals were examined: 59.7% male and 40.3% female. Mean age was 46.8 years (s.d. = 14.5, range 20–80). Using broadly defined clinical diagnosis, 188 (89.1%) had schizophrenia (including schizoaffective disorder) and 23 (10.9%) had affective psychosis, predominantly bipolar

<sup>†</sup>See editorial, pp. 41–43, and review article, pp. 58–62, this issue.

affective disorder. Individuals had a mean of five consultations with a psychiatrist in a year (s.d. = 3.6, range 1–27). Consultant psychiatrists were directly involved in 82% of all such reviews.

### Polypharmacy

Only 32.7% of individuals were taking one antipsychotic medication alone. The remaining 67.3% were taking a combination of psychotropic drugs, i.e. an antipsychotic alongside an antidepressant, mood stabiliser, benzodiazepine, antimuscarinic or hypnotic. Overall, 37% were taking two psychotropics, 16.1% were on three, 10.4% on four, 3.3% were on five. One patient (0.5%) was taking six psychotropic drugs (Fig. 1). Nearly a third of people were receiving three or more psychotropic medications.

A total of 174 individuals (82.5%) were taking one antipsychotic, whereas 37 (17.5%) were taking two antipsychotics (Fig. 1). No one was receiving more than two antipsychotics. In total, 170 people (80.6%) were receiving 'atypical' antipsychotics, 38 (18%) were on 'typical' antipsychotics and three (1.4%) were taking a mixture of the two types.

### High-dose antipsychotic utilisation

Twenty-nine (13.7%) individuals were on a high-dose antipsychotic regime. Calculation of CPZep identified 13 people and 26 were identified by the aggregated percentage method.

As a group, all 29 individuals on high-dose antipsychotics were on atypicals, with the exception of one person who was taking a typical–atypical combination. Twenty individuals were taking a combination of two atypical antipsychotics, with only nine receiving one atypical medication. Seventeen of the high-dose regimes had been started within the past 12 months, and twelve of these regimes had been in place for over a year.

High-dose antipsychotic regimes were associated with taking two antipsychotics ( $P < 0.0001$ , Fisher's exact test); receiving atypicals ( $P < 0.003$ , Fisher's exact test); with being on antidepressants ( $P < 0.015$ , Fisher's exact test); and with receiving three psychotropics or more ( $P < 0.0001$ , Fisher's exact test) (Table 1). There was no association between high doses and gender ( $P < 0.067$ , Fisher's exact test), although there was a trend towards being male. No association was observed between the use of mood stabilisers, benzodiazepines or antimuscarinics and high-dose antipsychotic prescribing.

### Other psychotropics

Antidepressants were being prescribed to 43.6% of the individuals, with 3.8% receiving two antidepressants. However, 54.5% of people had received antidepressants at some time in the previous 12 months. Mood stabilisers were prescribed to 14.7% of individuals. Lithium carbonate was prescribed to 5.7% of people and sodium valproate was prescribed to 6.1%. Twenty-two (10.4%) of individuals were receiving benzodiazepines, mostly commonly diazepam. Thirty-seven (17.5%) were receiving antimuscarinic drugs

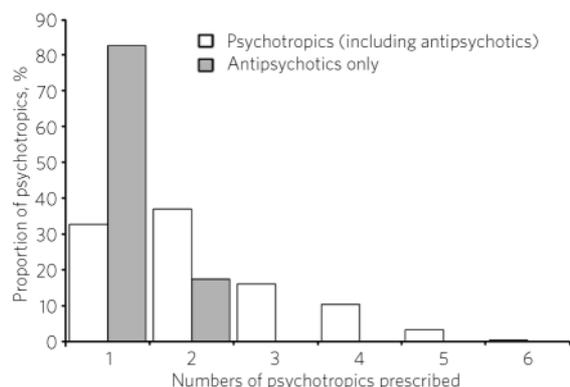


Fig 1 Polypharmacy prescribing pattern (n = 211).

and fifteen (7.1%) were receiving hypnotics, mainly zopiclone.

### Discussion

We observed a high rate of atypical antipsychotic use in CMHT patients. Our study shows that polypharmacy remains common, even among individuals who are settled and are resident in the community. Irrational regimes, such as atypical–typical antipsychotic combinations, were uncommon compared with previous in-patient studies.<sup>7</sup>

Table 1 Factors related with current high-dose antipsychotic prescription (n = 211)

Variable	On high-dose antipsychotic		Fisher's exact test P
	Yes, %	No, %	
Antipsychotic			
One	9 (31)	165 (90.7)	0.0001
Two	20 (69)	17 (9.3)	
Type of antipsychotic			
Atypical	28 (96.6)	142 (78)	0.003
Typical <sup>a</sup>	0 (0)	38 (20.9)	
Antidepressant			
Yes	19 (65.5)	73 (40.1)	0.015
No	10 (34.5)	109 (59.9)	
Gender			
Male	22 (75.9)	104 (57.1)	0.067
Female	7 (24.1)	78 (42.9)	
Anticholinergic			
Yes	8 (27.6)	29 (15.9)	0.185
No	21 (72.4)	153 (84.1)	
Mood stabiliser			
Yes	2 (6.9)	29 (15.9)	0.266
No	27 (93.1)	153 (84.1)	
Benzodiazepine			
Yes	1 (3.4)	21 (11.5)	0.324
No	28 (96.6)	161 (88.5)	
Hypnotic			
Yes	3 (10.3)	12 (6.6)	0.44
No	26 (89.7)	170 (93.4)	

a. Three individuals were taking a mixture of typical–atypical antipsychotics and were not included.

In accordance with National Institute for Health and Clinical Excellence (NICE) guidance,<sup>5</sup> atypical anti-psychotics are recommended to be the first-line drug treatment for psychosis. Recent findings,<sup>10,11</sup> although suggesting that they are no more effective and no better tolerated than typical antipsychotics, were probably too recent to have altered prescribing. The routine use of atypicals does not seem to have eliminated high-dose antipsychotic regimes, prescribed here for 13.7% of individuals. Our findings confirm the association between polypharmacy and high-dose antipsychotic regimes. Two-thirds of high-dose regimes involved two atypicals in contrast to earlier findings where high-dose typical-atypical combinations were more common.<sup>12</sup>

Almost a half of high-dose antipsychotic regimes had been followed for more than a year. Most of these individuals were on more than one antipsychotic and they were more likely to be receiving three or more psychotropics. It is possible that the prescribing clinicians were not aware that they were pursuing a high-dose regime. Persistent high-dose regimes carry risks for patients.<sup>13</sup> Prescribers should be aware of the risk of high dosage when they prescribe drug combinations.

Our study has some limitations. It is based on retrospective examination of case notes. However, the quality of documentation was good. Letters to the general practitioner followed each consultation. Both the CPZep and the *BNF* percentage methods of ascertaining high-dose regimes are imperfect, particularly as they aggregate doses of drugs with different mechanisms of action. However, they are well recognised and accepted methods that have been used elsewhere.<sup>6,12</sup>

Our study shows that people in the community are routinely exposed to polypharmacy and high-dose antipsychotic regimes. This is in contrast with guidelines and advice that have been available for many years suggesting that such regimes are unnecessary and potentially hazardous. Although attempts have been made to understand this phenomenon,<sup>4,14,15</sup> little is understood about psychiatrists' prescribing behaviour and the reasons for it. In the light of the emergence of a new group of non-medical prescribers, there is an urgent need to understand how and why suboptimal prescribing occurs.

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