The impact of Advanced Access on antibiotic prescribing: a controlled before and after study

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Advanced Access practices provide quicker access to appointments and this may lead to patients being seen earlier in the course of acute self-limiting illnesses, and therefore increased antibiotic prescribing. We examined the impact of Advanced Access on antibiotic prescribing. We undertook a controlled before and after study in 24 Advanced Access and 24 control practices, examining monthly antibiotic prescribing data. We found no significant change in prescribing rates between Advanced Access and control practices. There was no evidence that Advanced Access alters antibiotic prescribing behaviour.

Introduction

Advanced Access is an approach to reducing waiting times for care, widely promoted in UK general practice.\textsuperscript{1} Advanced Access practices provide quicker access to appointments,\textsuperscript{1} and more same day only appointments,\textsuperscript{2} which may suit patients with acute rather than chronic illness.\textsuperscript{3} Thus, patients might be seen earlier in the course of acute self-limiting illnesses, and we hypothesized that Advanced Access might lead to an increased number of prescriptions for antibiotics. We took advantage of a wider evaluation of Advanced Access \textsuperscript{1} to examine its impact on antibiotic prescribing.

Methods

The wider evaluation was a comparison of 24 practices that introduced Advanced Access and 24 practices that did not, selected from 12 primary care trusts in England.\textsuperscript{1} Practices in the two groups did not differ by practice size, location, approaches to doctor continuity, contractual status, deprivation, training practice or previous fundholding status.\textsuperscript{1} We undertook a controlled before and after study using monthly antibiotic prescribing analysis and cost data for the period October 2001 to April 2005 for all practices. In order to ensure sufficient prescribing data in the ‘after’ period, we later requested further data up to December 2005 and 18 practices consented to this. The outcome measure was the monthly antibiotic prescribing rate per 1000 population, calculated for each practice by dividing the total number of antibiotic items prescribed each month by the list size. This, rather than defined daily dose, was the appropriate outcome measure since our hypothesis concerned changes in the number of prescriptions of antibiotics and not the dose or duration. The start date of Advanced Access varied by practice and occurred between January 2002 and July 2004. Each practice had at least 3 months ‘before’ data and at least 9 months ‘after’ data. Each Advanced Access practice was paired with a control practice with a similar number of registered patients and data were analysed over matched periods. Data on potential confounding factors were available from a survey of practices undertaken in the wider evaluation.\textsuperscript{2}

We used multiple regression, with the monthly antibiotic prescribing rate as the dependent variable, testing whether the change in prescribing rates in Advanced Access practices, before and after its introduction, was different from the change in control practices. We adjusted for the potential confounding factors of whether practices were training practices, received deprivation payments or had previously been fundholders. We also adjusted for month of the year to account for seasonal variation in antibiotic prescribing. Each control practice had the same before and after period as a paired Advanced Access practice. We used multilevel modelling to account for the clustered nature of the data.

Results

For all practices, the mean monthly antibiotic prescribing rate per 1000 population was 51.7 items, varying between
14 and 183. As expected, the rate varied by season, peaking in the winter. The mean monthly rate for Advanced Access practices was consistently lower than for control practices throughout the whole period (Fig. 1).

There was no evidence of increasing antibiotic prescribing rates in Advanced Access practices compared with control practices. In fact, the mean monthly prescribing rate fell in Advanced Access practices from 51.7 (SD 17.6) in the before period to 48.5 (SD 14.7) in the after period, whereas in control practices, it rose from 52.1 (SD 21.3) to 54.8 (SD 18.7). However, taking into account the clustered nature of the data and adjusting for confounding variables, there was no statistically significant difference between the change in prescribing rate in Advanced Access and control practices. The change was a reduction in the monthly prescribing rate of 0.90 items per 1000 population in Advanced Access Practices compared with controls (95% confidence interval –2.2 to 0.4), $P = 0.16$.

**Discussion**

We found no evidence that Advanced Access had any impact on antibiotic prescribing. A limitation of our study is that we looked at all antibiotic prescribing, rather than prescribing for acute conditions only. However, an analysis (not published here) of patient level data from the wider study showed no impact on antibiotic prescribing for acute upper respiratory tract infections. A further limitation is the possibility of additional confounders that we have not been able to adjust for in our analysis. For example, it is possible that practices that were early adopters of Advanced Access might have differed from control practices in ways such as motivation and organization before its introduction. In addition, the wider study was not powered for our prescribing study. Our findings are reassuring that the widely adopted Advanced Access approach does not lead to increased antibiotic prescribing.

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**Declaration**

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**References**

