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Abstract (oral session)

The impact of interventions to reduce Clostridium difficile infection on antibiotic prescribing in primary care in Tayside, Scotland: interrupted time series analysis

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Objective: The Scottish Government's target to reduce rates of Clostridium difficile infection (CDI) resulted in implementation of interventions in Tayside, including community pharmacist interventions and revision of our primary care antibiotic policy, in 2009. The aim of this study was to determine the impact of these interventions on antibiotic prescribing in primary care. Methods: The study included the whole population of Tayside, approximately 400,000 residents, from January 2004 to April 2011. Data on all antibiotics dispensed by community pharmacists were linked to demographic data for all residents by the University of Dundee Health Informatics Centre, and anonymised for analysis. We used interrupted time series (ITS) with segmented regression analysis to examine changes in total antibiotic prescribing, and in prescribing of "4C" antibiotics (co-amoxiclav, clindamycin, cephalosporins, ciprofloxacin [all fluoroquinolones]), associated with the intervention. We analysed prescribing rates per 1000 people per quarter in the whole population, in specific age groups, and in nursing home residents. Results: There was no significant intervention effect on the total number of Tayside residents per quarter who were prescribed any antibiotic. Compared to pre-intervention, 4C antibiotic prescribing was 27.6%, 38.3% and 62.7% lower at 6, 12 and 24 months post-intervention, respectively. There was a small (2.6 per thousand people per quarter) step reduction in 4C prescribing at the time of the intervention, that was not quite statistically significant ($p=0.095$), but the downwards change in trend after the intervention (Figure) was highly significant ($p=0.003$). Large, sustained, statistically significant downwards trends in 4C prescribing were also seen among the over 65s ($p=0.04$) and among nursing home residents ($p<0.001$), both high risk groups for CDI. Conclusions: Interventions to reduce primary care prescribing of antibiotics associated with higher risk of CDI had significant and sustained effects among the population of Tayside, Scotland. The magnitude of the changes in antibiotic use will enable us to examine the resulting impact on antibiotic resistance.

Figure. Time trends in 4C antibiotic use for all Tayside residents