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The effect of audit & feedback on prescribing behaviour and engagement with data on OpenPrescribing.net - a randomised controlled trial

Submission date
03/05/2018

Recruitment status
No longer recruiting

Registration date
09/05/2018

Overall study status
Completed

Last Edited
31/03/2021

Condition category
Infections and Infestations

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Prescribing medications in primary care involves keeping in line with a large number of guidelines. However, decisions are often made locally and can be slow to respond to changes in evidence. OpenPrescribing.net, an openly accessible service which transforms the monthly national prescribing datasets into meaningful charts on key measures of prescribing safety, efficacy and cost-effectiveness, demonstrates the huge variation across (and within) practices and their parent organisations (CCGs). Although CCGs have medicines optimisation teams to facilitate and promote best practice in prescribing in their local regions, there is a clear need for a more coordinated approach. Appropriate prescribing of antibiotics is one critical public health issue which varies across the country. This study targets general practices in England who are performing in the worst 20% for prescribing broad-spectrum antibiotics, which have very limited indications in primary care but increase the risk of antimicrobial resistance. The aim of this study is to find out whether giving them feedback on their current prescribing performance has an impact on information-seeking and prescribing behaviour.

Who can participate?
GP practices in England (and any staff involved in prescribing therein) ranking in the worst 20% for prescribing broad-spectrum antibiotics

What does the study involve?
Participating GP practices are randomly allocated to the intervention group or the control group. Those in the control group receive no communication. Those in the intervention group are randomly allocated to receive one of two different styles of intervention (variant A or variant B). Intervention variant A is a series of three different interventions: (1) antibiotic feedback, designed to provide enough information to allow prescribers to assess and change their antibiotic prescribing behaviour without needing to access the website; (2) antibiotic feedback “reminder”, plus provision of link to evidence showing how feedback has been effective at changing antibiotic prescribing behaviour; (3) more information about the other

data available at OpenPrescribing.net, potential cost savings highlighted, an example of another measure on which they rank poorly amongst other practices, and inviting recipients to access the site to monitor their prescribing data. Practices in intervention group B receive three interventions which are all similar, highlighting their performance on antibiotics, but also inviting them to use the OpenPrescribing site to monitor their data. The trialists send these interventions approximately monthly for three months and measure their impact on prescribing behaviour over a six-month period. They also measure engagement of recipients with their prescribing data after each intervention: via direct interaction with links provided in the interventions, and via overall usage of the OpenPrescribing.net site related to each practice.

What are the possible benefits and risks of participating?
Benefits include increased awareness of their prescribing behaviour in comparison to national trends and of price variations of drugs they prescribe; increased awareness of national guidelines on prescribed medications; and empowerment to improve the safety, efficacy and cost-effectiveness of their prescribing choices. Risks include the time burden on busy GPs. Participants can choose whether or not to engage with the intervention at all and if so, how much time they wish to spend on it. They are also given the option to opt out of further communications. No individuals will be identifiable and they can opt-out freely. Engagement rates are an important outcome for the study and contacting practices for consent would bias this. In addition, it is not necessary to obtain consent from practices to use practice-level prescribing data because it is already publicly available and licensed for this purpose. No identifiable personal information will be collected directly from the practices beyond that which is already in the public domain. Any feedback that is received will be anonymised so it will not be possible to identify which individual at a GP practice provided it. The prescribers involved in the trial will remain responsible for the safe and appropriate care of their patients using their professional judgement. The intervention will only reiterate existing national guidelines, and not advise changing the care of any specific patients. No additional risk of harm is anticipated in relation to the trial.

Where is the study run from?
University of Oxford (UK)

When is the study starting and how long is it expected to run for?
March 2015 to May 2019

Who is funding the study?
The Health Foundation (UK)

Who is the main contact?
Dr Ben Goldacre

Contact information

Type(s)
Scientific

Contact name
Dr Ben Goldacre

Contact details

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Additional identifiers

Protocol serial number
OPAF1

Study information

Scientific Title
The effect of audit & feedback on prescribing behaviour and engagement with data on OpenPrescribing.net - a randomised controlled trial

Study objectives
The null hypothesis is that feedback on current prescribing performance has no impact on information-seeking or prescribing behaviour.

Ethics approval required
Old ethics approval format

Ethics approval(s)
1. Medical Sciences Interdisciplinary Research Ethics Committee (IDREC), 09/02/2018, ref: R55595/RE001
2. UK Health Research Authority (HRA), 20/03/2018, ref: 231358

Study design
Cluster-randomised controlled parallel-group trial

Primary study design
Interventional

Study type(s)
Other

Health condition(s) or problem(s) studied
Infectious disease

Interventions
Participants will be allocated to intervention or control group in a 1:1 ratio, block-randomised by CCG. Those in the intervention group will be allocated to receive one of two different styles of intervention, block-randomised by CCG. Practices will receive three communications at regular intervals. The trialists are seeking to investigate superiority of any intervention over control, and to explore the relative impact of two different interventions.

The ‘intervention’ will be the delivery of tailored written feedback to each practice, which details their recent performance on the selected measure in a graphical form and invites recipients to access the other services available at OpenPrescribing.net via a unique link for their practice.

Participants will be randomly allocated to receive no communication, variant A, or variant B:
A. Behaviour-change optimised series of three different interventions: (1) antibiotic feedback, designed to provide enough information to allow prescribers to assess and change their antibiotic prescribing behaviour without needing to access the website; (2) antibiotic feedback “reminder”, plus provision of link to evidence showing how feedback has been effective at changing antibiotic prescribing behaviour; (3) more information about the other data available at OpenPrescribing.net, potential cost savings highlighted, an example of another measure on which they rank poorly amongst other practices, and inviting recipients to access the site to monitor their prescribing data.
B. All-In-One: practices in this group will instead receive three interventions which are all similar, highlighting their performance on antibiotics, but also inviting them to use the OpenPrescribing site to monitor their data.

The trialists will send these interventions approximately monthly for three months and will measure the impact on prescribing behaviour over a six-month period. They will also measure engagement of recipients with their prescribing data after each intervention: via direct interaction with links provided in the interventions, and via overall usage of the OpenPrescribing.net site related to each practice.

Intervention Type
Other

Primary outcome(s)
1. ENGAGEMENT: Difference in the proportion of practices having their dashboard viewed during the 15 week intervention period, between intervention and control groups. Measured using data obtained from Google Analytics and other tracking systems for emails and questionnaire responses. Baseline period: 15 weeks prior to first intervention; follow-up period: 5 weeks following each wave, including day of sending (total 15 weeks).
2. PRESCRIBING: Difference in the proportion of antibiotics prescribed which were broad-spectrum, during the follow-up period, between intervention and control groups. Measured using publicly available prescribing data published by NHS Digital. Baseline period: latest available six months of data at start of study; follow-up period: corresponding six month period, one year on from baseline period.

Key secondary outcome(s))
1. ENGAGEMENT, measured using data obtained from Google Analytics and other tracking systems for emails and questionnaire responses. Baseline period: 15 weeks prior to first intervention; follow-up period: 5 weeks following each wave, including day of sending (total 15 weeks)
1.1. Difference in the proportion of practices having their dashboard viewed during the 15 week intervention period, and in the proportion of broad-spectrum antibiotics prescribed, between groups A and B
1.2. Difference in the mean dashboard views per practice during the 15 week intervention period, for intervention versus control groups, and for group A versus B
1.3. Number of practices accessing at least one link provided in the intervention, as a proportion of all practices contacted, for group A versus B
1.4. Number of links accessed at least once as a proportion of all links delivered by each method

of contact (email, fax, letter)
1.5. Proportion of emails opened overall; and total number of links accessed from emails as a proportion of those opened, during the follow-up period, for intervention A versus B
1.6. Exploratory descriptive analysis of browsing sessions arising from each link accessed: number of browsing sessions, number of different IP addresses, and number of pages viewed per session (to explore sharing of links among professionals)

2. PRESCRIBING, measured using publicly available prescribing data published by NHS Digital. Baseline period: latest available six months of data at start of study; follow-up period: corresponding six month period, one year on from baseline period
2.1. From the primary outcome measure the overall effect of the intervention will be estimated on the number of broad-spectrum antibiotics prescribed during the follow-up period. This will be calculated as the total difference between the observed number of broad-spectrum antibiotics per practice and the expected number had they been in the control group, using the regression model
2.2. To assess wider impact on prescribing behaviours, the difference in other national antibiotic prescribing measures (below) will also be calculated during the follow-up period, between intervention and control groups. These will be analysed using multivariable linear regression as per the primary outcome, except where otherwise stated:
2.2.1. Rate of total antibiotic prescribing per adjusted population unit, Antibiotic STAR-PU (Specific Therapeutic group Age-sex Related Prescribing Unit). As this is a rate a poisson regression model will be used for analysis
2.2.2. Mean number of daily doses per prescription for uncomplicated urinary tract infections (UTIs), measured as the mean number of average daily quantities (ADQs) per item, of trimethoprim 200mg tablets, nitrofurantoin 50mg tablets/capsules, nitrofurantoin 100mg M/R capsules and pivmecillinam 200mg tablets
2.2.3. Mean number of trimethoprim items prescribed as a percentage of all nitrofurantoin and trimethoprim items, per practice

Each of the primary and secondary outcomes will also be compared between intervention groups A and B

Completion date
08/05/2019

Eligibility

Key inclusion criteria
GP practices in England (and any staff involved in prescribing therein) ranking in the worst 20% for prescribing broad-spectrum antibiotics

Participant type(s)
Health professional

Healthy volunteers allowed
No

Age group
Adult

Sex

All

Total final enrolment
1401

Key exclusion criteria
Practices must meet the following criteria:
1. Standard GP practices (Setting type 4) in England
2. At least one method of contact (postal address, fax number and/or email address)
3. Active status
4. Opened at least 6 months before start of trial
5. >= 500 registered patients
6. >= 1000 total items prescribed per month
7. >= 60 total antibiotic items prescribed in 6 months
8. Individual practices and whole CCGs not involved in preliminary testing

Date of first enrolment
08/05/2018

Date of final enrolment
08/05/2018

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
University of Oxford
Observatory Quarter
Woodstock Road
Oxford
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Sponsor information

Organisation
University of Oxford

ROR
https://ror.org/052gg0110

Funder(s)

Funder type
Charity

Funder Name
The Health Foundation

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study will be shared online openly to all at Figshare following publication of results, if not sooner.

IPD sharing plan summary
Stored in repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		28/07/2021	31/03/2021	Yes	No
Basic results		07/05/2020	12/05/2020	No	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes