Interventions to improve the prescribing of antibiotics by healthcare professionals in ambulatory care settings

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Citation

Authors' objectives
The main aim of this work was to employ systematic review methodology in estimating the effectiveness of interventions, given alone or in combination, in improving the antibiotic prescribing by health professionals in ambulatory care settings. The key prescribing behaviours examined include:

a) The decision to prescribe an antibiotic for a defined condition
b) The class of antibiotic prescribed (i.e. use of recommended antibiotics)
c) The dose and duration of antibiotic therapy

The secondary objective of this review was to estimate the effect of any of the interventions on patient outcomes related to antibiotic consumption, this includes:

a) Laboratory isolation or colonisation with antibiotic resistant organisms
b) Adverse events arising from the use of antibiotics
c) Adverse events arising from the non-use or reduced use of antibiotics

Authors' conclusions
Implications for practice
The effectiveness of interventions (singly or in combination) to improve the prescribing of antimicrobial agents in ambulatory settings varies depending on the type and setting for the intervention, and the targeted behaviour and disease condition. It is important to have a clear understanding of the multiple factors that influence prescribing behaviour and some insight into other relevant factors in operation in the health economy before implementing any intervention to improve the quality of prescribing. Simple interventions may be beneficial and probably cost effective in certain settings and context but they do not lead to large, sustained changes in prescribing behaviour and in some instances may be ineffective or possibly detrimental. The use of ancillary test to aid clinical decision making is also context specific and in the UK setting is unlikely to be of any practical benefit due to organisational constraints inherent in the UK health care system. They may still be useful as part of a suite of interventions targeted at prescribing for specific infections or in specific populations. Delayed antibiotic prescribing strategies show some benefit in reducing the use of antibiotics used in managing common, self-limiting infections in the community. These include common respiratory tract infections like acute otitis media, acute tonsillitis, sore throat, acute pharyngitis, and acute cough. Increasing the barriers that patients need to navigate to get the prescription (i.e. picking up script days after the consultation) may improve the effectiveness of this intervention. In the UK, this intervention has been recommended by NICE and is considered to be safe and acceptable to patients. Complex multifaceted interventions combining patient and provider education plus one or more interventions appear to be effective in changing prescribing behaviour in a variety of settings and health care systems. The ideal combination of interventions is uncertain as is the key component of these multifaceted interventions. The extent to which this and other interventions are durable and sustainable is also unknown as is their cost effectiveness. Implications for research
The most recent Cochrane review (Arnold & Straus 2005) that addressed this question highlighted the need to investigate the benefits of multifaceted interventions and determine the cost effectiveness of this and other interventions. Since then, there have been a number of studies investigating the effectiveness of multifaceted interventions but few have provided any estimates of cost effectiveness and even fewer studies have attempted to determine the key components that provide the greatest benefit. Good quality cost effectiveness studies are needed as existing estimates of cost effectiveness are mainly derived as secondary outcome measures by studies that are usually underpowered to provide accurate and reliable estimates. New studies should be designed to determine the long term effect and durability of these interventions. Ideally, these studies should utilise an interrupted time series approach as this is the most statistically efficient method for addressing this question.

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