Perceptions of barriers to the management of respiratory tract infections in general practice settings in Australia

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Abstract. Inappropriate prescribing of antibiotics for the management of respiratory tract infections (RTIs) has contributed to increased prevalence of antibiotic resistance, and this remains a challenge. The aim of this study was to evaluate the effect of general practitioners’ (GPs) participation in the Antibiotics: Clinical e-Audit, a quality-improvement activity, on GP self-reported knowledge and practice change, and explored barriers encountered in the management of respiratory tract infections (RTIs). Participants completed a survey at the end of the activity to assess the usefulness of the audit, any reported changes made and barriers encountered to their clinical practice. More than half of the 872 participants reported the audit assisted them in reviewing patients with RTIs. The majority of GP registrars (48.2%, N = 66) indicated that the clinical e-Audit had changed their practice in terms of identifying patients for whom an antibiotic was recommended. GPs identified several barriers to achieving best practice in the management of RTIs, including patient or carer expectations for an antibiotic prescription and non-adherence to symptomatic management by patients. Empowering GPs to overcome these barriers should be the aim of future education and behaviour change programs.

Additional keywords: antibiotic prescribing, antimicrobial stewardship, Clinical e-Audit, quality improvement activity, symptomatic management.

Received 15 February 2017, accepted 9 July 2017, published online 21 September 2017

Introduction

The prescribing of antibiotics for non-specific upper respiratory tract infections (URTIs) including prescribing broad-spectrum antibiotics when a narrow-spectrum antibiotic is required (Wong et al. 2006; Essack and Pignatari 2013), remains common. These factors have contributed to the increased prevalence of antibiotic resistance (Coxeter et al. 2015); with a growing level of antimicrobial resistance in the healthcare and community settings a major concern in Australia (Daley 2012; Del Mar et al. 2012; Earnshaw et al. 2013). There has been a global focus on reducing antibiotic resistance among respiratory tract infections in primary care (World Health Organization 2001, 2011; Essack and Pignatari 2013; Earnshaw et al. 2013; van der Velden et al. 2013). Reducing inappropriate prescribing of antibiotics is difficult to achieve as prescribing behaviour is multi-faceted, and appears to be driven by both clinician- and patient-related factors (Del Mar et al. 2012). Both physician-associated (Doust and Del Mar 2004; White 2004; Del Mar et al. 2012) and patient-associated factors (Little et al. 2004; Del Mar et al. 2012; Lewis and Tully 2011) have been well described. Further understanding of the prescribing practice in the Australian setting is necessary to inform the development of educational and behaviour change interventions aimed at promoting best practice in antibiotic stewardship in primary care settings.

NPS MedicineWise is undertaking a 5-year national program to encourage judicious use of antibiotics in the community. The program targets both health professionals and the broader community, with a major focus on the management of URTIs. As part of this program, one of the activities for general practitioners (GPs) and GP registrars (doctors training to be GPs) is a Clinical e-Audit, a quality-improvement activity whereby GPs review their current prescribing methods for patients with certain conditions and compares it to current best practice guidelines. The antibiotic Clinical e-Audit was designed to increase GP knowledge of and adherence to national guidelines for the management of RTIs. The Clinical e-Audit was provided free-of-charge and was open to all Australian GPs and GP registrars, who could claim for continuing professional development points upon completion of the activity. The Clinical e-Audit was also recognised for the Quality Prescribing Incentive of the Practice Incentives Program (PIP QPI).

An evaluation of the Clinical e-Audit was conducted to determine its usefulness to participants, self-reported behaviour change, and the barriers and strategies identified to achieving best practice in the management of URTIs. This paper does not present the Clinical e-Audit results; instead it focuses on participants’ perception of the extent of change in their knowledge and prescribing practice associated with participation in the Clinical e-Audit.
What is known about the topic?

- Antibiotics used for non-specific upper respiratory tract infections (URTIs) of viral origin and prescribing broad-spectrum antibiotics when a narrow-spectrum antibiotic is required has contributed to the epidemic of antimicrobial resistance.

What does this paper add?

- Patient or carer expectations for an antibiotic prescription and non-adherence to symptomatic management remain persistent barriers to achieving best practice in the management of respiratory tract infections in general practice.

More than half (59%) of the participants agreed or strongly agreed that participation in this Clinical e-Audit assisted their review of the clinical management of patients with URTIs. However, a larger proportion of GP registrars indicated that involvement in the Clinical e-Audit had changed their practice compared with GPs (Table 1). The main areas where a change in practice was reported by GP registrars was in terms of identifying patients for whom an antibiotic is recommended (48%, n = 66), establishing patient beliefs and expectations about management options (42%, N = 57) and promoting symptomatic management and discussing the benefits and harms of antibiotics (47%, N = 65). Over one-third of GPs reported that they had changed their practice in terms of identifying patients for whom an antibiotic is recommended and using a recommended agent, where an antibiotic is appropriate, at an optimal dose, frequency and duration.

Several barriers to achieving best practice in the management of URTIs were identified by participants (Table 2). Participants could choose more than one response from the barriers listed. There was also an open-ended option for other barriers. Patient or carer expectation for antibiotics was the barrier most frequently identified by the participants. Non-adherence to symptomatic management and medicines was the second most common barrier identified by GPs and GP registrars. Challenging differential diagnosis and multiple co-morbidities were also cited as barriers, as well as limited time for patient or carer discussion and limited access to or use of patient educational material. Some doctors reportedly felt that they had limited access to educational material, which could be a result of not having enough time ‘to print out information’ or due to the fact that they ‘use different consulting rooms, so sometimes [it is] difficult to find brochures [patient leaflets] easily to hand out to patients’ [Survey respondent GP]. In contrast, some doctors found it difficult ‘in keeping up with and or following current guidelines or applying best practice’ [Survey respondent GP].

Respondents were asked to indicate several strategies that they had implemented or planned to implement to overcome the identified barriers detailed in an open-ended question. The responses were analysed by the authors to identify common themes. Five thematic areas emerging from the open-ended responses (in descending order) are discussed (Box 1).

Discussion

Main findings

Most GPs reported that participating in the Clinical e-Audit was useful as it met their learning needs and resulted in a change in prescribing behaviour for some respondents. Significantly more GP registrars than GPs indicated they had changed their practice in terms of identifying patients for whom an antibiotic is recommended (Difference: 13% P < 0.01) and establishing patient beliefs and expectations about management options (Difference: 13% P < 0.01) after participating in the activity. Although self-reported estimations of actual behaviour and intention-to-change behaviour are not objective measures, these can serve as useful indicators of areas where translation into practice might be achieved through educational means.

GPs also identified several barriers to achieving best practice in the management of RTIs, mainly patient or carer expectation...
Table 1. Proportion (and two tailed P-values for difference) of GPs and GP registrars reporting the effect on their clinical practice as a result of participating in the Clinical e-Audit

Results are presented as percentages (numbers) and the difference and P-value for the difference between the proportion of GPs and GP registrars. Data in bold are significant at P<0.050

<table>
<thead>
<tr>
<th>Number reporting</th>
<th>Have changed practice</th>
<th>Intending to change practice</th>
<th>No change is necessary as current practice reinforced</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GP (735)</td>
<td>GP registrar (137)</td>
<td>Difference (%)</td>
<td>(P-value)</td>
</tr>
<tr>
<td>Identifying patients for whom an antibiotic is recommended</td>
<td>35 (256)</td>
<td>49 (66)</td>
<td>13 (0.003)</td>
<td>GP (735)</td>
</tr>
<tr>
<td>Using a recommended agent, where an antibiotic is appropriate, at optimal dose, frequency and duration</td>
<td>34 (246)</td>
<td>39 (52)</td>
<td>-4.5 (&gt;0.050)</td>
<td>34 (246)</td>
</tr>
<tr>
<td>Establishing patient beliefs and expectations about management options (%)</td>
<td>28 (210)</td>
<td>42 (57)</td>
<td>13 (0.004)</td>
<td>28 (210)</td>
</tr>
<tr>
<td>Promoting symptomatic management or discussing benefits and harms (%)</td>
<td>27 (200)</td>
<td>48 (65)</td>
<td>20 (&lt;0.001)</td>
<td>27 (200)</td>
</tr>
<tr>
<td>Identifying patients for whom imaging is recommended for rhinosinusitis (%)</td>
<td>17 (127)</td>
<td>24 (33)</td>
<td>7.0 (0.059)</td>
<td>17 (127)</td>
</tr>
</tbody>
</table>

Table 2. Barriers to achieving best practice in the management of upper respiratory tract infections

The totals will not add up to 100% as respondents could provide multiple responses.

<table>
<thead>
<tr>
<th>Barriers to achieving best practice</th>
<th>Other</th>
<th>Total number of respondents</th>
<th>Number of respondents</th>
<th>Percentage of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best antimicrobial choices</td>
<td>34</td>
<td>872</td>
<td>15.3</td>
<td>3.9</td>
</tr>
<tr>
<td>Patient expectations for antibiotics</td>
<td>133</td>
<td>563</td>
<td>24.8</td>
<td>64.6</td>
</tr>
<tr>
<td>Limited access to follow up or after-hours</td>
<td>143</td>
<td>563</td>
<td>24.8</td>
<td>64.6</td>
</tr>
<tr>
<td>Limiting differential diagnosis and medicos</td>
<td>268</td>
<td>563</td>
<td>24.8</td>
<td>64.6</td>
</tr>
<tr>
<td>Non-adherence to symptomatic management</td>
<td>64.6</td>
<td>563</td>
<td>24.8</td>
<td>64.6</td>
</tr>
<tr>
<td>Non-adherence to guidelines related to antibiotic use</td>
<td>143</td>
<td>563</td>
<td>24.8</td>
<td>64.6</td>
</tr>
<tr>
<td>Adverse effects of antibiotics</td>
<td>3.9</td>
<td>872</td>
<td>15.3</td>
<td>3.9</td>
</tr>
<tr>
<td>Patient or carer expectations for antibiotic treatment</td>
<td>15.3</td>
<td>872</td>
<td>15.3</td>
<td>3.9</td>
</tr>
</tbody>
</table>
[Survey Respondent GP], prevented patients from adhering to symptomatic management recommendations.

Challenging differential diagnoses due to multiple co-morbidities, degenerative disorders and other chronic diseases such as diabetes, asthma and chronic obstructive pulmonary disease were also cited as a barrier to prescribing. Participants associated the presence of co-morbidities and chronic illnesses with increased risk of negative outcomes from acute illness, hence their justification for prescribing antibiotics for those patients. Other authors have suggested that physicians may feel obliged to prescribe antibiotics in order to safeguard themselves against any potentially negative clinical outcomes (Radyowijati and Haak 2003). It must be noted, however, that there are exceptional situations where antibiotics might be beneficial; for example, where there is increased risk of bacterial infection and those with clinical signs of serious complications (Tashima and Piccirillo 2014).

Patient education was the most common intervention identified by GPs and GP registrars to overcome the barriers to managing URTIs, which is similar to the results of other studies (Yox and Scudder 2014). Recognising the need for educational interventions for patients or carers, such as providing patients with educational material, improved communication, using a health professional mediated tool is a move in the right direction to start the conversation between the clinician and the patients. Educational efforts that target both physicians and patients have been described as being most promising in decreasing unnecessary antibiotic use (Shapiro 2002). However, there is evidence that educational modules alone are inadequate for guidelines to be transferred into practice, and socially motivated behavioural interventions that consider both established practice and clinician values, such as accountable justification and peer comparison, are effective to lower rates of inappropriate antibiotic prescribing for URTIs (Meeker et al. 2016). Further understanding of how these models can be applied to existing educational programs in Australia should be explored.

The challenge of limited access to educational material and inadequate time to print out information has implications for patient management and shared decision-making. These challenges faced by GPs can affect the creation of a supportive environment required for patient autonomy, through building trusting and respectful relationships (Elwyn et al. 2012; Fletcher-Lartey et al. 2016), and is an area that could be targeted by GP education. Health professionals require proficient communication and rapport-building skills, access to and awareness of current clinical evidence to facilitate best practice shared decision-making (Coxeter et al. 2015).

This study has some limitations in terms of generalisability to the broader GP and GP registrar population as it reflects the barriers and strategies identified by the audit participants only. However, the high response rate of 80% would suggest that the potential for bias due to non-response is low. Additionally, only self-reported behaviour change, which is less convincing than actual documented behaviour change, is presented because data from the actual audits was not available. The results should be interpreted in this context. However, these can serve as useful indicators of areas where translation into practice might be achieved through educational means.

**Implications for general practice**

Educational interventions should seek to assist GPs and GP registrars in developing skills and sourcing appropriate educational materials to support shared decision-making and encourage patient adherence to treatment and symptomatic management. These educational interventions should focus on building the confidence and skills of prescribers to manage patients with URTIs without recourse to antibiotics, unless indicated (Fletcher-Lartey et al. 2016). Educating patients is useful in setting the stage for GPs and GP registrars to be able to engage with patient and carers to identify their beliefs and expectations (a commonly identified barrier), and to further manage these expectations in keeping with clinical best practice (Gaarslev et al. 2016). Participants’ description of the Clinical e-Audit as a relevant tool with a good or excellent process is an important indicator of a change in historical engagement in both antibiotic prescribing as a topic and in audits in the primary healthcare setting. This paper demonstrates that there is scope for patient management and shared decision-making.

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**Box 1. Actions implemented or planned as reported by GPs and GP registrars to overcome the barriers to best practice in the management of upper respiratory tract infections**

**Provide educational interventions** for patients or carers including, providing educational material and better communication.

**Identify patient or carer’s beliefs and expectations** about antibiotics for acute upper respiratory tract infections (URTIs); for example, discussing patient expectations early in an appointment so there is adequate time to address and focus on them; spend more time to discuss the natural course of the disease, explaining antibiotic resistance.

**Access and utilise evidence-based clinical resources** follow current guidelines for antibiotic use to treat a URTI; for example, using therapeutic guidelines to ensure antibiotics are used when needed.

**Create opportunities for follow-up appointments and spend more time** to review cases; for example, working with Medicare local to improve out-of-hours access; making time to explore patients’ expectations; and offering easy access to follow-up reviews if needed.

**Encourage self-management of acute respiratory tract infections** (RTIs) and explain to patients why antibiotics may not be appropriate; for example, reinforcing with patients the importance of symptomatic relief, and staying away from work and reducing infection transfer; discussing conservative management options for viral infections; and allaying patients’ need for antibiotics and GPs and GP registrars’ urge to prescribe something.
for more intensive research into what are the critical drivers of change in prescribing habits and antibiotic stewardship in the general practice setting, particularly in the context of an ageing population.

Conflicts of interest
The authors declare that they have no conflicts of interest.

Acknowledgements
This research was funded by the Australian Department of Health through NPS MedicineWise. We also acknowledge the contribution of Sheena O’Riordan for her advice during project development, and Suzanne Blogg and Lynn Weekes for their thoughtful contribution to editing this article.

References