Strategies to promote prudent antibiotic use: exploring the views of professionals who develop and implement guidelines and interventions

Sarah Tonkin–Crine a,* Lucy Yardley b, Samuel Coenen c, Patricia Fernandez-Vandellos d, Jaroslaw Krawczyk e, Pia Touboul f, Theo Verheij g and Paul Little a

aPrimary Care and Population Sciences, Faculty of Medicine, and bFaculty of Human and Social Sciences, University of Southampton, UK, cCentre for General Practice, Vaccine & Infectious Disease Institute (VAXINFECTIO), University of Antwerp, Belgium, dApplied Research in Respiratory Diseases, Hospital Clinic de Barcelona, Spain, eDepartment of Family and Community Medicine, Medical University of Lodz, Lodz, Poland, fDepartment of Public Health, Hopital de L’Archet, Nice, France and gJulius Centre for Health Sciences and Primary Care, University Medical Center Utrecht, The Netherlands. *Correspondence to Sarah Tonkin-Crine, University of Southampton, Aldermoor Health Centre, Aldermoor Close, Southampton SO16 5ST, UK. E-mail: S.K.Tonkin-Crine@soton.ac.uk

Background. A variety of interventions have been developed to promote prudent antibiotic use, especially for respiratory tract infections (RTIs); however, it is not yet clear which are most acceptable and feasible for implementation across a wide range of contexts. This study elicited the views of experts, professionals who develop and implement guidelines and interventions, from five countries, on the development of RTI guidelines and interventions for implementing them.

Objectives. The aim was to determine whether there are common features of interventions which experts consider useful in changing health professionals’ behaviour, or whether there are important contextual differences in views.

Methods. Fifty semi-structured interviews explored experts’ views and experiences of strategies across five countries. Interviews were carried out in person or over the phone, transcribed verbatim and translated into English, if not already in English, for analysis.

Results. Themes were remarkably consistent across the countries, and these could be summarized as five sets of recommendations: guidelines should be developed by health care professionals to better fit GPs’ needs; address GP concerns about recommendations and explain the need for guidelines; design flexible interventions to increase feasibility across primary care practice; provide interventions which engage GPs; and provide consistent messages about antibiotic use for patients, professionals and the public.

Conclusions. Key features need to be addressed when developing future guidelines and interventions in order to improve their implementation. Consistency in experts’ views across countries indicates the potential for the development of interventions which could be implemented on a multinational scale with widespread support from key opinion leaders.

Keywords. Antibacterial agents, academic detailing, guideline adherence, primary care, qualitative research.

Introduction

Many countries have introduced strategies advising on the management of respiratory tract infections (RTIs), both in the form of guidelines and interventions. This has been a response to the recognition of the problem of inappropriate prescribing, for what are often self-limiting infections, which subsequently contributes to antibiotic resistance, an internationally recognized health concern. These strategies have been aimed particularly at GPs in primary care, who are responsible for 80% of outpatient prescribing, and specifically at RTIs, which can account for up to 70% of GPs’ prescribing. Despite the existence of these strategies, unnecessary antibiotic prescribing continues with vast differences in prescribing reported across European countries.

Whilst clinical practice guidelines are designed to improve the standard and consistency of health care, their effectiveness is dependent on their quality and
successful implementation. Research has shown that some interventions may be helpful in overcoming barriers to implementing guidelines, but it is not yet clear which interventions are more successful and why.\textsuperscript{8,9} Research which has investigated GPs’ views of barriers and facilitators to guideline implementation suggests that interventions to promote guideline implementation should deliver brief, consistent reminders, should address GPs’ concerns, should involve GPs in development and should design advice for relevant contexts.\textsuperscript{10–12}

Only a limited number of studies have investigated views on guideline development, guideline implementation and the development of interventions to help guideline implementation in groups other than GPs. Two qualitative studies exploring the views of experts who develop guidelines have suggested that guideline quality may be improved by following more systematic development processes\textsuperscript{13} and offering guidance on how to minimise subjectivity in guideline development groups.\textsuperscript{14} These studies did not however examine views on guideline implementation. Only one study has investigated views on guideline implementation in groups other than GPs, asking administrators, nurses and project leads.\textsuperscript{15} The results suggested that implementation strategies should address barriers related to the clinician, the social and organizational context and should be tailored to different groups of professionals.

As yet, no qualitative studies have asked the professionals or experts who develop and implement these strategies their views on interventions, how different interventions compare or how they feel interventions are received by clinicians. Examining the views of experts who develop and implement strategies may help to explain which factors make interventions more successful. Compared to research on GPs’ views, experts can provide a new perspective, based on their different experience, on whether interventions are feasible to carry out in practice, across multiple locations, and may also provide a useful outsider view of how GPs respond to and carry out interventions in practice.

Considering the various situations in which interventions are used, it is useful to explore implementation issues across different countries since differences in context could very well modify the effects of interventions. Examples could include whether GPs in a country work under a fee for service model, whether GPs work alone in practice or with partners and the amount of education and support GPs receive from their health system. As far as we could establish, only one study has assessed guideline or intervention development across countries and identified that the context of development affects the content of recommendations.\textsuperscript{16} A study of guideline developers in four European countries found that despite having high quality development, guidelines reflected differences based on cultural factors such as perceptions of patient expectations.\textsuperscript{16} Again this study focused solely on guidelines and not on interventions to help implement guidelines.

This study elicited the views of experts, i.e. professionals who develop and implement strategies to promote prudent antibiotic use, from five countries (Belgium, France, Poland, Spain and the UK), regarding the development of RTI guidelines and interventions for implementing them. The aim was to determine whether there were common features of guidelines and interventions that experts working in different contexts considered useful based on their experience in encouraging change in health professionals’ behaviour. We also investigated whether there were important contextual differences in experts’ views of the development of guidelines and interventions. Our intention was to develop recommendations for developing guidelines and interventions that would be sufficiently broad and flexible to be relevant to a wide range of contexts.

**Methods**

Countries were purposively selected to produce a sample with differences in national prescribing rates: high prescribing in Belgium and France, lower prescribing in the UK and intermediate prescribing in Spain and Poland.\textsuperscript{17} Experts’ experience of implementing different types of strategy was likely to be affected by whether the country in which they worked had had previous national antibiotic campaigns. We selected countries with variation in campaigns to try and select experts with variation in experience. France and Belgium represented countries which had had extensive national campaigns; Spain and the UK having had smaller campaigns and Poland representing a country which had had minimal experience with campaigns.\textsuperscript{16,18} All countries had undertaken activities as part of the European Antibiotic Awareness Day in November 2008,\textsuperscript{19} with interviews with experts taking place in 2009.

We recruited participants who had been involved in developing or implementing guidelines on the management of RTIs in primary care, developing or implementing interventions to aid RTI guideline implementation, or both of these activities. Participants are referred to as “experts” throughout to reflect this knowledge and experience. Experts were identified through national guideline development groups and specific health care departments responsible for local or national interventions in primary care. Experts were identified through purposeful and snowball sampling. Research teams in each country, with local knowledge, identified appropriate individuals (e.g. from the most recently published national RTI guideline) and each expert was invited by email, phone or in person. Initial interviews led to experts suggesting other individuals who may be suitable for the study. Experts were
sampled to try to obtain a broad range of experience within each country. In Belgium and France, participants were offered reimbursement for their time to take part in interviews.

Six primary care researchers interviewed participants; each interviewer completed all interviews in one country except in France where two interviewers were used. Telephone or face-to-face interviews were carried out and both methods were used across all countries except in the UK and Belgium where only telephone interviews took place. Recruitment continued until researchers were satisfied that no new themes were emerging in the interviews. Interviews followed a semistructured interview schedule which asked about experience of developing guidelines and experience of developing and implementing interventions. Nine questions were asked about each strategy mentioned by the expert or introduced by the interviewer. The interviewer prompted discussion on four strategies: guidelines, educational meetings, patient education materials and financial incentives. The nine questions were based on constructs from the Theory of Planned Behaviour, which covered attitudes, subjective norms and perceived behaviour control. Questions asked about personal thoughts and feelings about the strategy, perceived opinions of colleagues, clinicians and patients, aspects of the strategy which were helpful or unhelpful and whether the strategy could be improved or made easier to follow. Interviews were audio taped, transcribed verbatim and anonymized. Interviews were translated into English by translators in the country in which they took place except for French interviews which were translated in the UK. English translations were checked by the original interviewer(s) in each country.

Analysis followed techniques taken from framework analysis and thematic analysis and is reported in line with current recommendations for best practice. The use of techniques from thematic analysis allowed an inductive approach and enabled the development of categories which were not predetermined by the researchers’ own preconceptions. After familiarization, one researcher coded initial transcripts line by line, to produce low level codes. Codes were compared and combined to form themes which were checked by two other researchers. Analysis took place alongside data collection and themes were revised and refined throughout. Following the identification of themes, techniques from framework analysis were used to handle the large amount of data in systematic stages to aid transparency of results. Data were charted to fit the themes identified and this allowed comparison between experts’ views from different countries and aided the interpretation of results. All stages of analysis were carried out in the UK and results were discussed within the wider international research team.

### Results

**Participant characteristics**

Fifty-one experts took part in 50 interviews, with two experts being interviewed at the same time on one occasion in France. Interviews ranged from 13 to 81 minutes, with a mean of 38 minutes. Participant demographics were similar across all five countries (Table 1). Experts had a broad range of occupations, medical and non-medical, including ear, nose and throat (ENT) surgeons, microbiologists, pharmacists, paediatricians, academicians and managers of specialist health care units (e.g. infectious disease). Unexpectedly, half of the experts were also qualified GPs but not all were currently practicing.

Just over half of the experts interviewed (54%) had been involved in two or more types of strategy for managing respiratory tract infections (Table 2). The majority of experts had taken part in developing RTI guidelines for primary care (71%), whilst contributing to educational meetings was also common (61%). Experts differed in their experience of strategies between countries, but this is more likely to reflect the sampling of participants rather than the prevalence of interventions within countries.

Whilst experts talked about their own personal experience, they also frequently made reference to other strategies which were common in their countries or which they had knowledge about. Seven types of strategy were discussed, including those four asked about by the interviewers; guidelines (including references to materials for patients), educational meetings, national campaigns, prescribing feedback, financial incentives, near patient tests (NPTs) and computer reminders. NPTs were diagnostic tests which GPs used in consultations, for example, a C-reactive protein (CRP) test.

**Analysis**

Five themes were identified, which were consistent across all countries. Themes are presented in the following sections as recommendations for guidelines and interventions. Corresponding quotes appear in Tables 3, 4 and 5.

<table>
<thead>
<tr>
<th>Table 1 Demographics of fifty-one experts interviewed across five countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
</tr>
<tr>
<td>n = 10</td>
</tr>
<tr>
<td>Mean age (years)</td>
</tr>
<tr>
<td>Age range (years)</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Qualified GP</td>
</tr>
</tbody>
</table>
Experts' views of interventions to promote prudent antibiotic use

Guidelines should be developed by health care professionals to better fit GPs' needs

Guidelines were praised for following established, systematic processes to develop high quality recommendations. Experts from all countries felt that involving appropriate medical expertise in guideline development was crucial and that this was not done enough. Some felt that involving medical specialists (e.g. ENT specialists) was sufficient. However, some experts, who were more likely to be GPs themselves, stated that it was crucial to have primary care practitioners involved in guidelines because of their knowledge of the context of general practice (Table 3, quote 1). In addition, experts felt it was important to emphasize the independent quality of recommendations to increase GPs’ trust (2).

Experts indicated that guideline recommendations needed to be useable, accessible, clear and concise. Several felt that guidelines were not broadly disseminated to GPs and that GPs were left to find information themselves, which could be difficult and time consuming. Others felt guidelines could be lengthy and that offering a quick-read version, alongside full versions, could encourage use (3). Some felt that the number of RTI guidelines available in primary care was excessive and instead suggested providing regular reminders of best practice (4). Lastly, experts agreed that it was crucial to have recommendations backed by strong research evidence (5).

Address GP concerns about recommendations and explain the need for guidelines

Experts reported that advice was not always positively received. They felt GPs worried that recommendations were created to save money rather than for clinical benefit (Table 3, quote 6). GPs’ lack of trust in the relevant authorities, for political or other reasons, could also cause recommendations to be ignored (7). Experts were concerned that GPs assumed their practice already followed guidelines when it did not (8) or otherwise, worried about the consequences of not prescribing and a patient becoming more ill (9). Experts felt that interventions needed to specify how individuals’ current practice did not meet recommendations and should support high quality guidelines in delivering the message that unnecessary antibiotics could be harmful.

Design flexible interventions to increase feasibility across primary care practice

Many experts felt that strategies should be designed to offer flexible implementation in order to be feasible for the majority of practices. One expert from the UK stated that offering financial rewards in exchange for meeting targets only worked if targets were realistic for each individual practice (Table 4, quote 10). Other experts felt that tailoring national guidelines to local areas, or specific contexts, was needed in order for them to be viewed as appropriate and relevant for different settings (11). Experts suggested patient education materials for use as a complementary tool to support prescribing decisions when clinicians had limited time, and experts from France suggested computer reminders to reinforce guideline messages for the clinician themselves (12). All experts felt additional resources were crucial to improve guideline implementation but were unsure whether these could be delivered due to a lack of funding (13). Experts from France and Poland particularly felt that their governments should fund NPTs to increase diagnostic certainty and support GPs to follow guidelines (14).

Provide interventions which engage GPs

It was felt crucial to make interventions engaging for GPs otherwise they would not be initiated or adhered to. The majority of experts felt that interactive components, which emphasized the relevance to clinicians’ own practice, were most interesting. Educational meetings were viewed as popular with some GPs because of the opportunity to have queries answered and compare themselves with peers (15). However, some stressed that meetings which were compulsory may lead to GPs attending purely to be recorded as present rather than to engage with the topic and their peers (16). Experts from Belgium reported using prescribing feedback to give tailored information to individuals, and experts from France, Spain and the UK also felt this method may be useful (17). Lastly, experts from Spain and the UK felt that providing financial incentives was effective in motivating change (18).

Provide consistent messages about antibiotic use to patients, professionals and the public

Experts recognized patient demand for antibiotics (Table 5, quote 19) and stressed the need for patient
1. Guidelines should be developed by health care professionals to better fit GPs' needs.

**Quote 1:** You see that [the guidelines of] *Domus Medica*—which is doctors—mainly asks clinical questions. The guideline is an answer to clinical questions about which GPs have doubts; it's not an answer to clinical questions about which specialists have doubts. They are written for general practitioners, and that's what we want to know when we're in practice (Belgium, guideline development, 7).

**Quote 2:** I think it's important that [the guideline] does not receive any funding, I think because of that credibility, the guideline is always linked to being independent, we make it clear [to GPs that] the pharmaceutical sector is not the one leading the content (Spain, guideline development, 2).

**Quote 3:** It easily takes a few hours to read it. I think that a card with a summary is indispensable. It's an indispensable tool to make a quick check possible, to have some decision tools (Belgium, guideline development, 7).

**Quote 4:** Doctors cannot change the way they think in two or three days, it is necessary to give information to them continuously (Spain, guideline development/financial incentives, 1).

**Quote 5:** We ask questions, then we consult the literature and then we respond, we try as far as possible to formulate the guidelines with strong evidence (France, guideline development, 7).

2. Address GP concerns about recommendations and explain the need for guidelines.

**Quote 6:** It's not economic, it's about public health, and it's about telling practitioners that the main message is abstinence. And then actually, as a consequence, when antibiotics are justified, it's about trying to choose the cheapest. That's why we provide notes on costs (France, public campaigns including GP education, 3).

**Quote 7:** I think there are practitioners who we have had trouble convincing, informing, because they are a little bit negative towards us, and broadcast this, so it's true ... if, from the start, there is a slightly negative or dismissive attitude, we will have difficulty in helping this type of practitioner (France, public campaigns including GP education, 1).

**Quote 8:** The general attitude to all of these things is, well that's fine we already do that [prescribe appropriately], but of course they don't (UK, guideline development, 4).

**Quote 9:** If [the GP] has data showing him that it would be alright not to apply [an antibiotic] he lacks the feeling of security, so we need to enhance his feeling of security ... he receives no consequences if he prescribes an antibiotic ... however, he is going to have terrible consequences if he does not prescribe and an ill patient dies within a few hours because of sepsis. (Poland, guideline development/educational meetings, 4).

3. Design flexible interventions to increase feasibility across primary care practice.

**Quote 10:** The incentive scheme [has] a target to aim for but [the surgery] don’t have to achieve the target to get [a financial reward], if they achieve a 10% movement on where they were, then they receive the incentive ... if you didn’t have something like that your outliers, your really bad ones, would have such a mountain to climb, that they would avoid it and they’re the people we really want to join in (UK, educational meetings, 10).

**Quote 11:** Sometimes you find differences between primary care... and hospital practice, then later on guidelines [written for hospitals] have to be adjusted for use at a local [primary care] level in order to be put into practice (France, guideline development, 7).

**Quote 12:** The introduction of reminders ... in the medical records is a resource that has proved its effectiveness at modifying behaviour and improving practice (France, guideline development/educational meetings, 6).

**Quote 13:** Improving this continuing education? I must tell you, the problem, is always financial... We are sponsored by the pharmaceutical industry, but less and less. That is to say that ten years ago, we had lots of money, today, we have a lot less of it (France, guideline development, 7).

**Quote 14:** These doctors have started to equip themselves with [near patient] tests, because they considered them a very good argument for parents and they could support their decisions whenever they had doubts about whether to prescribe an antibiotic or not ... I personally pointed out that it was worth investing in these tests (Poland, educational meetings/campaigns/financial incentives, 10).

4. Provide interventions which engage GPs.

**Quote 15:** I think it's a good method [educational meetings], if only because the doctors are talking about it and are busy with it and are thinking about it together... rather than them just listening to the explanation. (Belgium, guideline development/educational meetings/prescribing feedback, 8).

**Quote 16:** These [educational] groups are mandatory for GP's ... so they come, just sitting there until it is through, and you hope you can transfer something, but you can easily see the passivity ... people who arrive too late and are just present, they won't get involved (Belgium, educational meetings, 9).

**Quote 17:** I mean the professional needs to have his [feedback] in order to compare himself to the community where he works. And this is another thing that is not being done, sometimes it's done but in general it isn't (Spain, guideline development/financial incentives, 4).

**Quote 18:** The real world isn't like that, there are people who are more motivated than others [to change], then if you give economic incentives there are people that are going to work with a person with hypertension or diabetes better than if you don't, it shouldn't be like that but it works (Spain, guideline development/educational meetings, 5).

---

**Table 3 Supporting quotes for themes 1 and 2**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Guidelines should be developed by health care professionals to better fit GPs' needs.</td>
<td>You see that [the guidelines of] <em>Domus Medica</em>—which is doctors—mainly asks clinical questions. The guideline is an answer to clinical questions about which GPs have doubts; it's not an answer to clinical questions about which specialists have doubts. They are written for general practitioners, and that's what we want to know when we're in practice (Belgium, guideline development, 7).</td>
</tr>
<tr>
<td>2. Address GP concerns about recommendations and explain the need for guidelines.</td>
<td>It's not economic, it's about public health, and it's about telling practitioners that the main message is abstinence. And then actually, as a consequence, when antibiotics are justified, it's about trying to choose the cheapest. That's why we provide notes on costs (France, public campaigns including GP education, 3).</td>
</tr>
<tr>
<td>3. Design flexible interventions to increase feasibility across primary care practice.</td>
<td>The introduction of reminders ... in the medical records is a resource that has proved its effectiveness at modifying behaviour and improving practice (France, guideline development/educational meetings, 6).</td>
</tr>
<tr>
<td>4. Provide interventions which engage GPs.</td>
<td>I think it's a good method [educational meetings], if only because the doctors are talking about it and are busy with it and are thinking about it together... rather than them just listening to the explanation. (Belgium, guideline development/educational meetings/prescribing feedback, 8).</td>
</tr>
</tbody>
</table>

**Table 4 Supporting quotes for themes 3 and 4**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Guidelines should be developed by health care professionals to better fit GPs' needs.</td>
<td>Doctors cannot change the way they think in two or three days, it is necessary to give information to them continuously (Spain, guideline development/financial incentives, 1).</td>
</tr>
<tr>
<td>2. Address GP concerns about recommendations and explain the need for guidelines.</td>
<td>If [the GP] has data showing him that it would be alright not to apply [an antibiotic] he lacks the feeling of security, so we need to enhance his feeling of security ... he receives no consequences if he prescribes an antibiotic ... however, he is going to have terrible consequences if he does not prescribe and an ill patient dies within a few hours because of sepsis. (Poland, guideline development/educational meetings, 4).</td>
</tr>
<tr>
<td>3. Design flexible interventions to increase feasibility across primary care practice.</td>
<td>The incentive scheme [has] a target to aim for but [the surgery] don’t have to achieve the target to get [a financial reward], if they achieve a 10% movement on where they were, then they receive the incentive ... if you didn’t have something like that your outliers, your really bad ones, would have such a mountain to climb, that they would avoid it and they’re the people we really want to join in (UK, educational meetings, 10).</td>
</tr>
<tr>
<td>4. Provide interventions which engage GPs.</td>
<td>I think it's a good method [educational meetings], if only because the doctors are talking about it and are busy with it and are thinking about it together... rather than them just listening to the explanation. (Belgium, guideline development/educational meetings/prescribing feedback, 8).</td>
</tr>
</tbody>
</table>
education materials and national campaigns to inform the public (20). Experts felt such approaches helped to support GPs’ behaviour change and emphasized that targeting clinicians and patients simultaneously was important (21). This suggested that public awareness campaigns may be able to facilitate clinician-focused interventions. Some experts suggested education for other health care professionals, alongside GPs, to create a more consistent approach to treatment (22). Experts from Poland and Spain reported difficult situations when patients illegally accessed antibiotics over the counter without first obtaining a prescription, and then came to the consultation in order to obtain a prescription to return to their pharmacist (23). Such occurrences were seen to directly hamper any efforts by GPs to reduce prescriptions and experts stressed the importance of promoting shared responsibility for antibiotic use.

Discussion

This was the first qualitative study to explore the attitudes of experts, from different countries, on strategies to promote prudent antibiotic use and to translate these attitudes into recommendations for future guidelines and interventions. The most interesting finding was that despite differences in context and widely varying cultures of antibiotic use, experts from five countries held broadly similar views on how to improve the quality of guidelines and interventions to help implement guidelines. Experts talked most about their personal input into designing or implementing interventions, and so the similarities in their views appear to be based on participants’ own experiences of interventions rather than their knowledge of the relevant literature. This commonality of views suggests that it may be feasible to develop interventions that will be internationally acceptable to GPs and applicable for practice. This is supported by literature which indicates that common quality indicators can be developed for use between European countries due to similarities in the content of recommendations.23,24

There were clear indications of which elements interventions should include to maximize chances of successful implementation and subsequently influence clinical practice. Interventions should be designed in order to fit well to different contexts, with experts suggesting flexibility in interventions and tailoring (consistent with previous research12,13). Experts suggested that greater resources were needed to improve strategy development and implementation, with some suggesting that authorities should specifically reimburse specialized equipment such as NPTs. This suggestion is consistent with recent research which indicates that such tests may be beneficial for changing prescribing.25 In order to be more attractive to clinicians, experts felt interventions needed interactive components which also allowed comparison to peers. This could either be informally through discussion with peers or by providing antibiotic prescribing feedback. Experts also emphasized the need to educate patients and other health professionals, to promote consistent practice and support changing behaviours. This was consistent with previous work which suggested interventions should be aimed at multiple groups and supported the idea of campaigns such as the European Antibiotic Awareness Day, which target multiple audiences15,19,20. Additional comments from experts were also consistent with previous work, which suggested promoting the independence of guidelines and involving GPs in development.11 Lastly, experts emphasized the importance of producing high quality recommendations and delivering these effectively to GPs.

The similarity in experts’ views may have been a result of many of the experts being a GP themselves and having an understanding of GPs’ requirements in general practice. It was not known at the start of the study whether the relevant experts in each country would be qualified GPs or not; however, for most countries this was the norm. This seems encouraging as the implementation of interventions appears to be being directed in some part by members of the same group which it is targeting, potentially making interventions more acceptable and feasible. Only one UK expert was a qualified GP, and this appears to represent guidelines in this area where many guideline groups appear to include other specialties such as otolaryngologists. Whether or not experts were qualified GPs, the unique finding of similarity between views across countries still remains.

Despite this similarity in views, two differences in attitudes arose both as a result of context as well as experts’ experience. Firstly, experts reported that GPs experienced different barriers to following guidelines when, in some countries, patients could access antibiotics without a prescription. Secondly, the use of NPTs was only suggested by experts with experience of using these. These experts were mainly from France, where NPTs are widely used; however some experts were also from Poland, where a limited number of practices (linked with research centres) had access to such tests. It is not clear whether the same attitudes towards NPTs would be found in other countries. These differences clearly highlight the difficulties when implementing strategies in different contexts and suggest that content and delivery may need to be tailored in certain areas in order to be applicable to the relevant context(s) involved.

The voluntary nature of participation meant that samples may not have represented typical views for each country. There is always a risk that participants will express socially desirable, rather than genuine, attitudes. To try to elicit genuine opinions, interviewers presented themselves as independent researchers and reassured experts of their desire to understand development and implementation processes.
experts were happy to state their negative opinions of strategy components, suggesting they were able to express their true feelings. The method of interviewing, either by telephone or face to face, may have affected responses; however there was nothing in the results to indicate that the methods differed from one another in collecting valuable data. Participants were sampled purposively to try and obtain views from experts with different experience, though the use of snowball sampling may have led to experts suggesting colleagues who may be more likely to hold similar views. It is encouraging however that although this may have explained similarities in views within countries, it would not have contributed to similarities in views between countries.

Consistency in experts’ views across countries indicates the potential for the development of interventions which could be implemented on a multinational scale with widespread support from key opinion leaders. To establish the effectiveness of such an approach, future research should incorporate such recommendations into interventions to be tested in trials across multiple contexts.

Declaration

Ethical approval: The Southampton and South West Hampshire Local Research Ethics Committee granted ethical approval for the study for participants from the UK. Ethical approval was not necessary for other participating countries, since participants were not patients, and instead the research study was approved by the participating institution in each country (Nice University Hospital, France; University of Antwerp, Belgium; Medical University of Lodz, Poland and Hospital Clinic Barcelona, Spain).
Experts’ views of interventions to promote prudent antibiotic use


