

# **Determinants of anti-infective prescribing: patients' and clinicians' perspectives**

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## **Introduction**

Over 80% of all antibiotics are prescribed in primary care. About 80% of these prescriptions are for respiratory tract infections and 50% or more are still probably unnecessary. Therefore, primary care is a major arena in which antibiotic prescribing pressure promotes resistance. Serious complications from common infection have declined steadily over past decades. For example, indigenous cases of rheumatic fever are almost never seen in Western countries. With declining concerns about prescribing to prevent complications, and the growing evidence base that antibiotic treatment for common infections has only marginal, if any, benefit on recovery, fewer antibiotics are prescribed overall in primary care. The proportion of consultations for respiratory tract infections where antibiotics are prescribed has also fallen. Between 1995 and 2000 in the United Kingdom, the standardised prescription ratio fell from 101 to 89, representing an annual reduction of 3. Similarly, patients are engaging more often in self-care for common infections. Over the same time period in the UK, the sex standardised consultation ratio fell from 116 to 68, representing an annual reduction of 9.5. However, there is further potential for ongoing gains. In the UK, considerably more antibiotics are prescribed compared to the Netherlands. There is also considerable within country variation. For example, the prescribing rate per 1000 patients in Wales in 2002 by general practice ranged from 167 per 1000 patients to 300 per 1000 patients.

In order to achieve a detailed, in-depth understanding of the current situation and opportunities for improvement, the drivers of antibiotic prescribing in primary care need thoughtful study. Qualitative research does not strive to establish statistical validity of estimates. Instead, by interviewing carefully selected respondents and rigorously analysing their accounts, one can generate important and common themes that researchers have not yet considered, but are nevertheless crucial from the perspective of patients and clinicians. If it is clinicians and patients that need to change their behaviour, qualitative research methods are the most appropriate to gain insight into their worlds and to develop interventions that they find meaningful. We are currently conducting two new qualitative studies in Wales. One looks at the perspectives of patients and another at perspectives of clinicians.

## **The voices of patients**

In this qualitative study, we are interviewing people (who are not sick) about their beliefs about common respiratory tract infections, including treatment and antibiotic resistance. Respondents are being recruited from community groups. These groups are purposely sampled from urban, rural and post-industrialised communities. This maximal variation sample has so far yielded 40 interviews and analysis is on-going

### *Emerging themes*

1. Increasing self care, lack of benefit from antibiotics.

Patients commonly report that they are not taken particularly seriously when they consult in primary care with common infections and that they do not wish to trouble doctors with minor conditions.

2. Ecological view.

Patients recognised that one is more prone to infection when one is stressed and living an unhealthy life. They increasingly recognised the issue of living 'in tune' with the microbiological world. Patients commonly mentioned the differences between 'good' and 'bad' bacteria, and that the problem with antibiotics is that it killed both kinds.

3. Patients' views of resistance.

Patients were confused about the meaning of antibiotic resistance. Many thought that it was the host (the patient) that became resistant to the antibiotic and that their own bodies became 'used to' the antibiotic rather than the bacteria developing resistance against the mechanisms of antibiotic attack.

4. Viral bacterial confusion.

This was common. Patients do not readily distinguish between the virus and bacteria and were often confused by such explanations.

## **The voices of clinicians**

We identified the highest board spectrum antibiotic prescribing practices in South Wales and recruited GPs from each of these practices and interviewed them until no new themes emerged. 26 doctors were interviewed in this way. We then analysed our data and compared findings with themes that emerged during interviews with a further sample of 14 general practitioners that prescribed close to the Welsh mean.

Important emerging themes are:

1. Low sense of importance of resistance in the community

Most GPs did not regard resistance as a particular problem in their practice, especially in respiratory tract infections. They saw it primarily as a hospital phenomenon and problem. However, for urinary tract infections the situation appeared different. Because respondents sampled a lot more when patients present with urinary tract symptoms, they more frequently saw resistant organisms in microbiological reports and they also more commonly saw treatment failure in this clinical area. Clinicians described moving from older antibiotic such as trimethoprim to newer antibiotics such as quinolones or broad spectrum penicillins as empirical treatment for UTI symptoms.

2. Influence of hospitals

Prescribing in hospitals often influenced general practitioners who reported that hospitals were more often using newer, broad spectrum antibiotics. When patients were discharged from hospitals back into primary care, they frequently requested those hospital-prescribed antibiotics from their GPs when they got sick in the future. Hospitals 'don't practise what they preach', according to many respondents. Clinicians pointed out that hospital-based experts often advised

against broad spectrum or new antibiotic prescribing in primary care. Yet, when patients went into hospital from primary care, they were treated with exactly these agents.

3. Prescribing broad spectrum antibiotics was often socially responsible

GPs argued that broad spectrum antibiotic prescribing saved money and took pressure off secondary care. Many doctors regarded their antibiotic prescribing as socially justified, even if it was not congruent with existing guidelines. By “hitting infections hard and early,” clinicians may over prescribe but they also kept patients out of hospital. Many of our GP respondents reported that the cost of antibiotics was relatively modest compared to patients having to consult again both in primary care, and in out of hours units, and being admitted to hospital. At a time when there was so much pressure on hospital beds, particularly in the winter, many clinicians felt it would be medically and socially irresponsible if they *did not* use powerful antibiotics early on. They thought their prescribing was in fact saving the health service a lot of money as well as benefiting the patients.

4. Diagnostic uncertainty: accurate targeting antibiotics is hard in primary care.

Most clinicians described the problem of diagnostic uncertainty and that they had to make a prescribing decision before they could get sensitivity reports. In the face of uncertainty clinicians are more likely to prescribe.

5. Patient satisfaction, continuity of care and cost.

Clinicians continued to report that expectations for antibiotics remain high in some groups, and if one did not prescribe antibiotics for them, these patients will re-consult, possibly out of hours, or at accident and emergency rooms. Again, the cost of a prescription was compared to the cost of out of hours consulting.

6. Patient preferences.

Some clinicians reported that there was a group of patients that often expressed a preference for a particular antibiotic that had worked well for them in the past, and which was free of side effects.

7. Patient factors: age, frailty, social class, smoking, living conditions

All of these factors were taken into account when deciding whether and what to prescribe. In particular, those clinicians practising in areas of high deprivation where their patients had possibly been working in mines, had chronic obstructive airway disease, high co-morbidity, and were living in crowded conditions, clinicians felt that it would be irresponsible *not* to prescribe antibiotics when these patients developed chest infections.

8. Patient pressure and past experience

Clinicians predictably reported prescribing antibiotics from time to time in the face of high patient expectations for antibiotics in the full knowledge this decision was guideline-incongruent. This was particularly true when patient had had bad experiences with non-antibiotic approaches in the past, and had developed a complication from the infection when clinicians had declined to prescribe.

9. Difficulty in explaining to patients and communication issues

Clinicians reported difficulty in successfully drawing a distinction between viruses and bacteria with their patients. Those clinicians that served a deprived population were more inclined to suggest that their patients were “difficult to educate”. Clinicians repeated that writing an antibiotic prescription was easy, cheap, resulted in a satisfied patient, and most did not re-consult.

#### 10. Patient expectations

Some clinicians believed that patients these days were unwilling to endure illness for more than a couple of days. They expected treatment for any illness that went on for longer than 24 hours. Especially in the ‘flu season, patients reconsulted several times for the same illness, and this was a huge burden on services. The implication was that an antibiotic prescription might reduce re-consulting for the same episode and thus reduce workload.

#### 11. Responsibility to the individual rather than to the public

Clinicians pointed out that their main responsibility was primarily to their patient front of them in the consulting room, rather than to the public at large. The interests of the patients they were treating here and now had always to take precedence over the interests of the community or the theoretical development of antimicrobial resistance at some point in the future.

#### 12. Treat the patient and not the evidence

Clinicians pointed out that it wasn’t always easy to sure that evidence derived from groups of people in clinical trials applied to a particular patient. As one clinician pointed out, “In the end the patient in front of you is *not* the guy in the trial”. Clinicians would always put the interests of their patients ahead of following guidelines.

#### 13. Lack of time

Clinicians frequently dealt with huge pressure on their consulting time by either prescribing in the consultation to bring quick closure, or by sometimes prescribing over the phone. This is a particular problem in areas where it is difficult to recruit clinicians and where medical services are understaffed.

#### 14. Competing pressures

Antibiotic prescribing was not high on the agenda of many clinicians. They had many other things to consider including high demand of patients, problems with premises, staffing issues, in one case physical attack, and putting in new systems.

#### 15. Defence of medicine

This was a common theme. Many clinicians pointed out they would potentially have to answer for their actions in a court of law. Those who were giving them advice on prescribing, did not have to take responsibility for these actions.

### **Conclusion**

Clinicians could generally agree that they were highly unlikely to prescribe antibiotics for patients who were not at all sick. Similarly, there was little controversy about prescribing among the sickest patients. However, there was a zone of uncertainty which was influenced by all the factors which have so far been

described. The higher the degree of uncertainty, the greater the chance of guideline incongruent prescribing.

Reducing the zone of uncertainty, or managing the zone of uncertainty, could involve a number of strategies.

#### 1. Better diagnoses.

Diagnostic strategies must not only differentiate between viral and bacterial infections and attempt to identify particular organisms. Strategies should also help clinicians predict which patients, irrespective of etiological agent, are likely to benefit from antibiotics and which patients are likely to be harmed by antibiotics. Thus, diagnostic and predictive tools should take into account natural history, individual host susceptibility responses, nature of the particular infecting organism, clinical features, illness duration, co morbidity and risk factors, organism factors, and social context.

#### 2. Enhanced communication

Where there was uncertainty, this could be shared with patients in a way that they could understand. Patients clearly do not want to take medicines that might well harm them and is unlikely to benefit them. Patients understood about 'good and bad bacteria' and did not necessarily want to upset the microbiological ecology in their body. While they were confused about distinguishing between viruses and bacteria, they more readily understood an ecological approach to talking about antibiotics and potential for benefit and harm.

#### 3. Improving the evidence base.

Clearly, a top-down, expert-driven, hospital-based solution is unlikely to benefit primary care clinicians who sometimes feel remote from hospital consultants. Understanding their perspectives is crucial to developing new interventions. Clinicians would clearly be helped by evidence that applied to their patients in the settings they live and where treatment takes place. 'Spectrum bias' has to be considered. For example, are trials conducted in affluent parts of the UK applicable to areas of high deprivation in Wales? Who gets into trials of common infections? Are the sickest patients likely to consent to participate in a trial if it meant risking allocation to placebo treatment? Are we really able to confidently say that the clinician should not prescribe antibiotics for a former coal miner with chronic obstructive airway disease, who still smokes, lives in overcrowded conditions, and is now coughing up foul sputum and feels unwell? Which sub-groups will benefit, and which are likely to be harmed, by antibiotic treatment needs further clarification, and for these large trials are needed.