Debate & Analysis

The ethics of setting national antibiotic policies using financial incentives

INTRODUCTION

Antimicrobial resistance (AMR) is an increasingly urgent global public health issue. Data from Public Health England — from the English Surveillance Programme for Antimicrobial Utilisation and Resistance (ESPAUR) — quantifies the scale of antibiotic resistance in key bacterial pathogens.

The Department of Health's 5-year strategy to reduce morbidity and mortality associated with AMR (2013–2018) focused on optimising antibiotic prescribing and improving infection prevention and control.[1] In April 2015 NHS England introduced a Quality Premium (QP) focusing on reducing antibiotics. QPs are financial rewards, with a maximal value equivalent to £5 per patient, intended to reward clinical commissioning groups (CCGs) for improvements in the quality of the services that they commission and for associated improvements in health outcomes and reducing inequalities. The AMR QP provided commissioners with financial incentives to reduce antibiotic prescribing; 80% were linked to primary care quality measures (reduction in absolute number of antibiotic prescriptions by 1%, decrease in use of broad spectrum antibiotics by 10%) and 20% linked to improving availability of antibiotic prescribing data from secondary care.[2]

FINANCIAL INCENTIVES

Incentives are a tool that governments use to help support behaviour change, are a recognised domain in behaviour change methodology, and can be considered a form of trade. CCGs are offered an incentive in the form of additional funds for investment if they have reduced antibiotic prescribing. However, the CCG also has to show that it manages public funds responsibly and will only receive a QP if it has managed its funds according to the 'Managing Public Money' guidelines and does not require financial support during the financial year (nor deviate substantially from expected surpluses/deficits).[2]

In 2014/2015 only 27% of the total available QP was achieved by CCGs. Although the financial incentive is directed towards CCGs, the behavioural change being targeted is at the level of the prescriber. This requires CCGs to focus their efforts at a group or general practice level, aiming to change behaviour by developing clinical guidelines, and providing comparisons of prescribing across the CCGs. In this article, we focus on the ethical acceptability of policies, using pay-for-performance incentives that aim to reduce national antibiotic prescribing rates.

There are four key principles of healthcare ethics that are commonly considered when evaluating the merits and difficulties of medical interventions: autonomy, justice, beneficence, and non-maleficence. Ideally, for an intervention to be considered 'ethical', it must respect all four of these principles.

AUTONOMY AND RIGHTS

Studies demonstrate a degree of mismatch between patients' expectations of (and hope for) an antibiotic prescription when they attend their GP, and the likelihood of them benefiting from antibiotics clinically.[3] Even if the antibiotics are not clinically indicated, patients may subsequently be unhappy with their doctor for failing to respect their autonomous choices. There is evidence that patients end up less satisfied with their care when patients perceive a need for antibiotics but clinicians do not prescribe them,[4] and low prescribing practices are associated with lower patient satisfaction scores.[5]

It is well established in English law that competent adults have the right to refuse treatment, even when doing so might cause serious harm or death. Professional guidance clearly articulates that the paternalistic provision of health care in such cases is unethical because it undermines patient autonomy.[6] However, it is unclear whether patients always have a legal right to treatment that they request or that a doctor's failure to provide treatment requested necessarily deprives patients of their autonomy.

Clinicians have a duty of care to their patients, and where patients request treatment that is appropriate, affordable, and likely to be effective it may be argued that patients have a right to treatment. Failing to provide treatment in such cases, especially if omission causes harm, could be seen as negligent. It could also constitute a violation of the Human Rights Act 1998 and the Equality Act 2010, depending on the reasons for refusing to treat. It has been estimated that, for a GP practice with 7000 registered patients, a 10% reduction in antibiotic prescriptions for suspected respiratory tract infection would lead to one additional (95% confidence interval = 0.6 to 1.5) case of pneumonia per year but no additional mortality.[7]

In cases where clinicians believe that treatment is not in the best interests of a patient, they are not obliged to provide that treatment. Difficulty arises when it is not clear whether an antibiotic would be effective for an individual patient and where the infection is unlikely to cause serious harm, that is, when the number needed to treat (NNT) is relatively high.

The QP does not limit the choice or availability of antibiotics to any individual patient where they are clearly clinically indicated, but in cases of uncertainty the policy has the potential to encourage physicians to err on the side of refusal, especially through effective methods such as delayed prescribing.[8]

BENEFICENCE AND NON-MALEFICENCE

The benefit of antibiotics to the patient is clear where there is a specific clinical indication. However, patients may derive psychological benefit from courses of antibiotics that are not clinically indicated because of the placebo effect. Contrary to assumptions, the QP may enable doctors to adhere more closely to the first principle of medical ethics: 'do no harm'. A nested case-control study has shown that treatment of urinary tract infection with a course of ≥7 days of antibiotics in the preceding month significantly increases the risk of resistance and failure of antibiotic therapy.[9] The impact in children is even greater.[10] A systematic review of the side effects of antibiotics found that the frequency of co-amoxiclav-associated diarrhoea (number needed to harm [NNH] 10) and co-amoxiclav- or amoxicillin-related thrush (NNH 27) to be substantial enough for the authors to recommend greater consultation with patients rather than empiric prescribing.[11]

The potentially adverse effects of national antibiotic restriction policies are not well assessed in the literature. Over the last 20 years, several developed countries introduced nationwide initiatives aimed at reduced antibiotic consumption, with reduction in consumption reaching >30%. Sweden introduced a national antimicrobial stewardship programme in 1995 associated with a 15% reduction in total antibiotic usage over 9 years, with stable admission rates to hospital for acute mastoiditis, quinsy, or sinusitis over this period.[12]

JUSTICE

Clinicians are often told that they must make

the care of their patient their first concern (*Good Medical Practice*). This approach fits well with the traditional imperative in medical ethics to give primacy to individual patients. Doctors are not used to prescribing decisions balanced between the patient in front of them and the patient yet to come. The QP requires clinicians to consider alternatives to antibiotic prescription and consider both the risks and benefits of prescribing for the individual patients.

When determining the most just approach, the key is the degree of uncertainty and the seriousness of the infection that the patient may have. In cases where there is uncertainty about the effectiveness of antibiotic therapy and the suspected infection is not likely to be serious, where does the balance lie? At what level of the NNT/NNH does the balance pivot? To what extent is society currently willing to accept, at an individual and public level, restriction of availability of antibiotics so that future generations might benefit, and how might this be measured?

The answer to these questions is difficult and it is not clear whether this should be the responsibility of the clinician. Of course, there could be a moral and scientific justification to either fully or partially exempt certain groups in society (such as older patients or children) from any restrictive antimicrobial policy.

Policies to reduce antibiotic prescribing may further perpetuate distributional inequity if they lead to situations where dispensing antibiotics to one patient meant that they were not available for a second patient who also needed them. However, this scenario assumes antibiotic prescribing to be at maximal 'efficiency', which empirical evidence suggests is not true of the UK; substantial variation in prescribing rates exists between GP practices and across Europe.[7]

POLICY IMPLICATIONS
Tackling antimicrobial resistance requires the consideration of ethical and empirical questions in a construct that is beginning to emerge in health policy and medical education. The first year of QP resulted in antibiotic prescriptions falling by 7.3%.[13]

In January 2017, the National Institute for Health and Care Excellence (NICE) updated evidence for their Key Therapeutic Topic (KTT) on antimicrobial stewardship in response to the QP data.[13] KTTs provide CCGs with information and toolkits to aid medicines optimisation but are not formal NICE guidance.

Improved education among medical trainees on AMR and antimicrobial

ADDRESS FOR CORRESPONDENCE
Mike Sharland
Paediatric Infectious Diseases Research Group, Institute of Infection and Immunity, St George's, University of London, Cranmer Terrace, London SW17 0RE, UK.
E-mail: mike.sharland@stgeorges.nhs.uk

stewardship (AMS) is needed to ensure that guidance is implemented in patient consultations. Although trainees in infectious diseases and microbiology have traditionally covered these topics in greater detail, a recent review of 37 postgraduate medical curricula found that, although general practice is responsible for 74% of antimicrobial prescribing in the UK, only two learning points in the current curriculum cover this topic (representing 0.15% of all AMR/AMS learning points across the 37 curricula).[14] Current debate surrounding reform to postgraduate medical training in the UK provides a key opportunity for intercollegiate adoption of AMR and AMS learning objectives across all curricula.

Future evaluation of the impact of the financial incentives to the broader NHS should include estimates of beneficence and non-maleficence to patients.

Grace Li
Clinical Research Fellow in Paediatrics, Paediatric Infectious Diseases Research Group, Institute of Infection and Immunity, St George's, University of London, London.

Carwyn Hooper
Senior Lecturer in Medical Ethics and Law, St George's, University of London, London.

Andrew Papanikitas
NIHR Academic Clinical Lecturer in General Practice, Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford.

Susan Hopkins
Consultant in Infectious Diseases and Microbiology, Royal Free London NHS Foundation Trust, London.

Mike Sharland
Professor of Paediatric Infectious Diseases, Paediatric Infectious Diseases Research Group, Institute of Infection and Immunity, St George's, University of London, London.

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