None of us wants to be seen to have withheld treatment from a patient who subsequently deteriorates

BACKGROUND
Acute lower respiratory tract infection (LRTI) is the most common presentation to primary care internationally. Usually defined as an acute cough with at least one of the following, sputum, chest pain, shortness of breath, and/or发热, between 52% and 100% (median 88%) of patients are currently prescribed an antibiotic.1 Using conservative national morbidity survey estimates,2 LRTI costs the UK NHS an estimated £10 billion annually. Despite good evidence that antibiotics do not reduce the duration or severity of LRTI,3 they continue to be widely prescribed, promoting bacterial resistance to antibiotics.4 Between 2002 and 2010, the total number of antibiotics dispensed per 1000 population in England increased by an alarming 25%,5 a statistic that cannot be explained by increasing primary care presentations; consultations for upper and lower RTIs fell by 19% in the same period.6 So why is our antibiotic prescribing increasing? There is evidence that a key concern is avoiding under-treatment.7 None of us wants to be seen to have withheld treatment from a patient who subsequently deteriorates, especially if they are hospitalised. Although rare, it damages doctor–patient relationships, and leads to complaints and medico-legal consequences. However, the rising use of antibiotics and antimicrobial resistance is also of concern, and is now at the top of the Chief Medical Officer (CMO) for England, the Department of Health and the National Institute for Health Research (NIHR) agendas. In March 2013, the CMO highlighted the rise of antimicrobial resistance as a threat to healthcare delivery.8,9 In August 2013 the NIHR launched a themed antimicrobial resistance call for research and in September 2013, the Department of Health published the UK Five Year Antimicrobial Resistance Strategy 2013 to 2018.10

NEW RESEARCH EVIDENCE
This month’s BJGP includes two articles providing evidence to help improve antibiotic treatment decision making.11,12 They are both from the humbly named GRACE consortium (www.grace-lrti.org), an internationally respected group of primary care researchers who worked with hundreds of GPs and nurses from 12 European nations to conduct high quality research into LRTI in over 3000 adults. A strength of both studies is that LRTI was transparently defined to maximise generalisability: adults ≥18 years were eligible if presenting to primary care for the first time with acute (≤28 days) cough as the main symptom, and non-infective cause (such as pulmonary embolism or heart failure) was judged very unlikely. Exclusions included suspected community-acquired pneumonia, penicillin allergy, or immunodeficiency. Patients with asthma and chronic obstructive pulmonary disease (COPD) were eligible, and constituted 15% of the final sample.

The article by Moore et al12 is a secondary analysis of a previously published randomised controlled trial (RCT).17 The largest of its kind, 2061 patients were randomised to amoxicillin 1 g or placebo three times daily for 28 days. The main antibiotic trial article suggests patient safety was not improved by using antibiotics — if anything, their use may compromise safety.12

Conclusions

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or where subgroup size is uneven, the power falls further. Recommendations for subgroup analyses include that significance (P-value) of individual subgroups should not be reported,10 that focus should be on interpretation of the confidence intervals, that the size and direction of the anticipated effects in planned subgroup analyses should be identified before analysis,11 and that a more conservative P-value should be used to take account of multiple testing (known as Bonferroni correction).10 Here, 18 interaction tests were carried out, so the Bonferroni correction would have lowered the P-value for ‘significance’ from 0.05 to 0.003. Together, the above means this study is likely to be underpowered to detect even large interactions between subgroup and antibiotic use and that only the interaction between past medical history and symptom severity would be deemed unlikely to be due to chance alone. This second BJGP article from the GRACE consortium, by Harmon et al11 shows interesting and marked variations between 12 European nations in the use of symptomatic remedies prior to presentation, including (percentages given for extremes of range): antibiotics (0–24%); antihistamines (0–18%); inhaled bronchodilators (0–5%); inhaled corticosteroids (0–11%); aspirin and other salicylic acid derivatives (0–19%); paracetamol (4–48%); and NSAIDs (0–15%). Thess mirror between-nation variations in the use of antibiotics,11 many without any accompanying evidence of benefit.

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There is no shortage of international policy documents outlining the importance of primary care. But does the reality match up to the rhetoric? This is answered in part in a study by Hingons et al.8 They describe primary care in 31 European countries in terms of investment in primary care, governance, workforce development, access, services delivered, continuity of care, coordination, comprehensiveness, and GPs’ income.

One fundamental, if not surprising observation is that primary care is highly variable. This starts from defining who provides primary care, to whether ‘GP’ means the same thing in different countries. While GPs work single-handedly or collaborate with others in multidisciplinary teams, whether they have a gatekeeping role, whether they have a registered list and the range of services that are provided, to working conditions and income. Using a wide range of indicators on the different dimensions, Hingons and colleagues developed a measure of ‘strength of primary care’, according to which countries such as the UK, Denmark, and Netherlands rank top, while others such as Austria, Cyprus, Greece, Hungary, and Ireland score poorly on care structures considered key for strong primary care. The study provides a great deal of detail to address previous surveys documenting wide variation between primary care in different countries.9

CHALLENGES FOR PRIMARY CARE

In a separate article, the same authors looked at the relationship between strength of primary care countries and the outcomes and the cost of health care provided.10 They found that countries with strong primary care systems had better health outcomes but, contrary to received wisdom,11 these countries had much lower health care systems relative to national income. However the article suggests no room for complacency in terms of thinking that primary care producing better health outcomes is a major priority with our increasingly aged and multimorbid patients. To do this general practice needs to change. GPs must increasingly make the transition to more integrated care. Increasingly, there are moves to try to promote integration of care through so-called ‘bundled payment systems’ which may include payments being made to more than one provider (that is, primary and secondary care) to cover whole episodes of illness, or for implementing care pathways or disease management programmes. Such schemes are now evident in the Netherlands.12 These schemes recognise that payment systems which encourage multiple providers and give them different incentives are unlikely to provide well coordinated care. Pay-for-performance is also increasingly used in primary care and has spread from the UK to Germany, France, Estonia, Hungary, and Sweden despite limited evidence of its benefits unless used as part of other quality improvement initiatives.13 Pay-for-performance schemes also have a problem that they tend to prioritise the management of single conditions over integrated care. A major recent innovation in funding is to fund the potential for primary care to use its population responsibility to take on wider

for patients with COPD exacerbations, but modest patients with acute chest infections (in whom pneumonia is not suspected and without significant past medical histories) should not receive antibiotics. Further research is needed to see if there are other ‘special’ patient subgroups more likely to benefit from antibiotics (for example, those with haemoptysis and infective exacerbation of asthma), and to evaluate if other remedies can safely and effectively replace antibiotics. But given the strength of evidence to date, perhaps we should also ask ourselves: 88% of patients with acute LRTI can all be special?

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EDITORIALS
The future shape of primary care

There is increasing recognition that primary care should be organised to take responsibility for whole populations of patients. There is increasing recognition that primary care should be organised to take responsibility for whole populations of patients. This is answered in part in a study by Hingons et al.8 They describe primary care in 31 European countries in terms of investment in primary care, governance, workforce development, access, services delivered, continuity of care, coordination, comprehensiveness, and GPs’ income.

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We also need new models of funding primary care to enable provision of better integrated care. Increasingly, there are moves to try to promote integration of care through so-called ‘bundled payment systems’ which may include payments being made to more than one provider (that is, primary and secondary care) to cover whole episodes of illness, or for implementing care pathways or disease management programmes. Such schemes are now evident in the Netherlands.12 These schemes recognise that payment systems which encourage multiple providers and give them different incentives are unlikely to provide well coordinated care. Pay-for-performance, is also increasingly used in primary care and has spread from the UK to Germany, France, Estonia, Hungary, and Sweden despite limited evidence of its benefits unless used as part of other quality improvement initiatives.13 Pay-for-performance schemes also have a problem that they tend to prioritise the management of single conditions over integrated care.