part of this *mixed-methods* study explored influences on antibiotic prescribing and potential reasons for any differences in patterns of prescribing; so, we agree with Dr Zermansky regarding the complexity of antibiotic prescribing decisions and the many different factors affecting decisions.

The purpose of the quantitative analysis was to describe *patterns* of prescribing for which the retrospective design is appropriate. It does not focus on mechanisms underlying the observed patterns, such as differences in patient-mix. As highlighted in our article, the quantitative analysis focused on patients without relevant comorbidities, and excluded recurrent, chronic, and complicated (for example, bilateral otitis media) presentations, but this does not guarantee that some of the (absence of) differences are explained by other differences in case-mix seen by nurse prescribers, locums, and other GPs.

We did not explore patterns of prescribing across different days of the week, but previous analyses have shown little difference (see Supplementary Tables S1–S2 in Pouwels *et al*).[1] We accept that our study analysed prescribing data up to 2015 (the dataset that we had access to at the time of the analysis), which we acknowledge as a limitation in the paper.

We disagree with Dr Zermansky's suggestion that the conclusion should be that all prescribers *'prescribed antibiotics similarly'*. We found a 4% difference between locums' and other GPs' antibiotic prescribing. We did not claim this difference to be statistically significant but rather a difference that is potentially clinically significant. To put this 4% in perspective, the 2015/2016 Quality Premium aimed for a reduction in the total number of antibiotics prescribed in primary care by 1% (or greater) from each clinical commissioning group's 2013/2014 value.[2]

Overall, we emphasise that our study does not 'blame' locums for high prescribing but rather highlights the complex contextual influences on antibiotic prescribing in general practice. Thus, optimising antibiotic prescribing will require changes at the individual, practice, and system levels.

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DOI: https://doi.org/10.3399/bjgp22X718901

Astonishing results

Peezy was developed in response to patient feedback to address the hygiene and dignity issues complained of by patients. Evidence of reduced contamination of urine samples was found later.

Our UK and US customers have found reduced contamination, and savings in reduced retesting, overall expenditure, and antibiotic prescribing due to improved accuracy of diagnosis. Device failure is almost unknown. A recent anecdotal report from a US distributor states: *'Some lab employees and the supervisor stated they had previously taken Peezy home for personal use. The lab supervisor felt Peezy was "indestructible", and she was unable to get it to fail.'*

Had we experienced the massive 25% device failure rate quoted, we would never have launched the product. We provide training for staff issuing Peezy. In turn, first-time users are correctly instructed in its use. Other than device supply, we were excluded from any involvement in the study, so this was not possible.

We wrote to the principal author asking to clarify if Peezy patients were asked to ensure a full bladder before sampling but this specific question was not answered. We cannot verify that Peezy was used correctly. The authors admit that the Peezy failure rate may have affected the analysis. *'About a quarter of Peezy UCDs* [urinary collection devices] *failed, and this may have impacted the intention-to-treat analysis.'*[1]

As a small to medium-sized enterprise we are unable to fund large clinical trials and rely on smaller independent studies. However, a reduction in contamination rates has been widely reported.[2–7]

Llor comments: *'We certainly do not know how patients collect the urine samples despite being instructed to perform midstream urine sample collection.'*[8] Peezy standardises urine sampling. The National Institute for Health and Care Excellence says of Peezy: *'The device is the only urine collection method that meets Public Health England's UK Standards for Microbiology Investigations: Investigation of urine.'*[9]

The astonishing failure rate is unprecedented, and points to inadequate instruction. The absence of sample contamination reduction contradicts the evidence given to us. We do not accept the results of this study, which is at odds with the clear satisfaction of our customers and their end users.

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Competing interests

Vincent Forte is inventor of the Peezy and a Founder Director of Forte Medical Ltd.

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Author response

We thank Dr Forte for his comments on our findings. Our randomised, controlled clinical trial reported on the use of two urine collection devices in women presenting to primary care with symptoms attributable to urinary tract infection (UTI). Frequency is a cardinal symptom of acute UTI. Requiring these women to have a full bladder before using such devices is not feasible, nor is it easy to objectively confirm.

Our participants were only eligible for inclusion if they felt able to produce a urine sample at the time of randomisation. As such, the use of urine collection devices in our pragmatic study is likely to be similar to how the devices might be used by women with UTI symptoms who consult in routine general practice. We made no claim that our findings apply to use in the populations that Dr Forte refers to, such as asymptomatic pregnant women and in preoperative assessment.

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Midstream versus first-void urine samples

In general practice, simple practices should be endorsed to avoid overcomplicating patient management. We have always been told to recommend the use of midstream samples when collecting a specimen of urine for culture, with or without previous cleansing and with or without soap or disinfectants. Notwithstanding, usage of these instructions is variable across practices and across countries. In addition, a midstream urine sample is not always easy to collect, mainly among older patients, let alone when patients are instructed to use external devices as recently analysed by Hayward *et al*.[1]

It is no wonder that a high number of patients failed to accomplish the proper use of these devices. The results were expected and the use of two devices did not reduce the number of contaminated samples when compared with the classical procedure of recommending a midstream urine collection. The need to collect a midstream urine clean-catch sample has also been controversial.[2]. Only Eley *et al* found a significantly lower number of contaminations among emergency department female patients when they were provided with illustrated instructions about how to collect a proper midstream urine sample compared with those who only received verbal instructions.[3] Other studies, however, failed to show a benefit from cleansing prior to sample collection.

We certainly do not know how patients collect the urine samples despite being instructed to perform midstream urine sample collection. No studies have compared first-void or random sampling with midstream urine specimens with urine culture, which is the gold standard. This is the most important question. With the use of paired samples, Hølmkjær *et al* compared both sampling techniques and found a slightly lower number of contaminations with the use of a midstream urine collection, but urine culture was not used as the gold standard for the two sampling groups, except in those who collected midstream urine specimens.[4] To our knowledge, no study has compared the highly recommended midstream urine collection with a first-void urine sample or letting patients with symptoms of urinary tract infection collect the sample as they please. This type of study has yet to be done.

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DOI: https://doi.org/10.3399/bjgp22X718937

Corrections

Mary Morrissey, Elizabeth Shepherd, Emma Kinley, *et al*, Effectiveness and perceptions of using templates in long-term condition reviews: a systematic synthesis of quantitative and qualitative studies. *Br J Gen Pract* 2021; DOI: https://doi.org/10.3399/BJGP.2020.0963. Because of a production error, the wrong figure was displayed for Figure 1. The correct figure is a PRISMA flow diagram. We apologise for this error. The online version has been corrected.

DOI: https://doi.org/10.3399/bjgp22X718949

Clare Macdonald, Sunita Sharma, Maija Kallioinen and David Jewell, Postnatal care: new NICE guideline for the 'Cinderella service'. *Br J Gen Pract* 2021; DOI: https://doi.org/10.3399/bjgp21X716825. Because of an editorial error, some members of the NICE postnatal care guideline committee were omitted from the acknowledgements. We apologise for this error. The online version has been corrected.

DOI: https://doi.org/10.3399/bjgp22X718961