

harm than good. GPs should consider whether prescribing antibiotics for a URTI is ethically justifiable, in view of guidelines, evidence, and ethics.

Pamela Joan Byrne,
GP VTS1, 41 The Avenue, Harrow Weald,
Middlesex, HA3 7DB.
E-mail: pamelabyrne@nhs.net

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Minimal undergraduate teaching curriculum in Europe

Elizabeth Brown and colleagues have pointed out significant differences across the European Union in GP-training and in family medicine (FM) teaching.¹ GP-training and the choice of general practice as a profession depend, to a large extent, on the level of FM teaching at undergraduate level. Only if we teach FM at this stage, can we introduce all of them to this discipline as framed by the European Definition. Only if we introduce students for

a short clerkship in the practices, will we get new doctors who are really willing to train as GPs. Also, all doctors, whatever their final speciality, will understand the place of FM in the healthcare system.

As the EURACT Basic Medical Education Committee, we produced and presented research on FM undergraduate teaching in Europe,^{2,3} using a Delphi study to determine a minimal curriculum.

The length of the FM/general practice clerkships/undergraduate programmes range from 1 to 12 weeks in different countries, and among different universities in a single country. Inter-country and intra-country variations are seen not only in the length of the programme but also in its content. Since there is no uniform curriculum for FM/general practice across Europe, the aim of this study was to create and suggest one.

The Delphi method was used among the national representatives ($n = 40$) in the EURACT Council. A total of 25 responses were obtained on the first round (62.5% response rate). The 375 themes suggested were then reduced by the researchers to a list of 87. This list was sent again by email. On the second round, 27 responses were obtained (67.5% response rate). A final list was generated after ranking. The third round closed the final 15-item list. 'Final tuning' voting was performed during the council meeting to ensure maximal consensus.

This list could be used in the future for the development of a uniform undergraduate curriculum for FM/general practice across Europe, to promote its development in countries at a lower academic level in FM, and to achieve the reputed uniformity required for high levels of teaching for better free movement of future doctors across the labour market.

Francesco Carelli,
EURACT Council, BME Committee, Chair,
Professor FM University of Milan.
E-mail: carfra@tin.it

Please contact the Journal office for the 15-item list at journal@rcgp.org.uk

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The diagnostic value of symptoms for colorectal cancer in primary care

I was most impressed with the paper by Astin *et al* on the diagnostic value of symptoms for colorectal cancer in primary care.¹ This is such important research, as each day we see patients with gastrointestinal symptoms and I find myself always concerned about missing the bowel cancer (where the prognosis is excellent when found early). My comment to Astin *et al* is that their abstract is confusing. Change in bowel habit (with rectal bleeding?) has a positive likelihood ratio but the bottom line of the results says the positive likelihood ratio (PLR) is 1 or less for diarrhoea or constipation (change in bowel habit). I am not sure which 'advice to follow' and I wonder how many of my colleagues are fully conversant with likelihood ratios, and for the sake of good communication, perhaps these should be translated in to text. Otherwise, well done to their team.

Bruce Arroll,
School of Population Health, Room 378,
Building 730, Tamaki Campus, Glen Innes,
Auckland. E-mail: b.arroll@auckland.ac.nz

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Knowing the accuracy of clinical tests in practice is useful to any clinician hoping to take an evidence-based approach to their practice, and the work of Astin and colleagues¹ provides a useful summary on the performance of clinical tests used to diagnose colorectal cancer in primary care. However, I believe there are two shortcomings to their analysis.

In part of their analysis, the authors chose to aggregate the positive predictive values (PPV) of the tests. While it may be tempting to aggregate the PPVs of primary studies when they only report on the positive test results, this is potentially misleading. The problem is that it tells you nothing about the accuracy of the test or whether the test adds anything to the diagnostic process. Since the PPV depends on both the prior probability and the likelihood ratio of the test, a high PPV could be the result of high prior probability for colorectal cancer. For instance, the reported pooled estimate of the PPV for rectal bleeding was 8.1%. Feasibly, this could result from a prior probability of 8.1% for colorectal cancer and a likelihood ratio of 1, in which case rectal bleeding as a diagnostic test for colorectal cancer is useless and clinicians should avoid using this test. Alternatively, with a prior probability of 0.81%, a PPV of 8.1% would mean the test has a positive likelihood ratio of around 11, making it a very good test for clinicians to use, and one that clearly adds to the diagnostic process.

The second shortcoming relates to whether the sensitivity and specificity should be aggregated using univariate methods when there is potential for the two to be associated, not least due to a changing diagnostic test threshold. For this reason the Cochrane Diagnostic Test Accuracy Working Group recommend a bivariate approach when aggregating diagnostic test data,² and it would have been interesting to see whether taking this more rigorous line had a material effect on the summary results.

Brian H Willis,

MRC Fellow in Primary Care and Biostatistics, University of Manchester, Jean McFarlane Building, Oxford Road, Manchester, M13 9PL.

E-mail: Brian.Willis@manchester.ac.uk

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Authors' response

Thanks to both correspondents for their comments. Essentially, we agree with their points.

Bruce Arroll notices an apparent mismatch between the results for rectal bleeding combined with change in bowel habit (risk increased), and the results for rectal bleeding when combined with diarrhoea or constipation (risk unchanged — or lessened). This problem has arisen because 'change in bowel habit', which should mean constipation or diarrhoea, means something quite different when used by GPs. For GPs, it really means, 'constipation or diarrhoea, and I think colorectal cancer is a genuine possibility.' Presumably, the GP has summated other subtle clues to make this judgement. Studies comparing the risk with change in bowel habit consistently find much higher risks than for constipation and diarrhoea.¹ So, the clinical advice is simple: if your intuition tells you a patient with diarrhoea or constipation may have cancer, trust that intuition.

Brian Willis points out that our use of positive predictive values (PPVs) obscures the fact that these are dependent largely on two separate metrics: the prior probability, and the likelihood ratio of the test. One or other of these two may be the main source of variation, and you cannot tell from the PPV which component is providing the variation. We used cohort studies based in primary care settings to estimate PPVs that are, therefore, representative of the primary care population. However, the thrust of our

article was to provide clinical advice (for which we believe PPVs are best), rather than advice on which 'test' to do (in which case meta-analysis of likelihood ratios would be better). We also reported positive likelihood ratios to enable comparisons between different symptoms (as 'tests').

In his second point, Willis recommends a bivariate approach. While we agree with this in principle, the bivariate method almost certainly would not have produced useful differences. We deliberately chose to omit analysis of negative predictive values, as no symptom, when absent, has a negative predictive value so high as to allow the clinician to be sure cancer was not present.

Margaret P Astin,

Research Associate, NIHR School for Primary Care Research, Department of Community Based Medicine, University of Bristol.

Richard D Neal,

Senior Lecturer, Department of Primary Care and Public Health, Cardiff University, North Wales Clinical School, Wrexham.

Peter W Rose,

University Lecturer, Department of Primary Care and Public Health, University of Oxford.

William Hamilton,

*Professor of Primary Care Diagnostics, Peninsula College of Medicine and Dentistry, Exeter.
E-mail: willie.hamilton@pms.ac.uk*

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