test (i.e. how many of the negative testing patients excluded from the study were truly negative) depends on the prevalence of the condition being tested, the relationship being given by Bayes Theorem:[8]

For a negative result: Odds (Negative Predictive Value) = Odds (1–prevalence) x Likelihood ratio, where the Likelihood ratio is (Specificity/1–Sensitivity).

If the performance characteristics of the ELISA test had been given it would have been possible to estimate how many patients were excluded as false negatives. In general, none of the currently available tests for *H. pylori* have sufficient accuracy to significantly alter *a priori* knowledge based on the prevalence of *H. pylori* infection in this group. Given the great benefit and small risk of treatment, we believe that all symptomatic patients with proven histories of peptic ulceration should receive eradication therapy without prior screening for *H. pylori.*

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## References

1. Rosengren H, Polson RJ. The role of screening for *Helicobacter pylori* in patients with duodenal ulceration in the primary health care setting. *Br J Gen Pract.* 1996; **46:** 177-179.
2. Cottril MRB. The prevalence of *Helicobacter pylori* infection in patients receiving long-term H2 receptor antagonists in general practice: clinical and financial consequences of eradication using Omeprazole plus Amoxycillin or triple therapy. *Br J Med Econ* 1994; **7:** 35-41.
3. Hobbs FDR, Delaney BC, Rowsby M, Kenkre JE. Effect of *Helicobacter pylori* eradication therapy on *dyspeptic symptoms in primary care. Fam Pract* 1996; **13:** in press.
4. Delaney BC. Role of *Helicobacter pylori* in gastrointestinal disease: implications for primary care of a revolution in the management of dyspepsia. *Br J Gen Pract* 1995; **45:** 489-494.
5. Delaney BC. The management of dyspepsia in primary care [MD Thesis]. Birmingham: The University of Birmingham, 1996.
6. O'Brien B, Goeree R, Mohamed, Hunt R. Cost effectiveness of *Helicobacter pylori* eradication for the long term management of duodenal ulcer in Canada. *Arch Intern Med.* 1995; **155:** 1958-1964.
7. Ryder SD, O'Reilly S, Miller R, Ross J, Jacyna MR, Levi AJ. Long term acid suppressing treatment in general practice. *BMJ* 1994; **308:** 827-830.
8. Sackett DL, Haynes RB, Guyatt GH, Tugwell P. *Clinical epidemiology a basic science for clinical medicine,* 2nd edn. Boston, MA: Little Brown, 1991.

## The use of a near patient serological test for *H. pylori*

Sir,

Like Rosengren and Polson (March *Journal,* p.177), I found around half the patients receiving intermittent or continuous repeat prescriptions for ulcer healing drugs in my practice had never been investigated by endoscopy or barium meal. In an evaluation of the use of a near patient serological test for *H. pylori,* we included patients with a typical ulcer history, and offered further investigation or treatment for those showing antibodies to *H. pylori.* Treatment was usually with a one-week course containing omeprazole, metronidazole, and either clarithromycin or amoxycillin.

A typical history required intermittent episodes in which the predominant symptom was well-localized epigastric pain which was relieved by food and antacids, and which woke the patient from sleep at least once during an exacerbation. Patients without these features, or those who also had nausea, vomiting or weight loss, were excluded.

Results of the serological test (Helisal, Cortecs Diagnostic Ltd) were positive for 16 out of 17 patients with a previous duodenal ulcer (DU), and 13 out of 15 with typical symptoms but no investigations.

Prescribing of antacids and ulcer healing drugs was recorded for an equal period before and after eradication therapy in those who had positive tests (for most patients this was 6 months) and the results are shown in Table 1.

Reductions in prescribing were matched by patient's perceptions of the effect of treatment. Questionnaires were posted to patients between 4 and 12 months after their treatment. From the replies, nine out of 13 patients with DU, and nine out of 11 with typical symptoms but no investigation, reported themselves either much better or cured.

This small study suggests that most patients with intermittent symptoms strongly suggestive of duodenal ulcer disease, who have antibodies to *H pylori,* appear to benefit from eradication of the organism, at least over 6 months, as much as patients with a proven DU in the past. As the alternative for them would be to wait for symptoms to recur off treatment and then defer ulcer healing treatment until an endoscopy was carried out, this approach was popular with our patients. This pragmatic approach should be investigated further in primary-care-based trials of *H. pylori* detection and treatment.

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## Respiratory drug delivery devices

Sir,

I read with interest the article 'Optimising inhaled drug delivery in patients with asthma' (December *Journal,* p.683).[1] Would that life and 'lung deposition' were so straightforward, but alas, Jackson and Lipworth misunderstand the principles involved. They fail to appreciate that the most important aspect is to allow the patients to choose the device they prefer: something that respiratory-trained nurses have been doing for years.There is no device preferred by all patients, and it is misleading to quote deposition statistics and extrapolate these to clinical practice. The amount of drug deposited in the lung using the same device in different patients varies tremendously: up to ten-fold using sodium cromoglycate.[2] This variation far outweighs the estimated or meaned figures as quoted by Jackson and Lipworth, and is not dissimilar to the variation seen in the same patient using the same device from one inhalation to the next.

All inhalers have widely varying characteristics, so it is imperative that deposition,

**Table 1.** Prescriptions for up to 6 months before and after *H. pylori* eradication therapy for patients with a positive serological test (equivalent units: 500 ml antacid, 56 x 400 mg cimetidine, 28 x 20 mg omeprazole).

| | Previous duodenal ulcer (*n*=17) | | | Typical symptoms only (*n*=15) | | |
|---|---|---|---|---|---|---|
| | Before | After | Reduction | Before | After | Reduction |
| Antacids | 3 | 0 | 3 | 3 | 1 | 2 |
| $H_2$ receptor antagonists | 35 | 15 | 20 | 31 | 11 | 20 |
| Proton pump inhibitors | 13 | 9 | 4 | 2 | 0 | 2 |
| Total | 51 | 24 | 27 | 38 | 12 | 24 |