Simplifying the Urea Breath Test for *C pylori*. B. J. Marshall, M. W. Plankey, S. Hoffman and R. W. McCallum, University of Virginia at Charlottesville.

C pylori may be diagnosed non-invasively with the urea breath test which in most reports has involved prolonged breath collection and ingestion of the isotope within a liquid meal. The aim of our study was 1) to see if a single breath sample could diagnose *C pylori* and 2) to find the ideal time to take the sample.

Patients who had undergone previous gastric resection were excluded from the study. Fasting patients cleaned their teeth then swallowed 5 uCi of ^{14}C urea in 15 ml of water. Breath was collected into glass bottles containing 1 mmol of hyamine in 2 ml of methanol. Samples were taken at 2 minutes (to assess mouth flora) and at 15, 20, 25 and 30 minutes after ingestion of the isotope. They were counted in a beta counter and results were expressed as counts per minute (CPM), a value corrected for body weight (VALUE), and as an area under the excretion curve between 15 and 30 min (AREA). CP status was determined by histology and culture of multiple gastric biopsies taken at endoscopy. The normal range of ^{14}C excretion was defined as the mean + 3SD of that seen in the CP− patients. Results: 49 CP + patients and 55 CP− patients had their initial breath test during the study. In the table the upper limit of normal (M + 3SD) is in parentheses.

		15 min	20 min	25 min	30 min
CPM	sens. %	91 (1237)	95 (883)	94 (724)	94 (558)
	spec. %	98	96	98	98
VALUE	sens. %	91 (0.83)	93 (0.6)	94 (0.5)	93 (0.38)
	spec. %	98	96	98	98
AREA	sens. %	94 (1.67)	spec. %	98	

CPM on a single breath sample taken at 20 min gave a sensitivity and specificity of 95%.

We conclude that 1) a single collection at 20 min is sufficiently accurate for routine use; 2) correction of CPM for body weight does not improve the accuracy of the test. We recommend that in addition to the 20 min sample, collections at baseline and 2 minutes be considered as helpful in training the patient as well as alerting the investigator to possible methodological errors.