

encouraged to be assiduous in their measures to prevent mosquito bites while abroad, especially if there is an epidemic of dengue at their destination.

- 1 World Health Organisation. Dengue haemorrhagic fever: diagnosis, treatment and control. Geneva: WHO, 1986.
- 2 Risdall RJ, McKenna RW, Nesbit ME, et al. Virus-associated hemophagocytic syndrome. *Cancer* 1979;44:993-1002.

- 3 Sabin AB. Research on dengue during world war II. *Am J Trop Med Hyg* 1952;1:30-50.
- 4 Halstead SB, Udomsakdi S, Singharaj P, Nisalak A. Dengue and chikungunya virus infection in man in Thailand, 1962-1964. III. Clinical, epidemiologic, and virologic observations on disease in non-indigenous white persons. *Am J Trop Med Hyg* 1969;18:984-96.
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Influence of undergraduate teaching on medical students' attitudes to rectal examination

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The confidence of general practitioners in their ability to diagnose a condition based on rectal examination and a belief that they have been thoroughly taught rectal examination at medical school appreciably influence general practitioners' frequency of rectal examination.¹ We investigated medical students' experience of rectal examination during training and assessed whether teaching at medical school influences attitudes to rectal examination.

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Subjects, methods, and results

We sent a questionnaire to 119 final year medical students in one medical school. General surgical subspecialty interest (breast, gastrointestinal, vascular, urological, or general) of the four firms that each student had been attached to and whether attachments were in teaching or non-teaching hospitals were recorded. Students were asked about the number of rectal examinations they had performed for specific anorectal conditions and in total; formal teaching of rectal examination, seniority of teacher, when they were taught, and whether they were taught on anaesthetised patients; reasons for omitting routine rectal examination; and confidence in their diagnosis of specific anorectal conditions based on rectal examination. The end points were categorised and analysed using Kendall's τ C test.² Overall score for confidence in diagnosis was determined by summing the values (yes=1, no=0) for the five conditions (range 0 to 5). Confidence score was dichotomised around the median (0 to 3, 4 to 5).

We received replies from 114 medical students (96% response rate). The median category for total number of rectal examinations performed was 11 to 30; 23 had done fewer than 10 examinations and 19 had never felt a rectal cancer. The table shows the main results.

Only 32 students routinely performed a rectal examination when examining patients. Factors that deterred students from rectal examination were being told not to do so by medical staff (35 students), embarrassment (14), refusal of patients (10), and lack of chaperon (three). Students who had done more than the median number of rectal examinations were significantly more confident about diagnosing rectal cancer (τ C=0.174, p =0.013), benign prostatic hyperplasia (τ C=0.150, p =0.006), prostate cancer (τ C=0.142, p =0.028), and anal fistula (τ C=0.157, p =0.030) than were those who had done fewer than the median. Confidence was significantly greater about diagnosing benign prostatic hyperplasia (τ C=0.108, p =0.026), prostatic carcinoma (τ C=0.185, p =0.004), rectal carcinoma (τ C=0.135, p =0.032), and anal

Factors influencing students' confidence of diagnosis based on rectal examination

	Confidence score		τ C	p Value
	0-3	4-5		
Consultant teaching:				
No	62	19}	0.156	0.022
Yes	19	14}		
Formal teaching:				
No	26	5}	0.139	0.033
Yes	55	28}		
Teaching on anaesthetised patients:				
No	29	5}	0.170	0.015
Yes	52	28}		
No of attachments to gastrointestinal or urological firms:				
0-2	19	1}	0.168	0.005
3-4	62	32}		
No of attachments to teaching hospital firms:				
0-2	56	26}	-0.079	0.005
3-4	25	7}		

fistula (τ C=0.143, p =0.031) among students who had done more than two non-teaching hospital attachments than it was among those who had done fewer.

Comment

Formal teaching (especially by a consultant) encouraged the view among medical and nursing staff that students are expected to do rectal examinations. Only 33 students had been formally taught rectal examination by a consultant. More confident students did more rectal examinations. Easily deterred students would become more confident if clinicians encouraged rectal examination. The outpatient clinic is ideal for one to one teaching and minimises patient and student embarrassment. Attachment to a firm with a subspecialty interest that regularly used rectal examination in diagnosis and treatment increased confidence.

Possible reasons for attachment to a non-teaching hospital increasing confidence include the presence of fewer students and the heavier general surgical emergency workload, which provides a greater variety of anorectal conditions. Students in non-teaching hospitals did not receive more formal tuition than those in teaching hospitals.

Though the factors affecting confidence identified might seem obvious, there is scope for improvement. A fifth of students had done fewer than 10 rectal examinations and 54% had been deterred from routine rectal examination. Frequency of rectal examination after graduation is influenced by attitudes acquired during training.¹ Consultant teaching and emphasis on the importance of rectal examination by students will increase confidence and produce doctors who are more willing to perform rectal examination.

We thank the medical students for completing the questionnaires.

1 Hennigan TW, Franks PJ, Hocken DB, Allen-Mersh TG. Rectal examination in general practice. *BMJ* 1990;301:478-80.

2 SPSS Incorporated. *Statistical package for the social sciences—X: user's guide*. 2nd ed. New York: McGraw Hill, 1986.

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