

Rohan J H Hammett,\* Roger D Harris†

\*Director, Clinical Practice Improvement Unit,  
†Emergency Physician, Royal North Shore Hospital,  
Level 2, Vindin House, St Leonards, NSW 2065  
rhammett@med.usyd.edu.au

**IN REPLY:** As Murray notes, appropriate test ordering belongs firmly in the domain of quality care and clinical accountability. In his seminal article on clinical leadership of healthcare system improvement, Berwick lists appropriate use of testing and therapy as the first challenge facing people who wish to improve healthcare systems in the developed world.<sup>1</sup>

Murray also identifies the paucity of structured educational programs aimed at providing junior medical staff with the skills to exercise “knowledge and judgement” in test ordering. The Royal Australasian College of Pathologists is seeking to address this deficiency through the development of educational modules on test ordering.

It is unlikely, however, that education alone will curb the increase in test ordering in Australia. Educational programs for junior medical staff are notoriously resource-intensive and difficult to sustain. In addition, they rarely provide the point-of-care guidance that seems to be more effective in sustainably modifying behaviour. Such guidance may require test-ordering software that provides guidelines for ordering and feedback of individual performance, or the use of structured test-stratification programs such as that described by Stuart et al.<sup>2</sup>

Improved education, supervision and point-of-care guidance will prove ineffective if fears of litigation continue to drive the behaviour of clinicians. As Carter points out, concerns about litigation must be considered in any program aimed at improving practice. However, although litigation related to missed diagnosis is a recurring theme, this may relate more to time pressures rather than a failure to perform investigations. Indeed, many mal-practice suits result from failure to adequately check and act upon the results of the barrage of tests ordered. Attempts to reduce medicolegal risk by ordering all conceivable tests may increase practitioners' risk unless they have extremely well-designed follow-up systems.

It is important that clinicians not sacrifice high-quality, evidence-based investigation and treatment in an attempt to minimise perceived litigation risks. By testing inappropriately, clinicians may in fact expose themselves to greater risks of litigation, as their patients are exposed to the risks of the tests themselves, the chance

of false-positive results and inappropriate treatment, and the failure to follow up on investigation results.

It is unfortunate, and an indictment of our current reimbursement system, that the financial realities of community practice make it difficult for clinicians to take sufficient time to communicate with patients about the appropriateness of an investigation or treatment. If we continue to allow this to become the way we practise, we will continue to see a diminution of our professional role as we become merely booking agents for tests.

As Berwick says, “Efforts to reform the health system from the outside can help motivate and set the stage for improvement. Yet, if clinicians do not wish to make specific changes in their own work to better meet society's need for better outcomes and lower cost, no-one outside the health system can be clever enough or powerful enough to make them do it.”<sup>1</sup>

1. Berwick DM. Eleven worthy aims for clinical leadership of health system reform. *JAMA* 1994; 272: 797-802.
2. Stuart PJ, Crooks S, Porton M. An interventional program for diagnostic testing in the emergency department. *Med J Aust* 2002; 177: 131-134. □

### An interventional program for diagnostic testing in the emergency department

Iain B Gosbell,\* Peter J Collignon,†  
John D Turnidge,‡ Christopher H Heath,§  
Joan L Faoagali¶

\*Infectious diseases physician, South Western Area Pathology Service, Locked Bag 7090, Liverpool BC, NSW 1871; †Infectious diseases physician, Canberra Hospital, Garran, ACT; ‡Infectious diseases physician, Women's and Children's Hospital, Adelaide, SA; §Infectious diseases physician, Royal Perth Hospital, Perth, WA; ¶Director of Microbiology and Adjunct Professor, Royal Brisbane Hospital Campus, Queensland Health Pathology Service, Brisbane, QLD. i.gosbell@unsw.edu.au

**TO THE EDITOR:** While agreeing that sensible utilisation of pathology tests in emergency departments (EDs) is important, we are concerned that the article by Stuart et al<sup>1</sup> might be misinterpreted to justify wholesale reductions in important diagnostic microbiological tests, particularly blood cultures. Stuart and colleagues imply they could safely reduce the number of blood cultures by 80%.<sup>1</sup> Other local data have suggested a minority of blood cultures in the ED influence patient management.<sup>2</sup>

Confirmation of aetiology will be denied for patients by “rationalisation” of blood cultures in EDs. Although most pathogens are susceptible to broad-spectrum antimicrobial agents, widespread empiric pre-

scribing of such agents in an era of increasing antimicrobial resistance is unwise.

A recent Australian study evaluating blood cultures found that a third of patients with positive blood culture results were not clinically suspected to be bacteraemic.<sup>3</sup> Furthermore, the Journal recently reported the emergence of community-acquired methicillin-resistant *Staphylococcus aureus* (MRSA),<sup>4</sup> and increasing resistance in *Streptococcus pneumoniae*.<sup>5</sup> Missing MRSA or multidrug-resistant pneumococcal bacteraemia will result in adverse patient outcomes. What about missed cases of meningococcal disease, or typhoid fever, with their associated public health costs? Paradoxically, amid emerging antimicrobial resistance, we may become less aware of the problem. Furthermore, what about the infection control costs required to control the resultant outbreaks of multidrug-resistant organisms?

Empiric broad-spectrum antibiotic prescribing, driven by failure to undertake important microbiological investigations, is bad medicine:

- It teaches everyone to guess the microbiological diagnosis, and, if you do not test, who can prove you wrong? Perhaps only when the patient presents to the tertiary referral hospital with therapeutic failure and evolving multisystem organ failure.
- It logically extrapolates to all patients getting vancomycin plus meropenem to ensure covering MRSA and resistant gram-negative bacilli.
- It inevitably drives resistance, which is increasing rapidly.
- It has never been subject to rigorous scientific scrutiny with cost-effectiveness studies.

Moreover, the study by Stuart et al<sup>1</sup> provides no data on readmission rates, lengths of stay, adverse events and rates of missed or incorrect diagnoses; the ED setting studied has limited generalisability; and United States guidelines, which may be inappropriate in the Australian healthcare context, were used to develop the diagnostic testing protocol.

Might not reducing the ordering of some microbiological tests cause “spiralling therapeutic empiricism”? Might not the overall healthcare budget growth accelerate because of increased prescribing of expensive broad-spectrum antimicrobials?

1. Stuart PJ, Crooks S, Porton M. An interventional program for diagnostic testing in the emergency department. *Med J Aust* 2002; 177: 131-134.
2. Kelly AM. Clinical impact of blood cultures taken in the emergency department. *J Accident Emerg Med* 1998; 15: 254-256.