The making of a modern medic

Gone are the days when the caricature of the aloof consultant breezing through the ward, white coat flowing, bow tie immaculate, leaving a crowd of medical students, junior doctors, nurses, and confused patients in his wake, was the norm. Today's doctor is expected to be a much more human soul. A combination of factors has led to this change; increases in media exposure and high profile court cases have been major contributors. Additionally, easier access to medical information and raised patient expectations have been substantial drivers.

Numerous documents have been produced to paint a portrait of this modern medical practitioner. The Royal College of Physicians' report, *Doctors in society: Medical professionalism in a changing world*, and the UK's General Medical Council's *Tomorrow's Doctors* and *Good Medical Practice* are just a few of those published in the UK alone. Nevertheless, the qualities of a medical professional cannot be imbibed from reading the requisite paperwork: a doctor is born of years of medical training.

In the past, medical students were selected on the basis of academic knowledge; it was hoped that traits such as communication skills and sound ethics would develop organically throughout the training process. Now, medical students are increasingly selected on the basis of possession of good social skills—many UK medical schools test prospective students' communication skills, and the USA is considering changing their entrance exam to test would-be students' attitudes. Further, teaching at medical school focuses on the legal, moral, and communication attributes that doctors are expected to have, and this focus continues into a doctor's training years. But do these processes produce the professional doctors that the public deserves?

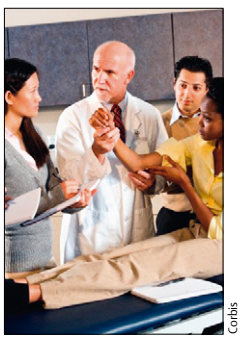
The results from studies are not encouraging. In May, 2010, a study, by Michael Preston-Shoot and colleagues, published in the *Journal of Medical Ethics*, assessed medical students' confidence in relevant areas of medical law and good practice in the years before and after a medical law course. The results suggest that confidence in dealing with pertinent areas of these subjects does not improve after studying a medico-legal curriculum. Good medico-legal know-how is key to being a successful doctor; not only does it provide the basis for translating medical ethics into practice, it also defines the legal framework in which doctors practise. The results of this study are therefore worrying.

Research also suggests that graduates are unprepared for many other areas of practice, including those clinical and professional attributes outlined in *Tomorrow's Doctors*. In a study published in *The Postgraduate Medical Journal*, David and Catherine Matheson found that many graduates were perceived by their seniors as being woefully unprepared, especially for practical tasks, for example, suturing and inserting a nasogastric tube. They were better prepared for communication, asking for help, and teamwork.

The path to professionalism involves acquiring knowledge, learning skills, and developing appropriate attitudes—the three key domains of medical education. Assessing whether the potential professional has arrived at the right destination involves asking the right question at the right stage in a career. But assessing the attributes of a professional can be challenging; for example, assessing knowledge gives little information about skills.

Attitudes, values, and behaviours are recognised as being exceedingly difficult to assess, but these elusive qualities are arguably the most important that a doctor will possess. Attitudes are difficult to teach, and are often learnt from exposure to role models in the "hidden curriculum", which plays a very important part in a medical student's education. Indeed, learning from role models probably played a part in Preston-Shoot and colleagues' finding that some negative perceptions of the legal system persisted despite teaching to the contrary. Effective facilitation of attitudinal learning is not instinctive for many medical educators. Therefore, to produce a professional doctor, there should also be more focus on ensuring that teachers think about how, as well as what, they teach.

The practical aspects of producing a professional are clearly not easy. Valiant efforts are being made to translate the words of wisdom that describe a professional doctor into practice. However, as the medical profession continues to strive to produce the doctors that are a credit to themselves and society, the inherent difficulties involved should not be forgotten. Educators need to continue their efforts to find useful ways of both assessing and delivering professional qualities, and to have the flexibility to change their methods when needed. ■ *The Lancet*



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For the **General Medical Council documents** see http://www.gmc-uk.org/static/documents/content/TomorrowsDoctors_2009.pdf, and http://www.gmc-uk.org/static/documents/content/GMP_0910.pdf

For the **article on preparedness for medico-legal practice** see *J Med Ethics* 2011. DOI:10.1136/jme.2010.041566

For the **article on general preparedness of graduates** see *Postgrad Med J* 2009. DOI:10.1136/pgmj.2008.071639

For more on **medical education and professionalism** see **Editorial** *Lancet* 2009; **373:** 980

For more on **what makes a good doctor** see **Editorial** *Lancet* 2010; **376:** 658

For more on **selecting medical students** see **Perspectives** *Lancet* 2010; **376:** 678–79

For ***The Lancet* Commission on the education of health professionals** see http://www.lancet.com/education-of-health-professionals

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May 28 marks the 50th anniversary of the first non-governmental human rights organisation, Amnesty International. It was founded by the late British lawyer Peter Benenson after he read about the unjustified 7-year imprisonment to two Portuguese students for raising a toast to freedom. Today, Amnesty International has 3 million supporters, members, and activists in more than 150 countries.

The organisation received the Nobel Peace prize in 1977 for its longstanding efforts to end torture, capital punishment, political killings, and disappearances. Over the years, activities that relate to the rights of indigenous and refugee people, as well as to women's and children's rights, have been added to its remit.

More recently, Amnesty has focused on health as a human right. These activities have addressed inadequate access to HIV drugs and women's sexual and reproductive rights. Maternal mortality was one of the agency's campaign focal points in 2010. During the UN Millennium Development Goal Summit in New York last September, the organisation erected next to the famous debt clock in Times Square a "maternal death clock" that ticked off every 90 seconds—indicating the death of a woman somewhere in the world because of a complication of pregnancy or childbirth. Amnesty also published *Deadly Delivery*—a report that put maternal mortality under the US spotlight by pointing out that maternal deaths were more common in the USA than in 40 other countries.

Additionally, recent country reports by the organisation have drawn attention to violations of the right to health. In 2010, North Korea was highlighted for its low resource allocation to its health-care system that made surgery without anaesthesia a common occurrence. And this year Ireland was criticised for its inadequate child-protection standards and a shortfall in mental health services.

Amnesty International's increasing attention to health as a basic human right is most welcome. Closely linked with poverty, famine, and lack of access to safe drinking water, health must be an integral part of human safety and dignity. ■ *The Lancet*

Patients' power and PACE

Corbis

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See Correspondence pages 1831–35

Once every few years, we publish a paper that elicits an outpouring of consternation and condemnation from individuals or groups outside our usual reach. The latest topic to have caused such a reaction is chronic fatigue syndrome (CFS), and—more specifically—Peter White and colleagues' randomised PACE trial published on March 5, this year.

In the PACE trial, White and colleagues set out to answer a question that has long troubled the CFS community: are the treatments recommended by clinical guidelines—ie, cognitive behaviour therapy and graded exercise therapy—really the best option for patients with CFS? The trial's findings showed that, compared with specialist medical care alone, both treatments were associated with significant improvements in self-rated fatigue and physical function (the primary outcomes) after 52 weeks.

The response to the trial's publication was swift and damning. "When is the Lancet going to retract this fraudulent study?" demanded a Facebook group. A 43-page complaint (now available via Wikipedia) branded the trial "unethical and unscientific". There were 44 formal letter submissions, eight of which we publish today, together with a response from White and colleagues.

Many of the letters critique the definitions of secondary outcomes, question protocol changes, and express concern over generalisability. But one cannot help but wonder whether the sheer anger and coordination of the response to this trial has been born not only from the frustration many feel about a disabling condition, but also from an active campaign to discredit the research. White and colleagues have been accused of having "formed their opinion about the intended outcome" before the trial began. This view is unjustified and unfair. The researchers should be praised for their willingness to test competing ideas and interventions in a randomised trial. The evidence might even suggest that it is the critics of the PACE trial who have formed their opinions first, ignoring the findings of this rigorously conducted work. ■ *The Lancet*

Fine with five? Shorter antibiotic courses for childhood meningitis

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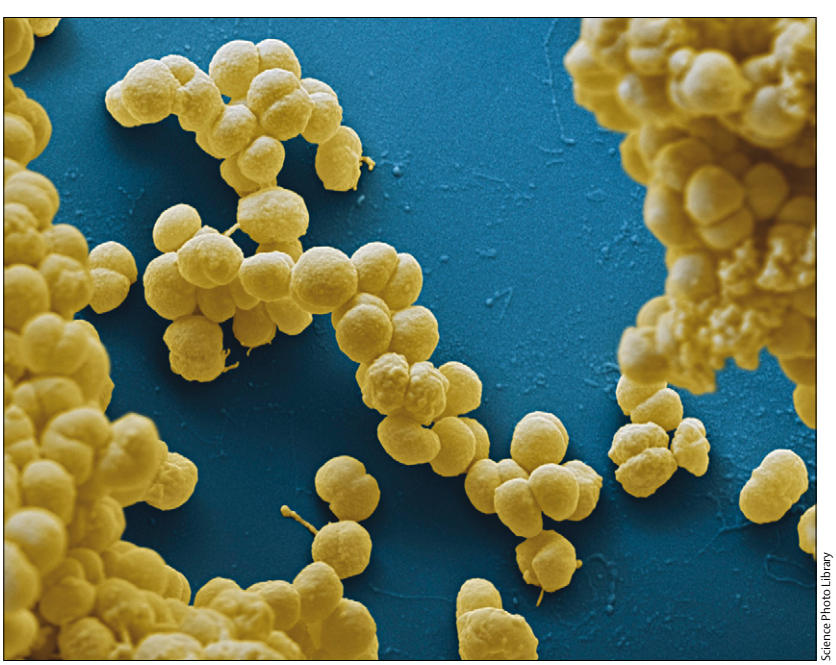
Recent guidelines from the UK's National Institute for Health and Clinical Excellence on treatment of childhood meningitis[1] have highlighted the lack of high-quality studies on duration of antibiotic treatment. Accordingly, in the absence of robust evidence to the contrary, no change was made to existing recommendations of 7 days of antibiotics for meningitis caused by *Neisseria meningitidis*, 10 days for *Haemophilus influenzae* type b, and 10–14 days for *Streptococcus pneumoniae*.

In *The Lancet*, a study by Elizabeth Molyneux and colleagues[2] adds to the evidence on treatment duration and is impressive in its size, scope, and usefulness. 1004 children aged 2 months to 12 years with confirmed or probable bacterial meningitis were randomised to 5 or 10 days of intravenous ceftriaxone. The study was done in six low–middle-income countries, in which the opportunity costs of needlessly extending antibiotic treatment are greatest. There were similar numbers of clinically diagnosed treatment failures in the two groups (17 *vs* 16) and no differences in survival or neurological outcomes. Furthermore, only two cases of relapse of meningitis were identified (both in the 5-day treatment group).

In view of the encouragement provided by this study, should we shorten antibiotic duration to 5 days for most cases of childhood bacterial meningitis? Are we fine with five? There remain important clinical and microbiological issues to consider in translating these findings into clinical practice.

More clinical data for treatment failures and for day-5 clinical features of children who were randomised would be invaluable. First, because there were no bacteriological failures in the study (the primary outcome) the clinical treatment failures are important. Despite the equal number of treatment failures between groups it would be useful to have more detail on these cases and on further lumbar punctures (if done) to support the conclusion of no difference between study groups. Second, an important issue for the clinician of a child with bacterial meningitis on day 5 of treatment is what constitutes clinically stable or improving. Of the 73 children excluded on clinical criteria, 69 were for persistent symptoms of fever and seizures, not exclusion criteria themselves but of concern to the doctors managing these children. The partial exclusion of children with these clinical features leaves some residual uncertainty in interpreting study outcomes for children with ongoing seizures or persistent fever, for whom there might be reluctance to stop antibiotics early. Information on the day-5 clinical features of the children and the proportion that were unwell but clinically stable (eg, had ongoing fever, seizures, or reduced conscious level) would be of interest.

Despite the overall result of no difference between groups, it is important to consider treatment outcomes by organism—particularly for *S pneumoniae*, which has been thought to need an extended course of antibiotics. Although the study was not powered to show equivalence between 5 and 10 days' treatment on a per-organism basis, in the 5-day treatment group 12 (8%) of 154 participants with pneumococcal meningitis died, compared with nine (5%) of 181 in the 10-day treatment group. Furthermore, 15 children infected with HIV with pneumococcal meningitis died; ten in the 5-day treatment group and five in the 10-day group. Although it is reassuring that survival with sequelae seems similar in the 5-day and the 10-day group (35% *vs* 39%), the



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Coloured scanning electron micrograph of *Neisseria meningitidis*

lack of power to determine equivalence for deaths will mean that widespread acceptance of a change to 5-day treatment for children with pneumococcal meningitis will vary by region depending on the opportunity costs of a further 5 days of antibiotics and the likelihood of concomitant HIV.

Good-quality microbiology for surveillance of prevalent causes or patient's management remains important. The investigators' intention was to inform management of paediatric meningitis where facilities for establishing cause are restricted. In total 80 children were excluded because they had an infection with an organism other than *N meningitidis*, *H influenzae* type b, and *S pneumoniae*—almost all were non-typhoidal *Salmonella* spp, requiring 4–6 weeks of antimicrobial treatment.[3] Most of these cases were in Malawi, consistent with previous studies in sub-Saharan Africa.[4,5] Clinicians in this region deciding whether to stop antibiotics at 5 days are therefore left with a dilemma; in the absence of positive identification of one of the study organisms, how confident are they that their patient does not have meningitis due to non-typhoidal *Salmonella* spp? With increasing use of *H influenzae* type b,[6] pneumococcal,[7] and serogroup A meningococcal conjugate vaccines in sub-Saharan Africa, the proportion of meningitis due to non-typhoidal *Salmonella* spp will probably increase. Paradoxically, clinicians in Malawi without facilities for microbiological culture might now be less, rather than more, confident in stopping antibiotics early for meningitis of unknown cause.

For more on the **meningococcal vaccine in sub-Saharan Africa** see http://www.meningvax.org

Molyneux and colleagues' work provides important new data to guide management of bacterial meningitis in childhood, particularly in resource-poor settings. For many children with bacterial meningitis due to *N meningitidis*, *H influenzae* type b, and *S pneumoniae* 5 days of treatment with ceftriaxone is probably sufficient. However, the uncertainties around organism-specific data (particularly for *S pneumoniae*) and the need for clinical judgment at day 5 will result in some caution in reducing treatment duration. Caution will apply especially where the opportunity costs of a further 5 days of antibiotics are low and repeating a lumbar puncture at 48 h to ensure the sterility of cerebrospinal fluid is not common practice. This study shows the high morbidity and mortality of bacterial meningitis even with good clinical management, thereby reinforcing the need for widespread use of vaccines against this disease.

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MDS has received financial assistance from Novartis Vaccines and Diagnostics, Pfizer, and GlaxoSmithKline to attend conferences, and has had travel and accommodation expenses paid by Novartis Vaccines. MDS acts as principal investigator for clinical trials done on behalf of Oxford University, sponsored by vaccine manufacturers, but receives no personal payments; honoraria for lecturing or writing, travel expenses, and grants for educational activities, are paid directly to a fund held by the Department of Paediatrics, Oxford University. DFK has received financial assistance from Wyeth and GlaxoSmithKline for travel, accommodation, and conference registration, and is the recipient of research funding from GlaxoSmithKline (paid to Oxford University). MDS and DFK receive salary support from the NIHR Oxford Partnership Comprehensive Biomedical Research Centre programme.

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Salvage with erlotinib plus bevacizumab: not in NSCLC

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In *The Lancet*, Roy Herbst and colleagues report the phase 3, double-blind, randomised BeTa trial,[1] in which they assessed the efficacy and safety of bevacizumab in combination with erlotinib, compared with erlotinib alone, for treatment of advanced non-small-cell lung cancer (NSCLC) after failure of first-line chemotherapy. The study was designed to detect a 33% improvement in median survival. However, overall survival did not differ between treatment groups, with a median overall survival of 9·3 months (IQR 4·1–21·6) for the 319 patients who received bevacizumab plus erlotinib and 9·2 months (3·8–20·2) for 317 patients who received

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