A practical guide to building a national curriculum

The clinical specialities are under-represented in local and national undergraduate curricula that are too generic to guide student learning adequately. This article gives practical advice, grounded in the published literature, on how to develop a speciality-specific national curriculum.

Medical curricula are moving from a mainly local focus to embrace national and international standards. This gathered momentum with the publication of the first *Tomorrow's Doctors* (General Medical Council (GMC), 1993) which went some way to defining curricula methodologies and content. The Scottish doctor project (Simpson et al, 2002), learning outcomes for the preregistration house officer (PRHO) year (Paterson Davenport et al, 2004), and similar projects from abroad (Palés et al, 2004) have attempted to define national curricula.

There have been attempts to define international standards in medical education (Institute for International Medical Education, 2002) and assessment strategies to ensure that such standards are met (Stern et al, 2003). However, these broad principle approaches cannot detail exactly what graduates need to know and be able to do, which severely limits their usefulness when planning detailed curricula. This is exemplified in the EC 93/16, which defines standards for the duration and content of undergraduate medical courses but accepts that these are open to variations in interpretation (Leinster, 2003).

Calls for national standards and qualifying assessments (Wass, 2005) neglect that there is no accepted national medical curriculum. Attempts to define one have been too generic to guide the detailed content of such assessments. However, some specialities are developing their own curricula using different strategies.

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Reverting almost to a structure of the disciplines approach, experts in various specialities have defined core curricula for undergraduate training in their own specialities. Examples include a student formulary (Maxwell and Walley, 2003), global core recommendations for a musculoskeletal undergraduate curriculum (Woolf et al, 2004), and community-based education (Kristina et al, 2004). In contrast to *Tomorrow's Doctors* (GMC, 1993) and the Scottish doctor project (Simpson et al, 2002) these curricula give the depth of information to guide students in what they need to learn as core material (as is required by the Medical School Charter (Council of Heads of Medical Schools and British Medical Association, 2005)), provide course and curriculum designers with clear, detailed information on content and provide those designing assessments with a statement of expected national standards.

The authors describe the development of one such national undergraduate curriculum – core learning outcomes in sexual and reproductive health and HIV (human immunodeficiency virus) for medical undergraduates (British Association for Sexual Health and HIV (BASHH), 2005; Estcourt and Evans, 2005), the steps in its development, the reasons behind the choices made, and the lessons learned. The authors hope that this article will add process validity to these outcomes, and inform others starting out on similar projects.

Methods

Identifying the need for updated outcomes in sexual and reproductive health and HIV

In 1998 the *National Consensus Document on Essential Topics in Genitourinary Medicine that should be Included in the Undergraduate Core Curriculum of all Medical Schools* (Medical Society for the Study of Venereal Diseases, 1998) was published in response to both evidence of marked variability in the content of medical school sexual health curricula and to the first *Tomorrow's Doctors* (GMC, 1993).

By 2004 these guidelines needed updating. Genitourinary medicine and HIV medicine had become more integrated with other branches of sexual and reproductive health, and with other specialities. Technological, therapeutic and basic science advances had changed the way we viewed and managed many sexually transmitted infections and conditions. The publication of the National Strategy for Sexual Health and HIV highlighted a greater role for primary care in sexual health service provision and prioritized postgraduate training (Department of Health, 2001). To sustain increased service capacity, postgraduate training initiatives would have to be underpinned by improved undergraduate sexual and reproductive health and HIV competence for all graduates, not just those who will become specialist sexual health care providers (Estcourt and Evans, 2005).

Selection of members

The BASHH board commissioned a working group recruited by advert in the Society's newsletter. Enthusiasm for the project, a track record in undergraduate teaching, and good team-working skills were key requirements. Nine members were chosen to represent different geographical locations; varied teaching experiences (medical schools with sexual health undergraduate teaching time ranging from 4 weeks to 4 hours); type of institution (teaching and non-teaching hospitals, clinics with and without senior house officers); range of subspeciality interests; and to include both consultants and non-consultant career grade doctors. The original remit of the group was modest – to update the existing genitourinary and HIV guidelines – so the initial composition of the group was restricted to specialists in these areas, and GPs, nurses, doctors in training, patients and medical students were not directly represented.

Once the group had met on several occasions it became apparent that the content of the document, and therefore the membership of the group, should be widened to include perspectives from the

Faculty of Family Planning and Reproductive Health Care (FFPRHC), the British HIV Association (BHIVA) and the British Infection Society (BIS), while remaining a manageable size for consensus building. Among others joining the group was a senior academic with experience of representing the Royal College of Obstetricians and Gynaecologists and the GMC education subgroup.

Towards the end of the process two educationalists were co-opted to advise on the structure of the document.

Reaching a consensus

The group met three times, at 3-monthly intervals, for a meeting of 2–3 hours' duration. Initially the prior consensus document was used as a framework and discussed until a consensus on changes was agreed. This consensus was emailed to all participants who consulted with their local clinical teams. At the next meeting the previously agreed consensus was reviewed and changes discussed until a new consensus was agreed, and the cycle started again. Therefore the process was iterative with cycles of cascaded consultation.

The diversity and enthusiasm of members of the group resulted in a wide variety of opinions and healthy discussion. Consensus was always reached through discussion and debate, facilitation and strong chairing, voting was not required.

The final draft was disseminated for comment to the speciality boards of the four national specialist societies involved (BASHH, BHIVA, BIS, FFPRHC) resulting in minor changes that were discussed and agreed unanimously by the working group. At this point two educationalists gave advice on the final wording and presentation of the core learning outcomes.

Results

In 9 months of consultation and debate 35 core learning outcomes were developed, falling into eight main areas (*Table 1*). Outcomes were agreed and accepted by all members of the group, and all the professional bodies involved. The core learning outcomes document was launched in May 2005, published in a peer reviewed journal (Estcourt and Evans, 2005) and is available via the relevant societies' web sites. It has been disseminated to all medical schools via the education sub-committee of the council of heads of medical schools and directly to the GMC, British Medical Association, Department of Health and other stakeholders in medical education.

Discussion

Building on previous structures

Developing or agreeing the structure of a curriculum is an initial step in the process. Some authors reach a structure through consultation, consensus and discussion (Woolf et al, 2004), others by using national published standards (Maxwell and Walley, 2003) such as *Tomorrow's Doctors* (GMC, 2003), through literature searches (Kristina et al, 2004), through a combination of these approaches (Simpson et al, 2002; Palés et al, 2004; Paterson Davenport et al, 2004; Newble et al, 2005), or by basing the foundation of the curriculum on population health needs (Schmidt et al, 2000).

The literature on small group learning agrees that having a structure to build on, a common language, and an agreed concept of the task are important factors for productive group work (Westberg and Jason, 1996; Boxtel et al, 2000). However, prior frameworks can lead to tacit bias; contextual cues can markedly affect the way that information is recalled from memory (Bruning et al, 2004), and factors as subtle as the headed paper on which a questionnaire is written can result in significant differences in responses (Schwartz, 1999). The use of a previous framework as a starting point for discussions enabled a rapid start to the process but lead to a narrow view of the task that resulted in a delay in realizing the importance of a more integrated approach involving wider stakeholders.

Building a consensus

Early on it is important to decide whether to meet or work at a distance. A range of methods have been described to develop a consensus using face-to-face methods including iterative approaches, workshops, focus groups and other strategies. In their development of a global musculoskeletal undergraduate curriculum, Woolf et al (2004) started with broad consultation and focus groups, narrowed items in two workshops of 'experts', and then disseminated the items widely for comment electronically until a consensus was reached.

Perhaps the widest referenced distance approach is the Delphi technique, a process 'designed to remove conference room impediments to a true expert consensus' (Gordon, 1994). Delphi techniques operate several rounds at a distance, with anonymity of responses ensured. The first round often collects opinions as items using open questions, and subsequent rounds narrow these items through voting. Those with extremes of opinions may be asked to justify their stance (anonymously) to the group, to allow others to consider various points of view. Consensus is usually reached within three or four rounds. Patterson Davenport et al (2004), for example, used a two-stage modified Delphi technique in which participants voted in the first stage whether or not to retain individual items and voted again in the second stage to prioritize retained items.

The authors chose a face-to-face approach and believe it succeeded in maintaining momentum, generating enthusiasm and ensuring timeliness.

Breadth of stakeholders – membership and consultation

Three main approaches to representation and consultation have been described. Some authors shared a similar approach to the authors, starting with a small group to gain a consensus and then involving wider consultation to ensure validity. In developing generic objectives for undergraduate community-based education, Kristina et al (2004) used quite a small panel to generate objectives from literature review, but gained validity through presentation to an international faculty panel. Similarly Palés et al's (2004) learning outcomes were generated by a working group comprising 15 teachers from various specialities and basic science backgrounds (but notably not representing some areas such as anatomy, biochemistry, paediatrics), and disseminating a final draft to wider stakeholders including departments in the medical school, graduates, health administrators and professional bodies, which resulted in some modifications.

An alternative approach starts with a wide consultation and then narrows membership when making choices – Newble et al (2005) consulted widely on a vision statement, but generated outcome objectives from the literature by a working party. These objectives were then disseminated for consultation and validation. The detailed content of the curriculum was generated

Table 1. Core learning outcomes in sexual and reproductive health and HIV for medical undergraduates

Clinical skills and clinical method	Obtain an appropriate sexual history to assess risk for sexually transmitted infections (STIs) and pregnancy and to communicate this risk to individual patients in a sensitive, non-judgmental manner
	Obtain a contraceptive and reproductive health history to assess contraceptive need and to discuss contraceptive choices to enable patients to make informed decisions on those choices
	Engage in relevant HIV pre-test discussions to assess relative risk of infection and enable patients to make an informed decision on testing
	Competently perform male and female genital examinations including speculum and pelvic examination and testicular examination
	Describe appropriate investigations, samples and sites of sampling for acute STIs
Practical procedures	Perform and interpret near patient pregnancy testing
	Take a routine cervical smear
	Take microbiological and virological swabs from ano-genital sites that are appropriate to the patient's symptoms and risk factors, and which are appropriate to the medical setting (GP, accident and emergency, the ward, outpatient clinics)
Patient management	Recognize and manage, under supervision, the following medical conditions that are not immediately life threatening but which require early treatment: female lower abdominal pain; genital ulceration/discharge/lumps; testicular pain
	Describe principles of partner notification for sexually transmitted infections (STIs) and HIV
	Identify and know where to refer patients who have been possible survivors of sexual assault
	Describe psychosexual and organic factors (e.g. arteriosclerosis affecting erectile dysfunction) contributing to sexual dysfunction
	Appreciate how sexual wellbeing and ill health, with reference to HIV and other STIs, impact on the individual both psychologically and physically. Recognize and describe to patients the psychological interventions available and their use in sexual health and HIV related problems
	Demonstrate basic knowledge of currently available contraceptive methods and be able to communicate to clients the mechanism of action and failure rate
	Understand situations in which the different methods of contraception may fail and be able to apply this in practice to routine medical care to avoid iatrogenic failures
	Manage under supervision, or refer as appropriate, the contraceptive needs of a client presenting with a medical condition that may contraindicate the method she/he is currently using
	Provide information and support decision making for women facing an unplanned pregnancy
	Provide information regarding different methods of termination of pregnancy (ToP) and legal procedures relating to referral for ToP
	Recognize medical presentations that may be caused by primary or established HIV infection
	Recognize, manage under supervision, or refer as appropriate, the presentations of HIV positive patients with pneumocystis pneumonia, candidiasis, toxoplasmosis, cryptococcosis, tuberculosis, Kaposi's sarcoma, lymphoma, hepatitis B and C
	Describe the basic principles of anti-HIV therapy, including major side effects and interactions of therapy
Health promotion and disease prevention	Explain principles of safer sex and risk reduction and be able to demonstrate correct condom technique
	Describe to a client methods of emergency contraception and indications and guidance for use
	Identify opportunities for sexual health promotion including opportunities for early diagnosis of HIV in related and unrelated medical contexts
	Outline national screening programmes relevant to sexual and reproductive health and HIV (currently cervical screening, chlamydia screening and antenatal HIV testing)
Basic, social and clinical sciences	Describe normal anatomy of male and female genital tract and reproductive physiology in women
	Understand factors that lead to unwanted pregnancy
	Understand the basic epidemiology of STIs and HIV and public health issues for control of spread of infection both locally and globally
	Explain pathogenesis of HIV and the major STIs
Attitudes, ethical understanding and legal responsibilities	Understand and practise legal responsibilities relevant to sexual activity and sexual health and HIV care (e.g. issues of consent, disclosure, providing care for minors, people with learning difficulties, suspected abuse, rape)
	Understand and practise confidentiality and be aware of current legislation concerning confidentiality with particular reference to sexual and reproductive health and HIV medicine
	Understand the role of the health care professional (HCP) in managing/referring a woman requesting ToP (including when the HCP is a conscientious objector)
The role of the doctor within the health service	Outline the ways in which sexual health services are different from general medical services, including access issues and public health role
Personal development (self care)	Describe the immediate, short term, and longer-term actions required after occupational exposure to blood borne viruses (e.g. needle stick injuries), and non-occupational exposure to potentially HIV infected body fluids
	Understand and practise the legal responsibilities relevant to health care workers who are HIV positive

From BASHH Undergraduate Education Working Group (2005)

from these objectives by multidisciplinary groups of clinicians and medical scientists working mainly in workshops, before a final cycle of broad consultation and validation.

Finally, some groups start large and stay large. Woolf et al (2004) included representatives of 29 countries to build their consensus of a core musculoskeletal curriculum (including only specialists in the field), using a mixture of face to face and distant consensus building techniques. Patterson Davenport et al (2004) recruited 74 doctors involved in PRHO training for a Delphi technique to prioritize exit learning outcomes for the PRHO year, although while the original items were defined by wide consultation, the decision-making process on which to keep and how to prioritize did not include PRHOs, senior house officers, other health-care professionals or patients.

The authors' project started with a very narrow remit and initial group members were recruited to reflect this, resulting in a working group which did not directly include representatives from nursing, patient groups, medical students, or general practice. With the benefit of hindsight, as the remit of the group expanded in response to a shift towards much more integrated working and increasing merging of professional roles within sexual health clinics, the opportunity to broaden the membership of the group was missed. However, using cyclical cascading consultation ensured that some, but not all, of these groups had input. Dissemination and consultation of the final draft also widened the consultative pool.

Conclusions

As medical education moves towards more unified curricula and standards, the authors believe that broad principle curricula do not provide the detail required by either students to plan their learning or faculty to plan courses and assessments. The authors predict that an increasing number of consensus curricula will emerge from the specialities, of which the core learning outcomes in sexual and reproductive health and HIV (BASSH, 2005) is one. By describing the process used, and reviewing the literature, it is hoped that this article will provide validity to these learning outcomes and guidance for those embarking on similar projects.

The key decisions in developing a curriculum can be divided into four steps: planning the process itself, deciding which processes and resources should be used to generate an initial framework, deciding on how a consensus will be reached and validated, and finally decisions about the depth, breadth and timing of the involvement of stakeholders in the process.

A range of approaches have been used, and perhaps worryingly many published suggestions of national and international curricula do not include any or sufficient validating data on who was involved or how a consensus was reached. The authors' experience demonstrates that a flexible and organic approach is required, and the iterative model using cyclical cascaded consultation may be transferable to other settings. **BJHM**

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British Association for Sexual Health and HIV (2005) *Core learning outcomes in sexual and reproductive health and HIV for medical undergraduates entering Foundation Training.* www.bashh.org/education/undergrad/index.asp (accessed 1 November 2007)
Boxtel C, Linden JVD, Kanselaar G (2000) Deep processing in a collaborative learning environment. In: Cowie H, Aalsvoort GVD, eds. *Social interation in learning and instruction. The meaning of discourse for the construction of knowledge.* Pergamom, Amsterdam: 161–78
Bruning RH, Schraw GJ, Norby MM, Ronning RR (2004) *Cognitive Psychology and Instruction.* 4th edn. Pearson Education Inc., Upper Saddle River, New Jersey
Council of Heads of Medical Schools, British Medical Association (2005) *Medical School Charter.* Council of Heads of Medical Schools & BMA Medical Students Committee, London
Department of Health (2001) *The national strategy for sexual health and HIV: better prevention, better services, better sexual health.* DoH, London
Estcourt C, Evans DE (2005) Core learning outcomes in sexual and reproductive health and HIV for medical undergraduates: improving skills of future providers. *Sex Transm Infect* **81**(5): 440
General Medical Council (1993) *Tomorrow's doctors: recommendations on undergraduate medical education.* GMC, London
General Medical Council (2003) *Tomorrow's Doctors.* GMC, London
Gordon TJ (1994) The Delphi Method. In: *Futures Research Methodology: American Council for the United Nations University Project.* American Council for the United Nations University, Washington DC
Institute for International Medical Education (2002) Global minimum essential requirements in medical education. *Med Teach* **24**(2): 130–5
Kristina TN, Majoor GD, van der Vleuten CP (2004) Defining generic objectives for community-based education in undergraduate medical programmes. *Med Educ* **38**(5): 510–21
Leinster S (2003) Standards in medical education in the European Union. *Med Teach* **25**(5): 507–9
Maxwell S, Walley T (2003) Teaching safe and effective prescribing in UK medical schools: a core curriculum for tomorrow's doctors. *Br J Clin Pharmacol* **55**(6): 496–503
Medical Society for the Study of Venereal Diseases (1998) *National Consensus Document on Essential Topics In Genito-Urinary Medicine that should be included in the Undergraduate Core Curriculum of all Medical Schools.* Medical Society for the Study of Venereal Diseases, London
Newble D, Stark P, Bax N, Lawson M (2005) Developing an outcome-focused core curriculum. *Med Educ* **39**(7): 680–7
Palés J, Cardellach F, Estrach M et al (2004) Defining the learning outcomes of graduates from the medical school at the University of Barcelona (Catalonia, Spain). *Med Teach* **26**(3): 239–43
Paterson Davenport LA, Hesketh EA, Macpherson SG, Harden RM (2004) Exit learning outcomes for the PRHO year: an evidence base for informed decisions. *Med Educ* **38**(1): 67–80
Schmidt HG, Magzoub M, Feletti G, Nooman Z, Vluggen P, eds (2000) *Handbook of community-based education: Theory and practices.* Network Publications, Maastricht
Schwartz N (1999) Self-report. How the questions shape the answers. *Am Psychol* **54**(2): 93–105
Simpson JG, Furnace J, Crosby J et al (2002) The Scottish doctor--learning outcomes for the medical undergraduate in Scotland: a foundation for competent and reflective practitioners. *Med Teach* **24**(2): 136–43
Stern DT, Wojtczak A, Schwarz MR (2003) The assessment of Global Minimum Essential Requirements in medical education. *Med Teach* **25**(6): 589–95
Wass V (2005) Ensuring medical students are 'fit for purpose'. *BMJ* **331**: 791–2
Westberg J, Jason H (1996) *Fostering Learning in Small Groups: A Practical Guide*. Springer Publishing Company inc, New York
Woolf AD, Walsh NE, Akesson K (2004) Global core recommendations for a musculoskeletal undergraduate curriculum. *Ann Rheum Dis* **63**(5): 517–24

KEY POINTS

- Consensus curricula developed by the specialities can provide sufficient depth for students to plan learning and faculty to develop appropriate content and assessment.
- Working from an existing framework gives an early focus but may restrict consideration of wider issues and lead to bias.
- Decisions as to whether all stakeholders or just a core group are involved in building the consensus will affect the methods used to gain consensus.
- Face-to-face meetings plus cycles of cascaded consultation can help widen inputs while keeping the group of manageable size to maintain progress.