Leicester Medical School Curriculum Redesign

Guiding and Educational Principles

Background
Motivated by major changes that have already occurred in the practice of clinical medicine, proposed further changes, Government Inquiries/Reports into healthcare [1,2], proposed changes to undergraduate and postgraduate medical education [3-5] and evolving requirements of the GMC and Health Service [6-10], Leicester Medical School has initiated a full redesign of its curriculum.

Process
The Medical School has surveyed the views of non-clinical teachers, clinical teachers [mostly General Practitioners and Consultants] and recently qualified Leicester Medical graduates on the strengths and weaknesses of the current curriculum. Current students were invited to attend Curriculum Redesign Focus Groups. Discussions have also taken place with Patient Participation Groups. These discussions involved all aspects of the curriculum, both the content and logistics. The Medical School Curriculum Redesign team have considered the feedback from the above and have drafted a framework for the new curriculum.

Guiding Principles
1. The primary learning objective is for students to become safe, competent, compassionate, caring, emotionally and professionally resilient doctors.
2. A focus on dignity and caring, including compassionate caring, for patients.
3. The curriculum will be patient based, not disease or protocol based. This is illustrated by the practise of personalised medicine that recognizes external evidence can inform, but can never replace, individual clinical expertise. It is this individual expertise that is used to decide whether external guidelines are relevant to the patient’s clinical state and thus whether they should be applied. Students will be encouraged to develop and use “mindlines” [11] and to be aware of the potential problems posed by guidelines [12].
4. The curriculum will major on the medical science required to optimise students’ clinical reasoning. This medical science will be repeated and referred to throughout the Programme. The medical science will be learnt using an active learning approach [13].
5. A patient and layperson focused course. A patient is defined as an individual who has experienced or is experiencing an illness. A layperson is defined as an individual who is not training or qualified in Medicine. A patient may be a layperson or a member of the Medical profession. Patients and laypeople will be integral to:
   a. Curriculum design
   b. Curriculum delivery including teaching
c. Assessments from the point of admission to qualification including assessment of professionalism

6. A vocational course – an educational design that is dedicated to providing students with the necessary skills for a career in medicine. The emphasis of clinical teaching will not just be on knowing facts but also on assessing the student’s interaction with the patient and their medical professionalism. The Royal College of Physicians has recognised the importance of this: “Medicine is more than the sum of our knowledge about disease. Medicine concerns the experiences, feelings, and interpretations of human beings in often extraordinary moments of fear, anxiety, and doubt. In this extremely vulnerable position, it is medical professionalism that underpins the trust the public has in doctors” [14].

7. An apprenticeship-based course – on-the-job training accompanied by relevant study [15]. In general, apprenticeship enables practitioners to gain a licence to practise in a regulated profession, such as medicine.

8. A high level of Primary Care contribution to and apprenticeship within the course [16,17].

9. Active promotion of the development of reasoning and clinical reasoning skills [18].

*Reasoning* refers to the process of drawing conclusions from information.

*Deductive* reasoning infers that the truth of the initial information guarantees the truth of the conclusion.

*Inductive* reasoning infers that the truth of the initial information makes the conclusion probable but not certain.

*Clinical reasoning* can be defined as thinking through all of the various aspects of patient care to arrive at a reasonable decision regarding the prevention, diagnosis, or treatment of a clinical problem in a specific patient. Patient care includes taking a history, including considering issues such as the patient’s mental state, socio-economic and ethnic background, conducting a physical examination, ordering appropriate laboratory tests and diagnostic procedures, designing safe and effective treatment regimens or preventative strategies and providing a patient and their carers with appropriate education and counselling.

10. The following themes will be integral to the 5-year Programme:

a. Authenticity – this entails discovering, understanding, and being faithful to one’s core values and purpose. Instead of emulating the characteristics, traits, or practices of others, authentic individuals interrogate their life experiences to discover their values and purpose through a process of continuous self-reflection [19]. We will also encourage our educators to be authentic

b. Professionalism and the development of Professional Identity [14]

c. Clinical reasoning [18]

d. Ethics and the Law [14]

e. Global and regional disease perspectives
Patient diversity, with an emphasis on developing judgment without being judgmental [20]

Humanities

Optimal use of NHS resources [21]

Patient safety [9]

Resilience, Mindfulness and seeking support [22,23]

Coverage of dealing with uncertainty [24, 25]. Examples of this are the application of inductive reasoning (see above) and heuristics.

Heuristics refers to experience-based techniques for problem solving, learning and discovery that find a solution that is not guaranteed to be optimal, but appropriate to a given set of goals. Examples of this include intuitive judgment and common sense.

Another example of dealing with uncertainty is the recognition that guidelines or protocols are designed to guide the care of a population of patients but are not certain to optimise the care of an individual patient [11,12,26]. Central to this recognition is that a crucial aspect of dealing with uncertainty is fully informing patients of the options available and the risk benefit ratio of the options – patient empowerment.

The teaching of interprofessional working will be achieved through interprofessional learning integrated throughout the curriculum and consolidated in clinical practice using an apprenticeship approach [3,27].

A commitment to developing team working skills and also the ability to work independently when required [3,27].

A commitment to further develop the Medical School’s Widening Participation programme [28].

For those students who decide that medicine is not for them, the Medical School will work with other Programmes within the University to allow medical students to leave the MBChB Programme with an alternative educational achievement.

The curriculum will be ‘rapidly responsive’ to changes in scientific knowledge and/or the delivery of health care. This will require highly accurate curriculum blueprinting and the digital technology to effect a change throughout the whole curriculum [3].

Educational Principles

1. The curriculum will be delivered in the context of patients, not diseases.

2. The educational approach will be an active learning model designed to develop and extend skills in self-regulated learning [29-31]. Students will be taught how to recognise their learning needs and to analyse and synthesise relevant information. This active learning approach will be delivered through a combination of large group lectures, small group seminars and independent learning. Students will be encouraged and helped to develop self-authorship [32], defined as the ability to collect, interpret, and analyse information and reflect on their own beliefs in order to form judgments. Students will “learn how to learn” [30].

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3. Students will be encouraged to make use of the very latest technology to enrich their learning. Students will learn how to source reliable information and learn about the rapidly developing field of ‘digital medicine’.

4. We will encourage our students to develop adaptive, rather than routine expertise [33]. Routine experts know all of the routines of a profession, as they become more experienced they simply become more efficient at what they have always been doing. Adaptive experts, know all of the routines, but in addition they relish the opportunity for invention. Adaptive experts appreciate their own knowledge but also realise how little they know in comparison to all there is to know. Adaptive experts constantly question their own knowledge, feel comfortable doing so and avoid strong emotional attachments to a particular set of beliefs.

5. The curriculum will incorporate varied teaching styles and approaches to meet the needs of a diverse student population.

6. Learning through apprenticeship will be a priority [15]. Apprenticeship learning will be facilitated by placements in a single locality for longer periods with enhanced support and feedback to students.

7. Respected role models will be used to inspire students’ learning.

8. There will be very early clinical experience (VECE) to drive and inspire learning during the early years of the course.

9. Prior to VECE students will be taught and assessed in the principles of Professionalism.

10. Teaching and learning of Reasoning and Clinical Reasoning [18] will start at the beginning of the Programme and continue throughout the entire Programme.

11. Modern imaging techniques will be used to support the teaching of anatomy (which will include cadaveric dissection), physiology and pathology.

12. The following will be given particular prominence in the initial design and delivery of the curriculum (this list may change in line with health care priorities):
   a. Patients with acute illness
   b. Patients with diabetes
   c. Patients with mental health disorders, including dementia
   d. Patients with multiple illnesses [34]
   e. Patients with obesity
   f. Frail older people
   g. Patients with a disability

13. The primary source of feedback for students regarding their clinical competency will be experienced clinicians to whom a student is apprenticed. ‘Tick box’ exercises will be minimised.

14. Peer teaching will be strongly encouraged. However, students who wish to peer teach will be taught how to teach by the Medical School and their teaching will be accredited and reviewed.

15. During the clinical phases of the Programme, the following patient safety issues will be specifically addressed:
a. Accurate record keeping
b. Clinical acumen
c. Communication to enhance effective patient hand-over
d. Effective shift working
e. Prescribing and therapeutics
f. The prioritisation of patients and tasks

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