

ENHANCING EDUCATION AND PRACTICE

A Longitudinal, Patient-Centred, Integrated Curriculum: Facilitating Community-Based Education in a Rural Clinical School

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ABSTRACT *The Greater Murray Clinical School (GMCS) was founded with two main aims in mind one, to provide a community-based learning environment offering diversified clinical educational experiences, and two, by doing so, to help address the doctor shortage for Australians living in rural and remote areas. The GMCS is a community-orientated and community-based clinical school, which has replaced the typical discipline-based curriculum with a longitudinal, patient-centred one. Students are attached to patients—called “the longitudinal patient”—whom they follow through all stages of their care. They share with patients their experience of illness and disease, their varying care needs, and how these are addressed by different service providers. The philosophy of the course, its implementation and our initial experiences are described.*

KEYWORDS *Community-based education, community-oriented education, curriculum, undergraduate education, adult learning, patient-centred learning.*

Let us emancipate the student, and give him time and opportunity for the cultivation of his mind, so that in his pupillage he shall not be a puppet in the hands of others, but rather a self-relying and reflecting being. (Sir William Osler)

The University of New South Wales (UNSW) offers a six-year medical programme for 180 students per year. The first three years cover the pre-clinical content of the course using the traditional lecture-based teaching style. Four

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clinical schools, centred on tertiary hospitals across the metropolitan area of Sydney, provide the three-year clinical programme.

In January 2000, in collaboration with the Greater Murray Area Health Service and the Commonwealth Department of Health and Aged Care, the UNSW established the Greater Murray Clinical School (GMCS) as its fifth clinical campus, located in rural south-western New South Wales.

The Greater Murray Area covers 160,000 km² with a population of 257,000 living in three major regional centres (Wagga Wagga—58,000, Albury—48,000, and Griffith—23,000) and numerous smaller towns and communities.

This new rural clinical school has two campuses located in the rural centres of Wagga Wagga and Albury, which are 130 km apart. Each campus, when fully developed, will accommodate 24 students, i.e. eight in each of the three years.

The two main aims of the school are to provide a community-based learning environment offering diversified clinical educational experiences, and by doing so, to help address the doctor shortage for Australians living in rural and remote areas.

Vision of the Greater Murray Graduate

The vision of the “Greater Murray Graduate” was guided by reflections on the roles of the doctor in society and the educational approaches required to achieve these (Table 1).

Our graduates should be able to pursue a career in any branch of medicine, but above all should see themselves as clinicians, i.e. doctors “[who] combine treatment for the patient, as a personal case of disease, with concern for the patient, as a personal instance of mankind, into the unified mixture that is clinical care” (Feinstein, 1967).

We place a major emphasis on students learning to assess the impact of disease and illness on the patients and their families, i.e. being able to understand the distinction between the disease,¹ illness² and sickness³ concepts in the provision of medical care. Holism in this course embraces the shift to the somato-psycho-socio-semiotic paradigm of health care, exploring not only the physical, psychological and social components of the disease, but emphasising the importance of helping patients find meaning in their ailment, i.e. being truly patient-centred (Pauli *et al.*, 2000).

The Longitudinal, Patient-Centred, Integrated Curriculum

The newly developed curriculum reflects these considerations. Adopting a community-orientated, community-based approach was the obvious way forward, not only because of the schools rural location, but also for educational reasons.

Table 1. Issues guiding the curriculum development

The roles of the doctor	Historically medicine was entrusted into the shaman, he cured the sick (doctor), directed communal sacrifice (priest) and escorted the dead to another world (undertaker).
Contextual relationships between doctors and patients	Etymologically patient means “sufferer”, and doctor means “teacher or healer”. The doctor–patient relationship initiates healing—meaning “to make whole”.
Disease in the community	Most illness is cared for in the community, hospital-based care is uncommon (Gray, 1999; White <i>et al.</i> , 1961).
Changes to medical care	The discoveries and technological developments in the early 20th century formed the basis of modern medicine, leading to a “disease focus”. The inadvertent consequences have been a loss of “patient/illness focus”. Hospitals today mostly deal with acute and/or life-threatening diseases, and patients are typically discharged back into the community early in their recovery stage.
Approaching medical care	Patients present with symptoms, rather than diagnoses; hence teaching has to be symptom, rather than system-orientated. Clinical reasoning in the context of “this patient” is ultimately more important than knowing all the facts.
Additional skills for the 21st century	Students require skills in self-education and evaluation, leadership, team working and management (Bligh, 1999). Students require an understanding of community morbidity, long-term and continuing care, and the effects of social and psychological factors on illness and disease (Fraser, 1991).

Symptoms initiate the need for medical care and the continuum of care starts with self-care. If not alleviated by self-care patients invariably present to their local community-based doctor. Most of these problems can be solved in the consultation; others require a few simple investigations, supplementary treatment by allied health professionals or the input from a specialist. Only occasionally a patient will be admitted for further treatment to hospital.

The process of providing care itself occurs along another continuum—history taking and physical examination; engaging with the patient in explaining the presenting problem; negotiating a treatment plan; assessing the impact of the current illness on the person and their family; and finally, monitoring the care episode.

Students follow patients through the continuum of their care, such as experiencing the different approach taken by each health care professional in dealing with the same complaint. Through sharing with the patients the

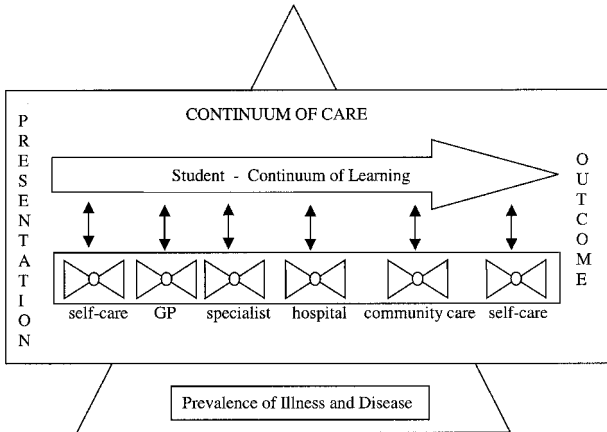


Figure 1. Learning at GMCS occurs along the continuum of patient care and is based on the prevalence of illness and disease within the community.

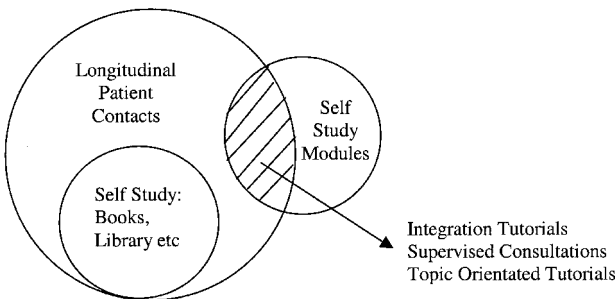


Figure 2. Learning framework for the Greater Murray Clinical School.

experiences of their care students gain an understanding of the personal dimension of the illness (Bruce, 1996; Verby, 1985) (Figures 1 and 2).

Following patients through their health care fosters integration of knowledge, processes and attitudes. One symptom can be caused by a variety of diseases, and different health care professionals use a range of approaches to restore a patient’s health. Being involved in all aspects of care links the physical, psychological, social and experiential components of health and disease.

Implementation of the Curriculum

Virtually all medical and allied health care providers in the area were instrumental in establishing the clinical school. Their enthusiasm and tolerance have allowed us to develop a community-based programme, and their ongoing

support has ensured that students have open access to all available health services.

Introduction Period

Students come to the clinical school after three years of didactic instruction, very much dominated by facts rather than thinking (the curriculum is undergoing revision), and with minimal clinical experience.

A six-week introduction period prepares the student for their new learning environment. First, faculty staff introduce the students to the local community and community organisations as well as their various medical and allied health teachers.

Initial practice-based teaching sessions, conducted by faculty staff, are designed to improve students' history taking and physical examination skills. These sessions also teach students how to identify learning needs and learning opportunities generated from patient encounters.

Tutorials familiarise students with the philosophy of medical care and the scientific methods in clinical medicine covering epidemiology, statistics, critical thinking, and problem solving skills in different contexts. Other issues addressed include self-directed learning skills, and handling conflict and work-related stress, especially that caused by having to confront a patient's and one's own mortality (Moore-West *et al.*, 1989; Worley *et al.*, 2000).

Ongoing Teaching

The school has only one full-time academic who administers the campus, and two part-time specialists (one day/week) who provide formal medical and surgical teaching. For most of the teaching associated with the longitudinal patient-centred method the school depends on the goodwill of general practitioners and specialists in private practice.

A typical student week is illustrated in Table 2. Up to 80% of the student's time is allocated to direct patient contacts and self-study. Students work in pairs and are attached to patients who consent to being involved in teaching. These patients are identified from a list of prescribed symptoms and diseases mostly by GPs; however, students are encouraged to meet patients with either less common, or more severe presentations of common conditions in specialist offices and the emergency department.

Longitudinal patients are introduced to the students by way of their presenting symptom. Students then explore the history and examine the patient before presenting their findings to the attending physician. Subsequently they go with their patients to investigations, specialist and allied health appointments. Here students present the patient's history and demonstrate their findings so far, and discuss with providers their management ideas. In turn providers explain their approach to this patient, demonstrate specific skills and indicate short- and long-term

Table 2. Typical student week at Greater Murray Clinical School

	Mon	Tue	Wed	Thur	Fri
9		CPC			SPI
10					
11					
12					
2	Integration				
3	tutorial	GPA			
4	Review of				Topic of
5	logbook				the week

CPC=clinico-pathological conference; GPA=general practice attachment; SPI-student-patient interaction.

management options. These providers, too, help the students to identify their learning needs and learning opportunities arising from this consultation.

If the patient requires hospital treatment the students clerk them during their hospital stay, and they see the patient at home following discharge. At follow-up consultations with the general practitioner or specialist the students again present the patient's history and discuss their ongoing management plans.

One day a week is set aside for interactive teaching sessions with academic staff. These sessions include bedside teaching sessions to monitor the students' skills in relation to physical examination and clinical reasoning, topic-orientated tutorials, and integration tutorials. In addition students can organise resource sessions with any teacher according to their needs, e.g. practising procedures in the skills laboratory.

Supporting Self-directed Learning

Students keep a portfolio of their learning activities, outlining their contacts with patients and their families or carers, investigations and the management provided by all involved. The portfolio is expected to reflect their learning experiences, their responses to any critical incidents and what they have learnt from these.

Symptom-orientated self-study modules—currently covering a limited number of symptoms—are web-based resources designed to supplement the students' learning from the patient and from traditional resources such as textbooks and journals. The modules follow a hierarchical structure, though they may be used in any order. The first segment of each module reviews the relevant basic sciences, the second expands the knowledge components in a clinical context, and the third and fourth deal with clinical reasoning and management issues, respectively. Overall they reinforce knowledge, process, and attitudinal and contextual issues of clinical practice.

Table 3. Framework for discussion in the integration tutorial

Presentation	<p>NOT LONGER THAN 10 MIN</p> <p>provide a printout of your powerpoint presentation for your fellow students</p>
Lead a discussion	<p>PROVIDE A SET OF QUESTIONS CONSIDERING THE FOLLOWING DOMAINS, if relevant</p> <ul style="list-style-type: none"> ● Presenting condition <ul style="list-style-type: none"> ○ anatomy ○ patho-physiology ○ medical/surgical detail ○ selection of tests ○ management ● Awareness of <ul style="list-style-type: none"> ○ what is wrong in the patient's mind ○ what is important to the patient in terms of investigation and management ○ possible factors that may influence the patient's choice of management, including wishes for self-management ○ YOUR thinking and feelings about the patient's illness ○ best evidence for the management considering THIS patient's circumstances ● Clinical skills <ul style="list-style-type: none"> ○ what particular skills do you need to deal with this condition (history/examination/manual skills) ● Referral <ul style="list-style-type: none"> ○ to whom ○ why ○ when ○ exercise—write a referral letter ● What other conditions may need to be considered ● Continuing management <ul style="list-style-type: none"> ○ monitoring—what/how often/by whom ○ compliance ● Ethical issues <ul style="list-style-type: none"> ○ autonomy/beneficence/non-maleficence/do no harm ○ refusal of treatment ● Health promotion <ul style="list-style-type: none"> ○ eating/smoking/alcohol/drugs/exercise ○ community resources ● Social issues <ul style="list-style-type: none"> ○ domestic ○ work/occupational health ○ sexual issues ○ gambling ○ disadvantage—unemployment/low income/ethnicity/English as a second language/gender/homelessness/etc. ● Legal issues <ul style="list-style-type: none"> ○ medical records/certificates/etc. ● Public health implications

Integration Tutorials—Making Sense of the Many Experiences

The weekly integration tutorial is the cornerstone of the formal teaching programme. Most of the learning during the week is self-directed and occurs with minimal supervision. Students have had diverse experiences and have acquired many bits of information from self-study. The integration tutorial provides the protective environment in which to debrief, share experiences and clarify outstanding issues.

Students lead the tutorial presenting their patients and direct discussions with their peers exploring the whole spectrum of issues in each domain (Table 3). The tutor's role is to clarify issues and expand on domains not covered by the student. Of particular importance is the demonstration of understanding the impact of the patients' environment on the development of their illness and the resources the community provides to help them and their families cope.

What We Learnt from the First Year

To our surprise the first year of the course went surprisingly smoothly and students have progressed exceptionally well. Nevertheless, we encountered a number of problems requiring further attention in future.

The implementation of the course was hampered by two recurrent problems—students attending a practice only to find no patients had been organised, and teachers complaining of being too busy or not having sufficient time to give a lecture during a busy consulting session.

After engaging all members of staff at a practice we were able to successfully establish our teaching practices. Practice managers decided to take responsibility to ensuring that their doctors seek the participation of patients appropriate for student attachments.

Changing the attitude towards teaching, especially by specialists, was much more difficult and remains a challenge. We approached all teachers individually to help them understand the teaching philosophy of the programme and to accept that students are responsible for their own learning. This process has gradually reduced clinicians' anxiety about "having only delivered part of all there is to know". Ongoing teacher training and more experience with teaching students whilst consulting led to adopting facilitation rather than lecturing as the prime teaching mode.

Students showed great difficulties in applying their knowledge. This was particularly obvious in bedside teaching sessions where key features of a patient's presentation were not recognised and linked to a diagnosis. Hence the development of management plans caused difficulties. In the future we will provide formal teaching of these essential clinical skills early in the course, and reinforce them throughout the year.

Students showed great enthusiasm in following patients through the diagnostic and therapeutic part of the care continuum; however, we found

them quite reluctant to follow them through the rehabilitative phase of the disease, and back into community care following discharge from the hospital. In the end we had to accept that encouragement failed to achieve our aim of getting students to complete the full cycle of care. Consequently, we made it a requirement to write case reports on a number of patients outlining how their different care needs were met over time and how patients responded to the different stages of their care. These case studies now provide the basis for interdisciplinary case conferences held right through the year.

Currently many of the key attributes of the curriculum are not aligned with the assessment process, which consists of the traditional end-of-year summative examination of a long multiple choice paper, short answer questions and a clinical OSCE. The assessment working party of faculty has acknowledged the deficiencies in the exam process and has given us assurance to investigate a trial of portfolio-based reflective assessments as a major exam component next year.

Discussion

The curriculum for the Greater Murray Clinical School is based on critical reflection of the patients' needs for health care, the scientific basis of the practice of medicine and the best available evidence in medical education. Being located in rural Australia the decision to develop a community-orientated, community-based programme was obvious.

Acknowledging the fact that most disease and illness occurs and is treated in the community, learning starts with generalist, specialist and allied health care providers in the primary care environment. Being familiar with the varied presentation and treatment of common conditions students will be confronted with the more serious presentations of common diseases and rare conditions at a later stage during a tertiary hospital attachment. It is hoped that these students are capable of bringing some community context into this care environment currently disinterested in dealing with the impact of disease and its management on patients and their families.

To achieve learning within the community the discipline-centred approach to learning has been replaced by a longitudinal, patient-centred one with students following their patients through the health care system. This approach is based on "adult learning" principles (Knowles, 1990) and aims to achieve contextual (deep) and reflective (understanding) learning. Linking learning to personal experiences not only promotes the retention of facts, it also enhances the development of diagnostic reasoning skills (Bordage, 1994). Learning in depth from a single case has been tried in relation to cancer treatment at Groningen University/NL where evaluation showed that this approach had greater learning potential than seeing several patients superficially (Finlay *et al.*, 1994).

This community-based model provides a holistic approach to medical education. It is flexible to meet students' learning needs and provides them with a more meaningful learning environment (Irby, 1995; Moore-West *et al.*, 1989; Worley *et al.*, 2000) in which to experience the natural and treated progression of disease, care for chronic diseases in an outpatient environment, preventive care and health promotion. The environment fosters the development of communication skills, and an appreciation of the social, ethical, financial and organisational aspects of medical care in an emotionally supportive atmosphere (Bordage, 1994; Moore-West *et al.*, 1989).

However, as Dewey (McAllister *et al.*, 1997) pointed out in 1933, experiences alone are not sufficient for true growth in learning. Reflection on an experience identifies the “needs to know”—be it content, skills or attitudes. Filling all identified gaps is essential to achieving true understanding, and to gaining the implicit knowledge needed to become a well-rounded clinician. In this way students acquire an education that provides them with lifelong learning skills—the importance of which has been expressed by John Shaw Billings (Boston, 1894). “The education of the doctor which goes on after he has his degree is, after all, the most important part” (quoted by Fraser, 1991). This will prepare them “to deal with the unexpected” rather than enabling them to simply perform specific tasks (Marinker, quoted by Fraser, 1991).

Despite all efforts to promote learning in this programme as a means to grow and to apply an experienced-based knowledge, we have to concede that the old dictum of “Assessment drives learning” (Bordage, 1994) is hard to overcome. To achieve the full potential inherent in this school's approach we require a change in assessment procedures. Faculty has acknowledged this, but legal issues have slowed the process. Ideally emphasis should be placed on ongoing formative assessments (Verby, 1988), with a clear focus on demonstrating clinical reasoning skills and the application of knowledge in the context of a particular patient rather than merely regurgitating lists of facts (Fraser, 1991; Godfrey, 1991; Newble & Entwistle, 1986).

Conclusions

The “in-depth” exposure of students to patients who exemplify common disease complexes fosters the development of the clinician attributes as described by Feinstein. The processes of the longitudinal patient-centred curriculum offer students an opportunity to discover what it means to be a true “physician healer”, who understands the “ancient magic” as much as the “modern science” of medical care and who embraces the values of the somato-psycho-socio-semiotic paradigm of health care.

Notes

1. Disease refers to the patho-physiological process.
2. Illness refers to the subjective experience of being unwell.
3. Sickness refers to the social role accepted when being unwell

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