Planning bedside teaching — 1. Overview

Ken Cox

With few exceptions, clinical teachers are very keen to help their students learn. Some make exceptional efforts to marshal groups of patients to ensure their students’ exposure to a range of physical signs, a task becoming increasingly difficult with changes to the hospital system. But clinical teachers suffer from educational neglect. Clinical teaching is often regarded as unmanageably ad hoc, since the arrival of patients with maladies which illustrate the topics to be covered in a curriculum cannot easily be predicted or controlled. Clinical teachers frequently have no thorough briefing on the clinical curriculum or training in executing it. The clinical curriculum on paper may contain no detailed plan of exactly what is to be taught, nor to what level of expertise.

Despite their relative closeness to their students, many clinical teachers know only a little about what each student knows or doesn’t know or is supposed to know. Many have no record of their students’ performance, and no follow-up of previously detected defects in skill or style. Inadequate supervision of student learning was commonplace in our studies of ward-based teaching of physical signs.

Clinical teachers may often waste the precious time with the patient by dealing with book knowledge which could be more comfortably learned elsewhere. Some teaching is not even conducted at the bedside! In the United States more than 50% of so-called clinical teaching time may be spent in the conference room, with less than 25% at the bedside. Students spend less than 5% of the time demonstrating their clinical skills to teachers. To compound the difficulties, patients, charts and investigational data are frequently unavailable when are they are needed for teaching.

Few US medical schools monitor their students’ interview and physical examination technique on more than a few patients, and some never supervised the whole process on even one patient. Clinical skills are never learned if clinical medicine is seen as a matter of charts and test results.

The richness of clinical teaching opportunities is diminishing as Australian teaching hospitals become brief-stay locations for procedures and investigations. The optimal use of every clinical encounter becomes increasingly critical if students and practitioners are to learn to detect the faint evidence of early disease, and to discriminate on clinical grounds those who need investigation from those who don’t.

These concerns about clinical teaching reflect on medical schools more than on individual teachers, who lack serious guidance on their teaching tasks. Despite the need for careful planning and supervision of clinical education, no formal university program directed specifically to clinical teachers existed anywhere in the world until 1991. The School of Medical Education at the University of New South Wales began a distance learning Master of Clinical Education and a graduate Diploma in Clinical Education in February 1991, with the support of the Family Medicine Program. Clinical teaching subjects had been part of the course work Master of Health Personnel Education program begun in 1975, but no degree program had been devoted solely to clinical education.

This series of papers sets out a sequential plan used in that program for clinical teachers to maximise the "educational mileage" of the student’s learning from the “prime time” of each experience with a patient.

The plan links a number of educationally proven steps into two phases — the clinical experience and the explanation of the clinical events. This first paper outlines the steps within these phases. Subsequent papers elaborate the clinical teacher’s tasks and roles at each step.

The educational instructions are simple — Work out what you want to do before you start, and stop and think after you’ve done it. The former phase links the student’s previous knowledge with the current patient. The latter phase reflects on the experience, connects it with relevant theory, and devises how to do it better next time.

Experience cycle

The first step is the preparation necessary before an undergraduate may lay a hand on a patient.

1. Preparation before clinical practice

Are the students ready for bedside learning?

Educational research demonstrates how learning is built on what is already known. Preparation teaches drills, routines and a range of generalisable skills before the student begins handling patients. Clinical teachers need sufficient familiarity with the curriculum to know exactly what preparation their students should have received. Clinical teachers also need to check what their students can actually do.

2. Briefing before seeing the patient

Briefing the students before meeting a particular patient takes note of the specific characteristics of the patient and his or her disease, and the opportunities available for learning. Briefing, by the teacher models an approach to the patient as a sick human being from whom the trainee or student can learn, not as "clinical material".

Briefing

Preparation

Briefing orients the student to the patient, to what can be expected and what to look for. Briefing "anticipates" the experience. Educationally, briefing is an "advance organiser" which creates a framework into which the anticipated learning can be fitted.

3. Clinical experience with the patient

Briefing is followed by direct experience with the living clinical evidence in the patient, educationally the most powerful input into learning.

Clinical interaction

Briefing

Preparation
Clinical interaction comprises some or all of the activities of discussing the illness with the patient, examining the physical signs, interpreting the evidence elicited, and negotiating the management plan with the patient. This is the most powerful phase of “learning from reality” through the vivid experience of the clinical manifestations of the diseases the student will face in practice. Some of their early images of patients, disease and management remain with clinicians through their practice lifetime.

4. Debriefing after leaving the patient

Debriefing reviews the events within the clinical interaction. What was seen, heard and felt? How should these data be interpreted? What can be learned from this patient?

Not every student has seen and understood what was going on. Some were attending to different phenomena — the teacher’s comments, the physical findings, the patient’s facial expressions, taking notes, avoiding being questioned.

Students vary in how much they already know and have seen — the basis of knowledge and experience into which this patient is fitted. Students vary in their perception of what was going on, and what it means to them. Educationally, this stage clarifies and corrects any misperceptions and misunderstandings, and summarises the findings into a logically coherent picture of disease.

Having checked what was understood and what was not, the clinical teacher looks ahead by guiding the students’ further learning in preparation for future patients.

This sequence of preparation, briefing, clinical experience, debriefing and planning further learning can be conceptualised as an experience cycle of planning to ensure that the most is gleaned from each patient. This experiential clinical learning cycle repeats itself from patient to patient.

The experience cycle maximises the value and detail of the time with the patient. That detail requires further processing, however, if the most is to be extracted from the experience. Three more steps are needed in elaborating the explanation.

The experience with one patient is connected with the student’s experience of other patients, with the experiences of many other clinicians and patients, and with the body of underpinning biopsychosocial knowledge. Educationally, the clinical picture is “understood” at many levels. Theory and research are brought in to elucidate the findings, giving greater breadth and depth to the bedside findings.

3. Working knowledge extracted from the “examined experience”

Explication is intellectually satisfying in putting together coherent pictures of all the cause-effect relationships in what had gone on in the clinical interaction. Many teachers stop at that level. The tension associated with uncertainty of what it all means has been relieved. But the explication can also lead on to What could I have done differently? and What will I do next time?. The examined experience is now translated into clinical working knowledge which is the practical foundation for clinical care and professional expertise.

Thoughtful clinical teachers help students to work out What is the most powerful evidence to look for? and What do you look for first? Students may devise an improved strategy or flow chart for searching for clinical evidence, or they may choose an optimal subset of what features to look for in a “case like this”, or they may develop useful decision rules such as indications or contraindications for action in the future. Educationally, students are using theory to derive “new” practical knowledge.

4. Preparation for future patients

The explanatory cycle is exited by the students resuming their task of learning to fill the gaps revealed in both the experience and explanation cycles.
Triphasíl: levonorgestrel, ethinylestradiol. ABRIDGED PRODUCT INFORMATION

TRIPHASIIL: levonorgestrel, ethinylestradiol. Patient instructions are supplied in each pack.

Indications: Oral Contraception.

Precautions: Before prescribing Triphasíl, a complete history and physical examination is desirable including PAP smear and urinalysis. Special attention should be given to blood pressure, breasts, abdomen and pelvic organs. Examination should be repeated annually. Triphasíl should not be prescribed before regular menstruation is established. Oral contraceptives may cause depression and increased fluid retention. Women with cardiac or renal dysfunction, convulsive disorders, migraine, or asthma require careful observation. Oral contraceptives may also cause cholestatic jaundice and they may be poorly metabolised in patients with impaired liver function. There are no contraindications in thromboplastin metabolism resulting in a relative prothrombin deficiency. Serum folate levels may be depressed. Pre-existing uterine leiomyomata may increase in size. 

Contraindications:
1. Thrombophlebitis or thromboembolic disorders, past or present.
2. Cerebrovascular or coronary artery disease.
3. Known or suspected carcinoma of the breast.
4. Known or suspected oestrogen dependent neoplasia.
5. Undiagnosed abnormal genital bleeding.
6. Known or suspected pregnancy.
7. Dengue or malignant liver tumour which developed during the use of oestrogen containing products.

Warnings: Use of oral contraceptives may be associated with increased risks of:
1. Cardiovascular side effects which increase with age and smoking.
2. Thromboembolic disorders. Oral contraceptives should be discontinued 4 weeks prior to surgery.
3. Myocardial infarction and coronary artery disease.
4. Hepatic tumours.
5. Gallbladder disease.
6. Hypertension; if there is unexplained loss of vision, discontinue oral contraceptive use and institute appropriate diagnostic/therapeutic measures. Undiagnosed, persistent or recurrent abnormal vaginal bleeding requires appropriate diagnostic measures. Women with breast nodules or a family history of breast cancer should be periodically monitored. Development of a new or an old pattern of breast discharge requires evaluation. Preoblastic and diabetic patients should be carefully observed. Increase in triglycerides/cholesterol has been observed.

Pregnancy classification: B3.

Lactation: Oral contraceptives may pass into breast milk and decrease the quantity and quality of breast milk.

Adverse Effects: For serious effects see WARNINGS. Minor adverse effects include nausea, vomiting, chloasma, headache, minor weight changes, breast tenderness, menstrual flow and libido changes, depressive moods and temporary slight intermenstrual bleeding.

Interactions: Contraceptive failure has occasionally been reported with co-administration of rifampicin, phenytoin, primodone, barbiturates and many antibiotics. Oral contraceptive have been reported to antagonise the effectiveness of antihypertensives, anticonvulsants, oral anticoagulants and hypoglycaemic agents. Oral contraceptives may also affect the effectiveness of theophylline, phenothiazines, corticosteroids, beta-adrenergic agents, tricyclic antidepressants, caffine and cyclosporin.

Availability: P.B.S. 4 cycles, 2neotil, 21 and 28 day packs containing 6 tablets 50ug Levonorgestrel/Ng and 30ug Ethinylestradiol (EE), 5 tablets 75ug N and 40ug EE, 10 tablets 125Ng and 30ug EE. 24 day packs contain an additional 7 inert tablets. Dosage: Oral, 21 day packs, one a day for 21 days followed by 7 tablet free days. 28 day packs, one a day. See pack or full prescribing data for complete instructions.

Overdosage: May cause nausea or withdrawal bleeding in females. Serious if effects have not been reported following overdose in young children. Before prescribing Triphasíl, please receive approval (Pharmacologic Goods Administration) full product information (014092) available from Wyeth Pharmaceuticals Pty Ltd.

Name and Address: Wyeth Pharmaceuticals Pty Ltd. ACN: 000289911, Gregory Place, Parramatta, NSW 2150. Phone No: (02) 635-7144

Based on Product Information: Date: 01 April 1992

Wyeth Pharmaceutical Pty Ltd. 9th (in GWY) Gregory Place, Parramatta, NSW 2150.

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A BRIDGED PRODUCT INFORMATION RETROVIR* Capsules

INDICATIONS: i) Treatment of adult patients with severe symptomatic human immunodeficiency virus infection (AIDS or advanced AIDS related complex).

ii) Treatment of HIV-positive adult patients with less than 500 CD4 cells/mm³.

CONTRAINDICATIONS: Patients who have potentially life-threatening allergic reactions to any of the components of the formulation.

WARNINGS: Patients on zidovudine should be under close clinical observation by physicians experienced in the treatment of patients with disease associated with HIV, either at a designated AIDS Unit or responsible to and working in association with a designated AIDS Unit. The full long-term safety and efficacy profile of zidovudine has not been completely defined, particularly in regard to prolonged use. Use Zidovudine with extreme caution in patients who have bone marrow compromise evidenced by granulocyte counts <1000/mm³ or haemoglobin <9.5 g/dL. Frequent blood counts are strongly recommended in patients with advanced HIV disease, and less frequently in asymptomatic HIV-infected individuals and patients with early HIV disease.

PRECAUTIONS: General: Safety in patients with renal or hepatic impairment has not been adequately studied.

Drug Interactions: Co-administration of zidovudine with drugs that are nephrotoxic, cytoxic, or which interfere with RBC/WBC number or function (e.g., diapone, systemic penicillamine, gold or salicylates) may increase the risk of toxicity. Phenobarbital may reduce renal excretion of zidovudine. If zidovudine is co-administered with other drugs metabolized by glucuronidation (e.g. paracetamol, aspirin, or indomethacin), the toxicity of other drug may be potentiated. Phenytin levels have been reported to be low in some patients receiving zidovudine, while in one case a high level was documented. There is one published report of neurotoxicity (profound lethargy) associated with concomitant use of zidovudine and acyclovir.

Pregnancy: Category B3. Zidovudine should be given to a pregnant woman only if clearly needed.

Nursing Mothers: Discontinue breastfeeding in women receiving zidovudine.

ADVERSE REACTIONS: The frequency and severity of adverse events particularly haematopoietic, granulocytopenia, anaemia) associated with the use of zidovudine in patients with advanced infection can be the subject of initial therapy. Sensitisation reactions, including anaphylaxis in one patient, have been reported in individuals receiving zidovudine therapy. Reversible pancytopenia has been reported. Anemia, neutropenia, anasarca, fever, rash and arthralgia were reported at a significantly greater rate in zidovudine recipients than in placebo recipients in controlled clinical trials. For less common side effects consult the full Product Information.

DOSAGE AND ADMINISTRATION: Symptomatic HIV infection (including AIDS and advanced ARC): 200 mg every four hours (1000 mg total daily dose). After seven months, the dose may be reduced to 100 mg every four hours (500 mg total daily dose). Asymptomatic HIV infection: 100 mg administered orally every four hours while awake (500 mg/day). Reduce or discontinue if significant anaemia and/or significant granulocytopenia occurs. Consult full Product Information for details.

HOW SUPPLIED: Zidovudine Capsules containing 100 mg zidovudine, beads of 100, and 250 mg zidovudine, blister packs of 40.

Full Product Information is available on request from Welcome Australia Limited (ACN 000 010 131) 5 Philip Street, Cabarita NSW 2127.

*Registered Trade Mark CWFS WEL 36268

This series of brief papers takes each of the steps in the two cycles in turn, and elaborates what the clinical teacher is to do in covering clinical learning and its relationships with both underlying science and practical working knowledge. The next article looks at the preparation of the student before beginning bedside learning.