Pedagogical Approaches

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TG #2 Pedagogical Approaches
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**Assignment:** This TG will review the various pedagogical approaches applicable to PreClerkship or academic components of clerkship (i.e. small or large group learning in various forms, and online modalities including ePortfolios. Then develop guidelines to help determine which content is best taught by the different pedagogical approaches in our local context utilizing a consistent weekly approach throughout most of PreClerkship, and potentially applied to clerkship.

**Keywords:** Problem based learning (PBL), Case base learning (CBL), Team based learning (TBL), Didactic lectures, Simulated Lab Modules (SLM), eLearning, ePortfolios.
Task Group Members

- Elizabeth Smith
- Sara Weselake
- Steven Promislow
- Maggie Morris
- Maggie Ford
- Brian Anderson
- Michael Cossoy
- Ana Hanlon-Dearman
- Carole Anne Northcott

- Don Houston
- José François
- Hal Loewen (librarian)
- Joanne Hamilton (facilitator)
An exercise in PBL

• Our task group’s path to truth ...

• Figure out what we need to learn
• Decide how to divide up the work
• Go and research topics individually
• Meet and present findings to group
• Discuss and find consensus
The problem

- Think of all possible (or at least reasonable or potentially useful) approaches for teaching medical students (or helping them to learn)
  - Identify literature if possible
- Determine whether and how it is being used in the current curriculum at U of M (and if relevant, elsewhere)
- Evaluate the advantages of each approach
- Evaluate the disadvantages of each approach
- Consider the costs or prerequisites of each approach
- Make general recommendation about where it may best be employed in the new curriculum
Approaches considered

• Drew list from the chapters in Dent and Harden, A Practical Guide for Medical Teachers, 3rd ed., with a few additions as we thought of them
• Divided them up among the task group members
• Members reviewed available literature and produced a 2-3 page report on their topic (reports posted on ManitobaCPD.com)
• Topic discussed in task group meeting, with goal to reach consensus about where the pedagogical method should best be used in the U of M curriculum
• From this exercise we also extracted some recurring themes or overarching principles about pedagogical approaches
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Overarching Principles

1. Need for comprehensive up to date inventory of what we teach, where we teach it, how we teach it, and how we evaluate it
2. Need for teacher training / faculty development (protected time and funding) and recognition for teaching roles
3. Adequate support / resources for educational programs (administrative, IT etc.)
4. Evaluation of teaching and of courses
5. Opportunities, encouragement, and time for self-directed learning
6. Integration of curricular components (e.g. PR with rest of course)
7. Adoption of best teaching modality for a given material
8. Choice of teaching strategies that foster deep learning rather than superficial or strategic learning
9. Encouragement for and training in reflective learning
10. It’s the outcome, stupid
Lectures

According to the Oxford English Dictionary, a lecture is defined as:

1. an educational talk to an audience, especially one of students at a university
2. a long, serious speech, especially one given as a scolding or reprimand
   • Oxford University Press 2011
Lectures

• Not all bad!
• They are the default ‘gold standard’ against which other teaching strategies are most often compared
  • Commonest result of such comparisons is that the new strategy is as good as lectures
• Lectures still comprise the majority of the ‘cognitive’ teaching in Med I and II (e.g. 69% of SF in block I)
  • and in meetings, CME events etc...
• Advantages
  • Instructor can be certain the material has been covered
  • Probably the most efficient means to convey information (though this can be overdone)
• Disadvantages
  • Passive, boring, poor retention
Lectures

• Optimal use of lecture format includes three steps
  • 1. Pre-reading of assigned materials
  • 2. Attentive engagement in lecture with note taking and questioning
  • 3. Review of notes and materials after the fact
  • Hence time should be allotted for steps 1 and 3

• Much can be done to improve lectures
  • Increase interactivity (can include i-clickers)
  • Use of audiovisual materials (though can be distracting if overdone)
  • Faculty training in good lecturing techniques

• How much should we use lectures?
  • Probably less than we do now
  • Probably best used as introduction (framing, overview) and as consolidation, NOT as sole means to cover material
Small Groups

• Advantages
  • Interactive rather than passive
  • Places greater responsibility on student for learning
  • Develops problem-solving skills
  • Encourages teamwork, communication skills, presentation
  • Generally high learner satisfaction

• Disadvantages
  • More instructor manpower needed
  • Tendency to turn into mini-lectures if tutors not well coached

• Currently used fairly frequently in Med I/II (PR, tutorials), and some in clerkship
Small Groups

- Many kinds of topics can be handled in tutorials, e.g.
  - Case-based problem solving
  - Debates
  - Application of knowledge to a task e.g. ‘devise an intervention to improve patient safety in …”

- Recommendations
  - Tutor’s continuity with a student group is desirable
  - Tutors need to be ‘up to speed’ with the topic to minimize perception that some tutors are more expert in topic area
  - Tutors need to adhere to the role of facilitator and not turn the session into a lecture
  - Clear learning goals
Problem-based Learning

• Currently represents a significant component of cognitive time in Med I and II
• Does not represent pure ‘problem-based learning’ as espoused at McMaster and elsewhere as no formal curricular content is taught solely in PR sessions
• Recommendation: PR cases should be developed in conjunction with cognitive course directors; some of the curricular content can be taken up in these sessions
Bedside Teaching

• Inpatients in teaching hospital wards have been the mainstay of bedside teaching since Flexner... BUT
  • Inpatients are often not the most suitable for clinical teaching
    • Too sick, too tired, too often off the ward, or too limited in ability to communicate
    • Too high a priority on rapid discharge
  • Available ‘suitable’ patients can no longer meet the needs of clinical teaching

• Therefore need alternate models
  • Simulators
  • Simulated and standardized patients
  • Ambulatory care patients
  • Community sites
Bedside Teaching

• Recommendations:
  • Inpatient clinical skills teaching could be conducted in the form of peer-assisted learning (see below)
  • Bedside teaching should where possible have structure and instructors should be trained to ensure that teaching is consistent
  • Go beyond the teaching hospital
Simulation

• “The research evidence is clear that high-fidelity medical simulations facilitate learning among trainees when used under the right conditions ... The evidence also shows that simulation-based medical education complements, but does not duplicate, education involving real patients in genuine settings.”

• Strengths of simulation based learning:
  • Student: opportunity to practice patient care in controlled environment away from bedside, adult learning principles, opportunity for “deliberate practice toward knowledge and skills mastery”
  • Patient: “increases the likelihood of a minimum competency level prior to clinical interaction and medical decision making. Patients are more willing to allow students to perform procedures ... after they have undergone simulation training”

• Limitations of simulation: faculty time, lack of faculty training, cost of equipment
Simulation

• Where should we use it
  • Clinical skills especially if risk or discomfort to patient
  • Communication skills
  • Rehearsing team activities (e.g. code blue)
Independent Learning

• **Students:**
  - learn on their own
  - have a measure of control over their learning (where/what/how/when to learn)
  - may be encouraged to develop their own learning plan
  - learn in response to specific needs
  - are supported by learning resources and study guides (advice on what to learn, how to learn it, how to assess if they’ve learned it, activities to reinforce the learning and relate it to clinical practice, info not otherwise readily available through sources to which students have access)

• **Teachers:**
  - manage the learning process
  - develop resource material
  - support students more on a one-to-one basis
Independent Learning

- NOT unstructured; must still integrate with curriculum
- DOES require role of faculty and educators (but is different, and requires different preparation)
- Key role of well-developed study guides
  - Web-based tools are helpful but not necessary
- Fits well with distributed learning/rural learning
- Should be structured to encourage reflective learning
- Is essential preparation for autonomous practice and life-long learning
Independent Learning

• Where we should use it
  • Should be used more often (but with more structure than many of the ‘assigned readings’ currently scheduled)
  • Can be a major strategy if learners are placed in rural or remote locations
  • Can be a major strategy for competency-based curriculum in which learners proceed at their own pace

• Costs
  • Faculty training to develop study guides and evaluation materials
  • Technical infrastructure if web-based
Reflective Learning

• Teaching students how to engage in positive reflective practice about their learning, both to assess their learning and to provide effective constructive feedback about their experience as learners.

• Reflective practice can help with four kinds of learning
  • Affective learning: learning through feelings and emotions
  • Cognitive learning: helping us think about things differently, more creatively
  • Positive action learning: turning what we think and feel into action that leads to a stronger student and physician
  • Social learning: helping us learn from and with others.
E-learning

- Can be used to provide technical infrastructure (study guides, self-evaluation tools) for independent learning
- Can support distance education and distributed student population
- Not used extensively at U of M but is heavily used at distributed faculties such as Northern BC and NOSM.
- Requires development of teaching materials and web resources, and robust IT support
Distance / Rural Learning

• Will be a key strategy if we wish to get students out to the rural areas
  • Having had a rewarding learning experience in a rural setting is one of the established predictors of which students will establish practice in a rural setting

• Currently is being done only for clinical rotations in family medicine (plus few others such as Obstetrics rotation in Thompson)

• Can be done much earlier in curriculum, as is done at other schools, notably NOSM, UBC, and Flinders
Distance / Rural Learning

• Involves e-learning and independent learning, and all of the things that they need
  • e.g. development of study guides and other learning resources; communication infrastructure
• Requires host facilities with space, clinical resources and infrastructure to accommodate trainees
• Need clinical supervisor, who should have recognition, support, and continuing education for this role
• Requires central faculty with time to mark quizzes and assignments etc., and personnel to administer program
• Should be designed to integrate clinical experience with academic study
Distance / Rural Learning

• A radical example:
• Assume a curriculum with parallel streams of content:
  • Mornings: traditional cognitive / fact assimilation
  • Afternoons: clinical skills, professionalism, health advocacy, medical humanities etc.
• Student in Med II doing ‘Kidney’ course does the rotation in Garden Hill
  • Mornings watches lectures by telelink, reads and carries out self-study with on-line quizzes and exercises, and participates electronically in small group tutorials with his/her peers
  • Afternoons goes to dialysis centre, participates in outpatient clinics with nurse practitioner or visiting physician; also does home visits with social worker, sits in on band council meetings, writes an essay on why there is no running water there...
Community & Service Learning

• Postgraduate Family Medicine program has emphasis on community based education
  • Otherwise few examples in our curriculum
• Encourages student involvement in community and prepares them to work there

• Service learning: participation in service oriented work to meet needs of community
  • e.g. WISH clinic
  • Ideally involves reflective practice
Peer Assisted Learning

- Students teach other students, generally as tutors
  - Can be at same level or different levels of training
  - Most commonly is used in examination preparation or review sessions

- Advantages
  - The best way to learn something is to have to teach it
  - Someone who has just learned a subject may have the best insight into the learner’s needs
  - Students acquire teaching skills

- Disadvantages
  - Takes more time to prepare to teach
  - Teachers are less expert
  - Not suitable for all types of material; must be matched carefully
Peer Assisted Learning

• Use at U of M currently
  • Some aspects of PR sessions
  • Presentation of PR research projects from block 2
  • Some informal student-run review sessions

• How it could be used:
  • Have clerks on ward rotations teach Med I / II students physical exam skills, using their own patients on the ward
  • Should have a defined curriculum of what they are responsible to teach
  • Supervision by ward resident +/- attending staff
Interprofessional Education

- Education of medical students alongside trainees in other allied health professions

- Advantages
  - Allows medical student to gain a greater insight into the roles these professions play in the healthcare quilt
  - Can be argued to be essential preparation for the future of interprofessional (team-based) practice

- Challenges
  - Hard to bring about because specific knowledge needs differ between professions
Interprofessional Education

• What we do currently at U of M
  • 3 explicit teaching sessions in blocks 1 and 2
• What we could do
  • Place students for clinical experience in patient care settings where multidisciplinary practice is the norm
    • e.g. ACCESS centres
  • Add component of interprofessional education to ITC
  • On ward rotations, students should accompany their patients down to OT and PT
    • to ensure that this happens, reflection on the experience could be included as a mandatory item in their portfolio
Electives

- Electives permit students to
  - Study topics of their choice in greater depth
  - Take responsibility for their own learning
  - Develop a questioning and critical approach to learning
- Harden and Dent favour allocating up to a third of curriculum to self-selected studies

- U of M currently allows no electives in Med I or Med II
  - BScMed and SWEAT program could be considered self-selected
  - This “doesn’t promote post-graduate behaviour” among students
- 21 weeks of elective time is all clustered at end of clerkship
Portfolios

• Relatively recent tool in medical education but is increasingly the backbone of the Royal College Maintenance of Certification program

• Three purposes
  • Assessment
  • Reflection
  • Learning contracts

• Can consist of many different components
  • Logs of cases seen or procedures done
  • Diaries of learning activities
  • Self-reflective activities

• May be paper-based or electronic
Portfolios

• Advantages
  • Helps with reflection
  • Allows student to identify learning needs and opportunities
  • Provides a tool for assessing competency-based learning
  • Flexible tool that may allow us to address non-medical expert CanMEDS roles

• Pitfalls
  • Students may not keep it up unless there is incentive; therefore there must be some evaluation of the portfolio
  • But if too focused on assessment, it will impair meaningful reflection!
  • Not a lot of outcomes data with portfolios, or techniques to standardize their implementation
Portfolios

• Portfolio probably works best if a mentor is appointed who will review it with the student periodically
  • Challenge the student’s self-reflection
  • Ensure that portfolio is being kept up
  • +/- perform assessment (debated)

• Recommendation
  • Develop instructional program around non-Medical Expert roles using portfolios
  • Develop mentoring program in parallel, with faculty development
  • Provide students with training on self-reflection
  • Stepwise implementation to ensure buy-in
Mentoring

- Mentors can provide students with
  - Support
  - Advice
  - Encouragement of self-assessment and reflection
  - Socialization in the professional world
  - Specifically, review/assessment of student’s portfolio
- Mentorship requires skill and training
- Current mentorship structure (groups of 6 students, 2 each from first 3 years with one faculty mentor) not optimal as one-on-one relationship not present, faculty inconsistently committed
- Proposal: recruit and train mentors to supervise individual student through all 4 years, and with core role of portfolio review; protect time to devote to the role
Evaluation

• Evaluation was not assigned to any of the 11 task groups
• It is an accepted principle of pedagogy that the methods of evaluation should be planned and developed at the same time as one designs the teaching program
• For different educational strategies and different content, different assessment tools are needed

• If we intend to foster independent learning and self-reflection, assessment tools should be oriented to these activities; if assessment remains strongly content-based, students will devote their time to cramming for the exam rather than deeper learning activities
Summary

• There are many instructional methods available that can be useful
• Choice of teaching strategy should always be made with an eye to what educational outcome we wish to achieve
• Consider ...
  • More independent (but structured) learning
  • More reflective learning
  • Better integration of PR
  • More outpatient than inpatient clinical exposure
  • More community-based/rural placement
  • More electives
  • Use of portfolios + mentors to address non-Medical Expert roles
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1. Need for comprehensive up to date inventory of what we teach, where we teach it, how we teach it, and how we evaluate it
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