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Role of conceptual models in a physical therapy curriculum: Application of an integrated model of theory, research, and clinical practice

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The Department of Physical Therapy, University of Alberta, Edmonton, Alberta, Canada, recently implemented a Master of Physical Therapy (MPT) entry-level degree program. As part of the curriculum design, two models were developed, a Model of Best Practice and the Clinical Decision-Making Model. Both models incorporate four key concepts of the new curriculum: 1) the concept that theory, research, and clinical practice are interdependent and inform each other; 2) the importance of client-centered practice; 3) the terminology and philosophical framework of the World Health Organization's International Classification of Functioning, Disability, and Health; and 4) the importance of evidence-based practice. In this article the general purposes of models for learning are described; the two models developed for the MPT program are described; and examples of their use with curriculum design and teaching are provided. Our experiences with both the development and use of models of practice have been positive. The models have provided both faculty and students with a simple, systematic structured framework to organize teaching and learning in the MPT program.

Introduction

The Department of Physical Therapy at the University of Alberta, Edmonton, Alberta, Canada, recently introduced a master's degree program to replace the baccalaureate degree program to prepare students for entry-level practice. During curriculum development, we identified four concepts to guide our decisions regarding curriculum design and development. The first is the belief that the students needed to understand that theoretical frameworks used to explain and justify clinical intervention strategies, research findings from the literature, and clinical skills all contribute to their clinical decision making in physical therapy practice. The second concept is the importance of client-centered practice in decision making. The third concept is our commitment to integrate the philosophy and language of the International Classification of Functioning, Disability, and Health (ICF) (World Health Organization,

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2001) into the students' learning. The fourth concept is that students would value and demonstrate evidence-based practice when making clinical decisions. We incorporated these four concepts into two models that we wanted both students and faculty to use to guide learning and teaching in the program. These models became the "blueprint" for making curriculum design decisions, for writing course syllabi, and, once the program was initiated, for guiding teaching structure and content. Both models incorporate the four concepts but for different purposes. The overarching model, Client-Oriented Research and Evaluation Leads to Best Practice (COR_xE) (Figure 1) uses the four concepts as a framework for the students to understand how their learning in the program is structured around these concepts. The second model is the Clinical Decision-Making Model (Figure 2), which uses the four concepts to guide the students through the more specific, iterative process of client assessment, intervention, and evaluation of outcome.

Models: definitions, uses, and types

Practice guidelines are common for specific intervention practices, but there are few models that provide a general framework of physical therapy practice. Models can be used as a method of knowledge management for any

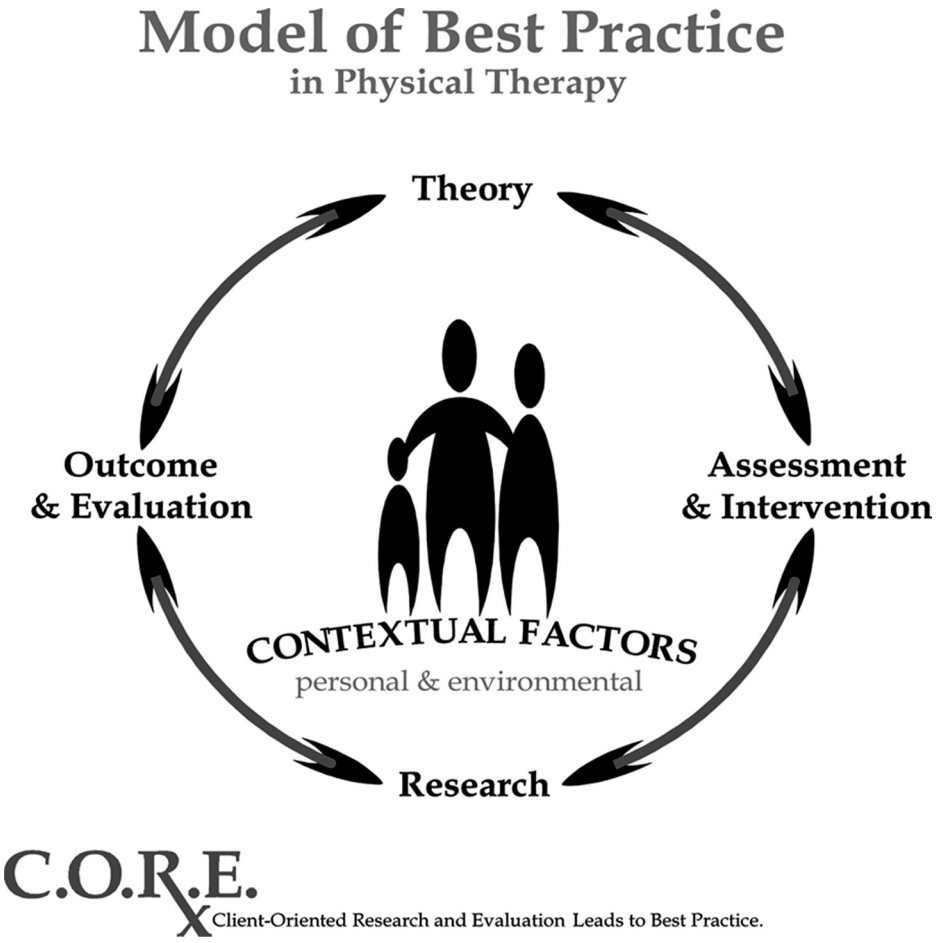

Figure 1. COR_xE model of best practice.

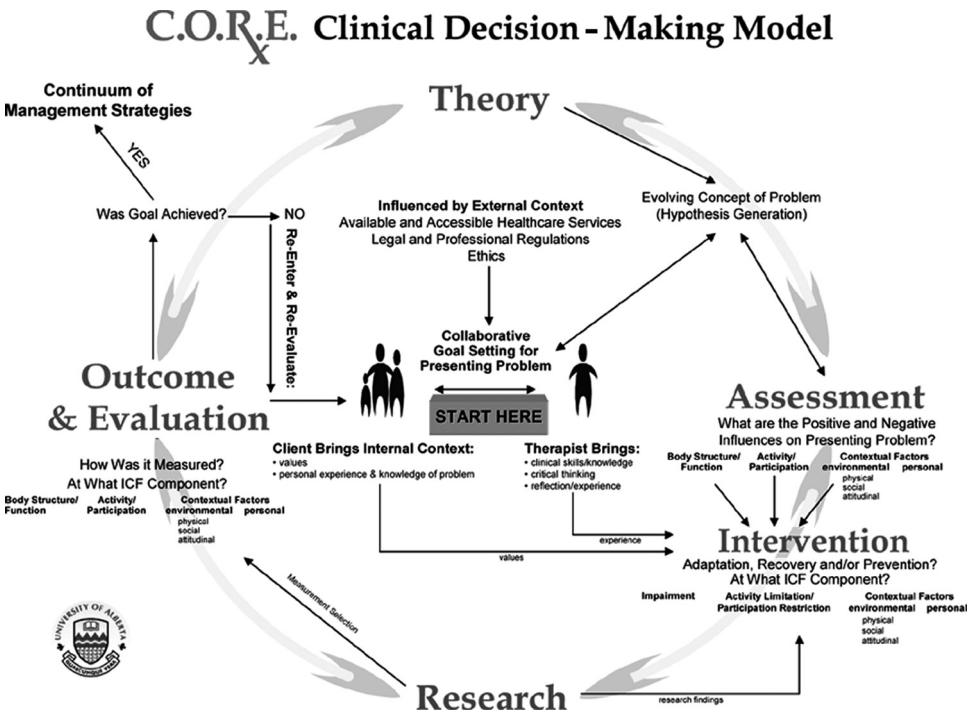

Figure 2. COR_xE clinical decision-making model.

profession and can be defined as "a mechanism to convert information into actionable knowledge" (Vail, 2000). Three uses of models that are applicable to physical therapy are 1) to enhance understanding by simplifying complexity, 2) to encourage learning by efficiently storing knowledge in concise and easy to use terms that assist the learning of complex relationships, and 3) to facilitate effective communication by providing a common structure and language (Vail, 2000). Rothstein and Echternach (1986) defined a model as a conceptual scheme that provides a guide for therapists with evaluation and treatment planning through the use of a logical sequence of activities, and they suggested that effective models are independent of specific treatment philosophies.

Before designing our own models, we considered five models from the physical therapy literature to adapt for our program: the Hypothesis-Oriented Algorithm for Clinicians (HOAC) (Rothstein and Echternach, 1986), the Hypothesis-Oriented Algorithm for Clinicians II (HOAC II) (Rothstein, Echternach, and Riddle, 2003), the Collaborative Clinical Reasoning Process (Jones, Jensen, and Edwards, 2000), the Interrelationships of Theory, Clinical Model, and Research (Cooper and Saarinen-Rahikka, 1986), and the Evidence-Based Practice Circle (Thomson-O'Brien and Moreland, 1998). All of these models are well developed and contribute to the clinical decision-making process in physical therapy, but none of them included all four concepts that we had identified as being integral to our new curriculum.

We advocate the use of models as a method of synthesizing and integrating important concepts in practice for educators, students, and clinicians. While developing the new curriculum, the faculty in our department agreed that a model incorporating the concepts of our curriculum would enhance both our organization and design of the curriculum and student learning. This process was guided by curriculum design theories that stress the importance of defining a platform of beliefs and vision and a structure to implement curriculum principles (Shepard and Jensen, 2002).

The generation and refinement of the models provided a basis for excellent discussions during curriculum development. Harris (1993) outlines the central importance of deliberation to curriculum decision making in effectively bringing together diverse sources of knowledge and perspectives to achieve consensus. Lively discussion among faculty explored previously assumed relationships between goals, assessments, interventions, and outcomes. As a result, we were able to make collaborative decisions about course content and coordination.

In this article we describe the development of the two models and demonstrate how we used them to guide curriculum development and how they continue to guide student learning in the now established entry-level master's degree program.

Model 1: client-oriented research and evaluation leads to best practice (COR_xE)

We refer to this model (Figure 1) as our Model of Best Practice. The arrows linking "theory," "assessment and intervention," "research," and "evaluation and outcome" form the periphery of the circle and represent the integration of theory, research, and clinical practice. The arrows are bidirectional to remind faculty and students that the three knowledge sources, theory, practice (assessment, intervention, evaluation, and outcome), and research inform and influence each other simultaneously. Theory guides and explains practice, but clinical observations in practice can also be used to question and to modify theories. Knowledge from the research literature also needs to be considered in clinical decision making. This outer circle reminds students of the powerful connections among theory, practice, and research and that information from all three sources is important in clinical practice. Often the clinical relevance of theory and research is not easily identified in practice, and we wanted the students to understand that all components can inform each other and that all three concepts contribute to clinical decision making.

The figures in the center represent the central importance of patients/clients and their families. The philosophy of client/patient-centered practice is an essential attribute of current practice. Documents, such as the American Physical Therapy Association's *Guide to Physical Therapist Practice* (American Physical Therapy Association, 2001) and the Commission on Accreditation of Rehabilitation Facilities (Baker et al, 2001), emphasize the essential role of patients/clients in decision making and in establishing goals and objectives. We placed the client and family in the center of our model to emphasize their importance.

Both the arrows on the periphery of the model linking "theory," "assessment and intervention," "research," and "evaluation and outcome," and the dominance of the client/family in the center of the circle emphasize the importance of evidence-based practice in our curriculum. We identify evidence-based practice by using Sackett's definition of evidence-based medicine: "the integration of best research evidence with clinical expertise and patient values" (Sackett et al, 2000, p. 1). The COR_xE model content exemplifies these concepts of evidence-based practice.

The International Classification of Functioning, Disability, and Health (ICF) (World Health Organization, 2001) is an international classification of health status that can be used to classify the health status of all persons. The ICF classification system defines different categories of health by the components of *body functions and structures* (physiological and anatomical) and *activities and participation* (task and life areas). This classification and common language provides students with a systematic way to classify client problems, goals, and outcome measures. It also encourages them to evaluate the relationship among interventions and outcomes. Clinically, we often assume that intervention at the component of *body function* will have an effect on a client's performance at the component of *activity*. For example, it is often assumed that lower limb muscle strengthening (*body function*) will influence the ability of a client to walk efficiently on different surfaces (*activity*). The ICF cautions against such assumptions and provides a framework to systematically evaluate the relationships. The ICF also acknowledges the influence of *contextual factors* on a client's abilities. Contextual factors can be *environmental* (physical, social, or attitudinal) or *personal*, representing attributes of a person (e.g., age, gender). The ICF is a biopsychosocial model

of health (Bickenbach et al, 1999) that provides a framework to evaluate the influence of both intrinsic and extrinsic factors on a person's performance in all areas of function.

For our curriculum, the ICF provides both a common language for categorizing client problems, therapy goals, intervention strategies, outcome measures, and a philosophical framework to evaluate the relationships among body function and structure, activity, and participation and environmental factors. It is central to the design and implementation of the new program. In the COR_xE model we included the ICF *contextual factors* terminology to remind the students (and faculty) that physical therapy assessments and interventions must always consider the personal and environmental contextual factors that each client brings with him or her. A person's environmental context must be considered during assessments, goal setting, and choice of intervention strategy.

During curriculum development of the COR_xE model, we recognized the importance of facilitating an understanding of all four concepts represented in COR_xE within and across courses. For example, we agreed that in the new curriculum we needed to formally introduce the theory and philosophy associated with client-centered care and evidence-based practice. In our previous program these concepts were discussed by individual instructors, but there was no formal mechanism to track the students' incremental learning of these process skills in a systematic manner. When developing every course syllabi in the new curriculum, instructors had to include research literature pertinent to the clinical content, and seminars had to integrate research and clinical skill knowledge. The COR_xE model helped us all to standardize course content to include these important components.

Table 1 illustrates a practical example linking the model to one course objective and the learning experiences, evaluation methods and outcomes associated with that course objective. The course objective, as documented in the student syllabus, is directly derived from the clinical decision-making model. The research literature is used as a starting point; students are also expected to independently search the literature. The COR_xE model is explicitly used to organize the knowledge outcomes, which assist the students to, in turn, organize their learning. This learning activity promotes reflection for action (hypothesis generation), reflection-in-action (active learning in group work), and reflection-on-action (wrap-up activity in large group) (Plack and Santasier, 2004).

With the implementation of the new program, the COR_xE model provides a framework to guide student learning. Students expect an instructor to identify the components of the COR_xE model that are introduced or reinforced in each course. Students are encouraged to ask each instructor, "Where does this fit in the COR_xE?" Our vision is that the COR_xE model will ground the students' learning and help them to organize their knowledge across courses. We believe that if both students and teachers use the COR_xE Model of Best Practice as a learning guide, students will integrate and synthesize information across courses, rather than compartmentalize facts within courses. Thus, we are using the model to allow the students to efficiently integrate large amounts of knowledge and to emphasize the relationships among knowledge learned in different courses. In conjunction with the COR_xE Model of Best Practice, we also designed the second, complementary Clinical Decision Making model, on the basis of the same four concepts. This model is more detailed and is designed to guide the students' management of clinical decision making and the concomitant documentation of problems, assessment, intervention, and outcomes.

Model 2: COR_xE clinical decision-making model

The term *clinical decision making* is often used interchangeably with the term *clinical reasoning* in physical therapy, but the terms have important differences in meaning. *Clinical reasoning* refers to the more abstract thought processes and strategies used by clinicians to make clinical decisions (Higgs and Jones, 2000), whereas *clinical decision making* represents the concrete outcomes of clinical reasoning such as diagnosis, goals, and management strategies (McAllister and Rose, 2000). The COR_xE Clinical Decision-Making Model is applied more directly to client management than the COR_xE Model of Best Practice model and was developed to guide

Table 1. Practical example of linkage between models and curriculum.

Example specific to hip fracture scenario (see Appendix A)	
Course objective	• Demonstrate the ability to independently integrate theory and research into assessment, intervention, and outcome measure choices.
Research readings	• Sherrington C, Lord SR, Herbert RD 2004 A randomized controlled trial of weight-bearing versus non-weight-bearing exercise for improving physical ability after usual care for hip fracture. Arch Phys Med Rehabil 85(5): 710–716. • Handoll HH, Sherrington C, Parker MJ 2004 Mobilisation strategies after hip fracture surgery in adults. Cochrane Database Syst Rev 4: CD001704.
Teaching method	• Student group meetings (6–8 students per group) focused around learning of knowledge outcomes (as documented in Appendix A), guided by instructor provided questions. • Subsequently, 20 to 30-minute instructor-led large group (~70 students) wrap-up at the end of each session to ensure students are gaining the appropriate knowledge and skills from the scenario, as they work in their small groups. • Instructors may ask new discussion questions in the large group session or ask for skill demonstrations by the students. The ability to answer these questions or successfully demonstrate the task indicates an understanding of the material and an ability to apply that material.
Evaluation	• Groups of 6–8 students are evaluated by using a new patient case. One evaluator grades both the contribution of each individual to the group and the group performance. See evaluation form in Appendix A.
Outcome/application	• Students will be able to confidently and competently assess and treat a person with hip fracture postsurgically.

students in the process of collecting pertinent information, identifying problems, generating goals, making intervention decisions, and evaluating the outcome.

Figure 2 illustrates the COR_xE Clinical Decision Making model. The model is set against the background of the COR_xE Model of Best Practice as a reminder that it is based on the four concepts represented in the COR_xE model. The client/family icon in the center has been expanded to emphasize that goal setting must be a collaborative process and that both the client and the therapist contribute information and knowledge to the process of identifying the goal. The client brings his or her values and knowledge of the presenting problem, and the therapist uses his or her skills, knowledge, and previous experience to define the problem. The model also reminds students that the goal identified from the presenting problem is influenced by the external contexts such as access and availability of health care resources, funding, legal and professional regulation, and ethics. Students are encouraged to identify functional problems and goals rather than impairment-based problems. They are also advised not to use a medical diagnosis as the problem. For example, for a client presenting with hemiplegia after a stroke, the presenting problem should not be hemiplegia, but rather a functional problem at the ICF components of activity/participation such as inability to climb stairs in the home or poor walking endurance.

After collaborative agreement on a goal with the client, the student's next step is to identify

possible causes of the functional problem (hypothesis generation). Within the COR_xE Clinical Decision-Making Model, the therapist's "educated guess" about the factors causing the problem is considered the hypothesis. This is consistent with the view of hypothesis described in the HOAC II (Rothstein, Echternach, and Riddle, 2003). Each of these suspected causal factors can then be systematically examined during the assessment phase. The three bidirectional arrows pointing to the "evolving concept of the problem" reminds students to use information from their discussions with clients, assessment findings, theory, and research to generate hypotheses. Hypotheses can be modified or changed completely, depending on the information gathered, including information from research sources. We have tried to capture this iterative process by using the term "evolving concept of the problem."

We used ICF terminology to structure the assessment, intervention, and outcome evaluation processes. As described previously, the ICF is organized into two parts: 1) Functioning and Disability and 2) Contextual Factors. Each part has two components. Functioning and Disability is divided into 1) Body component, including *body structures* (anatomical parts) and *body functions* (physiological) and 2) Activity and Participation, including aspects of functioning at both person (*activity*) and societal (*participation*) components. The Contextual factors part is divided into 1) *Environmental* factors, including physical, social, and attitudinal influences, and 2) *Personal* factors that represent personal attributes. For each component there are both positive and negative terms. *Impairment* denotes a deficit at the component of *body function or structure*, whereas a deficit at the component of *activity* is termed an *activity limitation*. The deficit term for the component of *participation* is *participation restriction*. We have used the positive terminology in the assessment part of the model to remind students to evaluate the strengths of the patient as well as the identified deficits. During the assessment process, for each problem or goal, the students identify factors at the components of *body functions and structures*, *activities*, and *participation*, and the *contextual* factors that have an impact on the problem in either a positive or negative manner. For example, if an elderly woman with osteoarthritis presented with the problem that she was no longer able to garden, the problem may be caused by pain (*impairment*), limited range of motion at her hip and knee joints (*impairment*), inability to kneel (*activity limitation*), or the sheer size of her garden (*environmental physical barrier*). These factors each represent a hypothesis of why she is experiencing the presenting problem of her inability to garden. During the assessment phase the student will systematically evaluate the possible influence of each identified hypothesis.

Decisions about interventions are informed by information from four sources. First, the client's values and needs must be considered. Second, the therapist (student) brings his or her experience with similar clients and problems. Third, either the client or therapist, or both, can contribute research knowledge from the literature concerning intervention options. All three of these sources of information, which represent evidence-based practice as we have defined it, are used in conjunction with the fourth information source, the assessment findings, to formulate an intervention plan.

Intervention decisions can focus on a strategy of adaptation, recovery, or prevention. An adaptation intervention approach suggests that solutions to compensate for the identified problem may include either adaptation of the client's movement solutions or adaptation of the environment (contextual factors). This intervention decision may be made in cases in which the client is not expected to regain previous motor performance (e.g., after spinal cord injury). A recovery intervention approach suggests to clients that they will regain the same motor performance as they had prior to the problem and that they will use the same movement solutions to the problem. This may be the type of intervention focus after acute musculoskeletal injuries. A prevention intervention focus is targeted if secondary complications related to the identified problem are anticipated and the goal is to stop these problems from occurring. For example, part of the intervention for a client after a stroke with resultant hemiplegia may be an exercise program to prevent further joint contractures on the involved side. A prevention focus may also be incorporated with a recovery intervention to reduce the likelihood of recurrence of the same problem. We want the students to appreciate that all three of these intervention

approaches have equal value and that intervention is not always focused solely on a recovery strategy.

The presence of contextual factors makes students consider environmental adaptations as part of their intervention choices. By using these terms with ICF terminology, the intent of the intervention is very clear. It also encourages students to evaluate the relationship between *body functions and structures* and *activity limitations and participation restrictions* for every client. For example, improving the quadriceps strength (intervention at the component of *body function*) of the client with osteoarthritis who has difficulty gardening may allow her to get up and down from kneeling in her garden, but the use of an assistive device (*environmental facilitator*) such as a low stool for kneeling may achieve the same goal of independence more quickly. The model of parallel interventions would permit continued treatment in addition to the assistive technology to address the impairment of decreased strength (Cook and Hussey, 1995). The use of the ICF terminology and structure allows students to evaluate relationships among body structure, function, activities and participation, and environmental factors for each client. A change at the component of *activity* can influence *body functions and structures* just as a change at the component of *body function* may change *activity and participation*.

The outcome measures are also classified by ICF components. By using ICF terminology for goal setting, identifying problems and strengths in the assessment phase, and classifying outcome measures, students can determine if the outcome measure used to evaluate the result of an intervention is measuring the same component that was targeted for intervention. For example, if the goal of intervention is improved muscle strength (*body function*), then at least one of the outcome measures should be a measure of muscle strength (*body function*). If other goals were identified that targeted different components, then additional outcome measures should be used to evaluate changes at this component. For example, if an additional goal of intervention for the gardener was the ability to kneel down in her garden, there should be an outcome measure to capture change in this *activity* goal.

After evaluation of outcome, the client and therapist together decide if the goal was achieved. If the answer is "yes," then the client exits the system until a new goal or problem is identified or continues on a management plan to maintain the goal achieved. If the goal has not been achieved, then the process is repeated with the generation of different hypotheses and intervention strategies. This emphasis on treating problems rather than conditions supports the concept that treatment is specific to a problem and is time limited.

The COR_xE Clinical Decision-Making Model is used extensively with the students in the program as a framework for the identification of common goals in courses in which very different content is taught. Subsequently, we have incorporated four Integrated Practice courses into our 28-month program. By using patient scenarios, the purpose of these courses is to provide the students an opportunity to integrate the clinical knowledge learned during different courses in the term and to apply this knowledge in a systematic way through the use of the COR_xE Clinical Decision-Making Model. Appendix A provides an example of a scenario and illustrates how the Clinical Decision-Making Model is used to guide learning and evaluation in the integrated practice courses.

We have now used both the COR_xE Model of Best Practice and the COR_xE Clinical Decision-Making Model in the first year of the MPT program. The students have grasped the targeted concepts well, and they have quickly integrated ICF philosophy and terminology into their discussions of clients' problems and physical therapy techniques. The COR_xE model of best practice has reinforced the three tenets of evidence-based practice for them, and they realize that their clinical decisions must consider clients values, therapist knowledge, and information from the research literature. The students are quickly able to distinguish the difference between intervention strategies targeted at the components of body function or activity. They can also identify if the intervention chosen represented an adaptation or a recovery strategy. We are excited by the students' ease in understanding and applying these concepts.

The development of models of practice and clinical decision making were important steps in the development of our master's entry-level program. They provided a simple, easily understood framework for the program and assisted

members of the department to identify and to commit to essential components of the new curriculum. They provided a central focus for decisions concerning course content, structure, and teaching strategies. During sometimes intense discussions regarding the format of the curriculum, we returned to the Model of Best Practice to guide our decisions. Our experiences have demonstrated how models can be used to manage information and knowledge. Our vision is that the students will use the models in the same way to focus and organize their learning both in the MPT program and later as clinical practitioners. We want the students to use the models to organize their application of specific physical therapy knowledge, skills, and values.

Our long-term goal is that students will use these models to organize their clinical decision-making as practicing physical therapists. We believe that models of practice have an important role in clinical practice and could serve many of the same purposes for clinicians as they serve in our curriculum. As a profession, we need to discuss and develop models of practice that reflect contemporary theory, research, and practice. Models are an efficient, organized way to present and disseminate new ideas and frameworks to the physical therapy community and to communicate different clinical approaches. We suggest that they are under used in our profession. We have provided in-services to our community of clinical physical therapists about the background of our two models so that they will be familiar with the assessment, intervention, and evaluation framework used by the students. Models are powerful tools to advance and explain our practice, and good models, like theory, should be continually evaluated and modified. We look forward to the evolution of both our COR_xE models.

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Appendix A

The information presented in this Appendix illustrates how we have used the COR_xE model and the COR_xE Clinical Decision-Making Model to guide students' learning and evaluation in an example scenario in an Integrated Practice course.

Orientation to scenario

Following this scenario, the student should be able to confidently and competently assess and treat a person with hip fracture postsurgically. To achieve that competence, the student will require knowledge in all aspects of the Clinical Decision-Making Model related to the scenario. Below are the topic areas and practical skills (knowledge outcomes) addressed by this scenario, arranged in the COR_xE model format.

Scenario description

Mrs. Brown is a 75-year-old woman in otherwise good health, who slipped on an icy sidewalk yesterday and fell and broke her hip (neck of the femur). She was admitted to hospital yesterday afternoon and had surgery last evening. The surgical procedure was an open fixation with Austin Moore prosthesis insertion.

Mrs. Brown is an active woman, who walks her two dogs daily, bowls once a week in a senior's league, and occasionally looks after her three grandchildren who live in the same city. Her 78-year-old husband suffered a stroke a few years ago but has recovered quite well and is independent. They live in a 55-year-old, two-bedroom bungalow with steps at the front of the house. Mrs. Brown's washer and dryer are down a flight of 12 stairs.

The order from the surgeon is to get Mrs. Brown mobile and to commence weight bearing as tolerated. Her expected discharge date is 3–4 days from now.

Knowledge outcomes organized by COR_xE model and COR_xE clinical decision-making model

Theory

1. Anatomy related to hip fracture
2. Austin-Moore surgical procedure including movement contraindications following surgery
3. Total hip replacement surgical procedure including movement contraindications following surgery
4. Pharmacology related to surgical hip procedures
   a. Anticoagulants
   b. Pain medications—type and method of delivery
5. Effect (or potential effect) of general anesthetic on
   a. Cardiorespiratory system
   b. Cognitive function
6. Hip fracture epidemiology in Canada
   a. Introduction to osteoporosis

Assessment

1. Determine assessment plan
   a. What should be assessed from each of the components?
      i. Body structure
      ii. Body function
      iii. Activity
      iv. Participation
      v. Contextual factors
2. Carry out assessment procedures
3. On the basis of assessment findings, develop problem list and treatment goals.

Intervention

1. Treatment (including postsurgical routine) from Day 1 to Discharge (treatment choice justification and application)
2. Home Exercise Program
3. Discharge Teaching

For each treatment suggestion, identify the ICF component that it represents.

For each intervention suggestion, identify whether it represents the expectation of recovery, adaptation, or prevention.

Outcome measures

1. Outcome measures (justification of choice and application) related to:
   a. Body structure
   b. Body function (what would you expect Mrs. Brown to be able to do on discharge?).
   c. Activity
   d. Participation

Research

1. Evidence for early mobilization
2. Evidence for bed exercises
3. Evidence for longer term (postdischarge) physical training

Evaluation

At the conclusion of the course, the students' learning is evaluated in a group format, as they work from a patient case example. The following evaluation form is used and also reflects the integration of the COR_xE Clinical Decision-Making model in the evaluation process.

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Evaluation of individual contributions to the group	1	2	3	4	5	6	7	8
1. Used collaborative skills to move the group forward, (e.g., focus, summarize, check on time, invite participation, work constructively to reach agreement)								
2. Contributed information and/or alternative solutions								
3. Evaluated information/alternatives								
4. Communicated appropriately, e.g. listened without interruption, used appropriate tone, showed appropriate nonverbal behavior								

Group evaluation					
1. Generated appropriate hypothesis re: problem, and able to discuss possible differential diagnosis	0	1	2	3	4
2. Developed appropriate, effective assessment plan to rule in or rule out hypotheses.	0	1	2	3	4
3. Developed appropriate problem and goal list, using ICF terminology.	0	1	2	3	4
4. Able to identify positive and negative influences on the presenting problem	0	1	2	3	4
5. Able to develop appropriate treatment plan (3 items maximum), and classify by ICF components	0	1	2	3	4
6. Identified that treatment was at the level of adaptation, prevention or recovery	0	1	2	3	4
7. Identified appropriate outcome measures, in relation to goals and treatment strategies, and classified by ICF	0	1	2	3	4
8. Considered contextual factors and their positive and negative influences on assessment, treatment and outcomes.	0	1	2	3	4
9. Included client in all components of clinical decision-making process	0	1	2	3	4

(*Continued*)

(*continued*)

Group Evaluation					
10. Demonstrates evidence based practice throughout (incorporates patient values, clinical experience and research)	0	1	2	3	4
11. Incorporated research findings effectively in assessment, treatment, and outcome measure decisions	0	1	2	3	4
12. Demonstrated understanding of interdependence of theory, research and practice in group discussions.	0	1	2	3	4
13. Used time effectively: stayed on task	0	1	2	3	4

All items (including individual) will be graded on a 0–4 scale. If students receive grade of 2 or below, please provide written explanation.

0 = unacceptable	1 = borderline unacceptable behavior or outcome	2 = borderline acceptable behavior or outcome	3 = expected behavior or outcome (met standard)	4 = above expected behavior or outcome