Undergraduate Medical Education in Rehabilitation Medicine

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Summary

Tomorrow's Doctors emphasises the need for medical students to understand the impact of long-term conditions and disability on individuals and their families. Rehabilitation Medicine has an important role in achieving these objectives in undergraduate medical education.

The effects of recurrent and chronic conditions and physical or cognitive disability can be understood through many disciplines in particular Paediatrics, Rehabilitation Medicine or Elderly Care Medicine. The principles of assessing and treating the physical and emotional consequences of long-term conditions, acquiring appropriate attitudes and exploring the interactions between people with disability and the environment can be learned through a variety of disciplines.

The implementation of such principles, however, will vary depending on the discipline involved. Thus Paediatrics will concentrate on the relationships between health and education, Rehabilitation Medicine on health and work, and Elderly Care Medicine on health and social services.

Departments of Paediatrics and Elderly Care Medicine are already very involved in undergraduate medical education. In contrast, a survey of members of the British Society of Rehabilitation Medicine revealed considerable variability in the extent of Rehabilitation Medicine learning and teaching within undergraduate medical curricula.

Recognising that the undergraduate curriculum cannot absorb more fixed teaching modules, this report examines ways in which doctors in the 21st century can learn the core competencies through a clearly co-ordinated programme of teaching throughout the curriculum.

Recommendations

Departments of Rehabilitation Medicine should make close links with local medical schools, to ensure that the benefits to students of learning and teaching opportunities in Rehabilitation Medicine can be gained throughout the undergraduate curriculum.

A teaching co-ordinator should be appointed within each medical school to ensure that students' learning is enhanced by exposure to the principles of managing long-term conditions, and that these principles are acquired irrespective of the module(s) in which they are taught.

1. Introduction

1.1 A considerable part of a doctor's job involves assessing and treating long-term conditions such as musculoskeletal conditions, cardiovascular diseases, chronic respiratory and neurological diseases. It is estimated in the UK that 10-15% of all people have a physical disability.[1] Disability has a considerable impact on individuals and their families by limiting choice; and on society in terms of health and social service costs, and loss of earnings. The General Medical Council has made specific recommendations that disability and rehabilitation should be taught to medical undergraduates and that it should be part of the core curriculum.[2]

1.2 These guidelines are intended to inform Rehabilitation Medicine doctors and medical schools about how Rehabilitation Medicine learning and teaching activities can be incorporated into the undergraduate medical student curriculum. The specific organisation of individual rehabilitation courses will vary according to the overall design of the undergraduate curriculum in the medical school. However the course content, types of assessment and mechanisms for course development and audit described in this document could form the basis for the rehabilitation component of the education programme. It is recognised that the philosophy underpinning rehabilitation learning and teaching may overlap with the learning and teaching content of other parts of the curriculum even though the teaching may not fall into the remit of Rehabilitation Medicine. Examples of this include team working, the impact of illness on families and the community, communications skills and ethics. It is therefore important to have an overview of the whole undergraduate course so as to make efficient use of available teaching time and reduce unnecessary overlap. In order to achieve this, close teaching links need to be developed with other departments.

1.3 An undergraduate teaching programme in Rehabilitation Medicine should allow the student to:

- learn about the wider impact of long-term conditions on, for example, driving, leisure and work
- become competent at taking a history and performing a relevant clinical examination in people presenting with disability (including an understanding of the disabled person's experience and perspective)[3]
- understand the principles of treating and managing the disabling effects of long-term conditions, in particular recognising the role of interdisciplinary team work with other professions (nursing and therapy) and agencies (Employers and the Department for Work and Pensions, Higher Education, Social Services)
- develop mature attitudes and behaviour towards people with disability and their families
- engender a life-long learning attitude in relation to disabling effects of long-term conditions.

1.4 Learning and teaching within most medical schools is divided into the core curriculum and the student selected components. The core curriculum consists of the essential knowledge, skills, and attitudes that medical students must have acquired by graduation. Student selected components support the core curriculum by allowing students to choose areas of interest to them for further in-depth study.

1.5 The core component of teaching may not be that different from that described for Rehabilitation Medicine Specialist Registrar training, but will vary in depth and breadth of content. In common with other specialties, the time available to deliver Rehabilitation Medicine teaching within any curriculum is likely to be restricted. Therefore, the key learning objectives must be relevant, but not over-ambitious, if this core component is to be delivered to all students.

2. Undergraduate learning and teaching in Rehabilitation Medicine

2.1 The motivation to produce this guide on how to deliver learning and teaching in Rehabilitation Medicine to undergraduate medical students resulted from a British Society of Rehabilitation Medicine (BSRM) survey conducted to identify current practice and barriers to delivery of learning and teaching in different parts of the country. All members of the BSRM were invited to complete a questionnaire designed to identify the extent and type of teaching delivered. One hundred and sixteen of 334 members of the BSRM returned the questionnaire. Sixty-one of those who replied reported that they were involved in medical student teaching. The majority of rehabilitation teaching was to third, fourth and fifth year students. Fifty respondents felt that there was a designated Rehabilitation Medicine teaching co-ordinator. Twenty-one affirmed that a Rehabilitation Medicine teaching curriculum existed locally and that it was followed. Forty reported that Allied Health Professionals were involved in their Rehabilitation Medicine teaching programme. Twelve reported that disabled people were involved in teaching medical students, not just as subjects in teaching sessions. Thirty-seven used formal student feedback to assess teaching quality and 19 reported that Rehabilitation Medicine was formally assessed in undergraduate examinations. Twenty-two respondents reported that their teaching programme offered students special study modules and 11 offered Rehabilitation Medicine intercalated BSc projects. Twenty-six respondents felt they had access to, or were part of, an academic department of Rehabilitation Medicine.

2.2 Learning and teaching provided by BSRM members to undergraduate medical students varied considerably throughout the country in terms of content, number of staff involved and assessment methods. Whilst acknowledging the limitations of postal surveys, it seemed that a large proportion of the BSRM membership are not involved in teaching undergraduates given the non-response rate and the number of respondents who were not teaching medical students. Despite the availability of the original BSRM report on undergraduate teaching,[4] only 10 respondents felt that their teaching reflected the document's content. In addition, there appeared to be disagreement within some Rehabilitation Medicine departments as to what teaching was provided locally and how it was assessed.

What do we need to do?

2.3 There have been significant changes in the undergraduate curriculum in most medical schools over the last few years, such as the separation of core from in-depth student selected topics with an emphasis on self directed learning – usually in the form of special study modules now called student selected components (SSC). These changes, and the specific emphasis on Rehabilitation Medicine teaching within the core curriculum in the second edition of Tomorrow's Doctors, provides an excellent opportunity to assist medical schools in delivering the recommendations of the General Medical Council.

2.4 It is recognised that learning and teaching programmes will evolve over time. The development of undergraduate learning and teaching in Rehabilitation Medicine can be thought of as a cycle, akin to an audit cycle:

- course objectives are defined
- the course is organised
- teaching is delivered
- students, teachers and the course are assessed and feedback received
- learning and teaching is revised in the light of feedback.

Opportunities to provide Rehabilitation Medicine learning and teaching within the curriculum

2.5 Many aspects of Rehabilitation Medicine learning and teaching can be delivered throughout the undergraduate programme rather than having only one "block". This allows students to become accustomed to thinking about the wider impact of pathological processes, particularly as they apply to long-term conditions. In order to achieve this, knowledge of the content of other related learning and teaching themes within Primary Care, Neurology, Rheumatology and Orthopaedics needs to be identified. This will allow Rehabilitation Medicine learning and teaching to be dovetailed appropriately into the programme so that students have the appropriate competencies to gain maximum benefit from the teaching. For example, if basic neurological examination has not been taught before the student participates in the Rehabilitation Medicine module, the Rehabilitation Medicine teaching could quite easily turn into basic neurology teaching rather than Rehabilitation Medicine teaching. The same could apply to musculoskeletal history taking and examination. The following is a list of the components of most undergraduate courses in which Rehabilitation Medicine learning and teaching could be incorporated.

i. Core component

Within musculoskeletal medicine and surgery/neurology/primarycare/paediatrics/ psychiatry/geriatrics *(examples)*

ii. Student selected components

Development of rehabilitation SSCs
Involvement in ethics/literature review SSCs
Qualitative and quantitative research SSCs

iii. Intercalated BSc

Intercalated BSc programmes are offered to enable students to undertake in depth study of a specific topic. Most programmes involve time allocated for a research project as well as a taught component. These programmes can be developed to give opportunity for students to undertake a research module in rehabilitation and disability.

iv. Electives

Supervision of Rehabilitation Medicine electives allows teaching links to be developed with other national and international Rehabilitation Units and further advertises the importance of Rehabilitation Medicine teaching as part of the undergraduate curriculum.

2.6 Most undergraduate courses now schedule aspects of generic knowledge, skill and attitude acquisition particularly in the first and second years. These modules are broad ranging and provide opportunities for a focus on disability issues and rehabilitation within learning and teaching activities. Therefore, resources permitting, the Rehabilitation Physician should become involved in aspects of generic teaching, such as communications skills and ethics, during the formative stage of the medical student's career.

2.7 Involving other disciplines and patients and their carers in the learning process is crucial if students are to gain an understanding of the role of other disciplines and what it is like living with a disability *(attitudes)*. This would include recognition of barriers to equal access and opportunity, use of non-discriminatory language, respecting the autonomy and rights of the disabled person.

2.8 Influencing learning and teaching content in any medical curriculum involves an appreciation of the requirements of student learning opportunities and comes from working with course designers in the Medical Education Unit or its equivalent within the Medical School. The

creation of a co-ordinator for Rehabilitation Medicine learning and teaching facilitates this process.

2.9 Examples of settings and resources for Rehabilitation Medicine learning and teaching:

- Small group clinical teaching
- An integrated systems approach which could involve clinical symposia combining lectures and clinical demonstrations
- Problem based learning using individual case histories to allow the student to appreciate the role of rehabilitation within overall management of the patient *(eg in myocardial infarction, traumatic brain injury or peripheral vascular disease)*
- Development and use of video tapes within the clinical skills laboratory
- Development of a web-based resource
- Use of study guides and logbooks for student self-directed learning
- Learning and teaching experience should occur in a variety of settings including in the hospital, the community, the patient's home, and in nursing or residential homes.

2.10 Who can be involved in Rehabilitation Medicine learning and teaching?

- Physicians
- Allied Health Professionals *(including nursing staff)*
- Patients and carers as teachers and not as subjects of the teaching
- Senior students as teachers of junior students.

2.11 Addressing the impact of long-term conditions is clearly a multidisciplinary activity. Therefore it is reasonable that some aspects of the student's learning experiences should be within a multidisciplinary context. The potential for inter-professional education (IPE) will depend on how each medical school curriculum is configured. IPE is said to occur on "occasions when two or more professions learn from, and about, each other to improve collaboration and quality of care".[5] IPE may enhance motivation to collaborate, change attitudes and perceptions, cultivate interpersonal group and organisational relations, and establish common values and knowledge bases. Successful IPE depends on equal status of participants, institutional support, positive expectations, a co-operative atmosphere, successful joint working, and a concern for and understanding of differences as well as similarities. Although there is a relative lack of evidence to substantiate the impact of IPE, the arguments for appropriate IPE within the context of Rehabilitation Medicine are strong.[6]

3. Competencies within Rehabilitation Medicine

Defining the competencies

3.1 A key first stage in developing an undergraduate learning and teaching programme is to define the core set of clinical and generic competencies within Rehabilitation Medicine that the Foundation Year doctor should be expected to have, and that are likely to be able to be delivered by the Rehabilitation departments involved in teaching undergraduates, given the constraints of time and the already busy core curriculum. These competencies comprise knowledge, clinical skills, and attitudes *(eg professionalism)*.

3.2 A unified approach will allow Rehabilitation Medicine to have a common set of competencies within the curriculum across medical schools. In addition, this would give an opportunity to standardise the assessment of students across medical schools. This provides opportunities for different medical schools to share multiple choice and extended matching questions (EMQ) and objective structured clinical examination (OSCE) stations.

3.3 One approach to developing the content of the learning and teaching programme is to construct a matrix of key learning objectives and competencies using a course blueprint. This allows the content to be prioritised, identifies the type of teaching and assessment that are best suited to that content, and determines how feedback is obtained.

3.4 Following consultation with the membership of the BSRM, a blueprint has been constructed that identifies aspects of the core content of Rehabilitation Medicine teaching at an undergraduate level and clinical scenarios within which the learning objectives could be delivered *(Appendix 1)*. This list is not exhaustive and additions may be made depending on curriculum developments.

3.5 In addition to the core element of the learning and teaching programme, another aspect that provides an opportunity for students to experience rehabilitation teaching is through the SSC. This allows medical students to extend their learning experience by greater exposure to rehabilitation, and if organised properly, with appropriate time allocated for supervision, these components provide an excellent opportunity for students to develop an interest in Rehabilitation Medicine at an undergraduate level that will hopefully enable the student to be informed of a wider career choice.

Assessing student competency

3.6 Student assessment should judge the students' competence and identify strengths and weaknesses[7]. Inevitably this judgement is partly subjective. Nevertheless, it is important that the assessment is fair, transparent to both the student and external reviewer, and as objective as possible. Assessment should be seen as an important part of the learning process.

3.7 It is recognised from medical student learning behaviour that assessment often drives learning.[8] Therefore, if students are focussing their learning on what is being assessed, then it is vital that the content of the assessment reflects the learning objectives. This process, known as constructive alignment, maps the content of assessments to the clinical competencies in knowledge, skills and attitudes that the student should acquire.[9] Clearly, if assessments are to be the judge of student competency, then setting standards of what is reasonably expected of a foundation year doctor in terms of clinical competency in Rehabilitation Medicine is a critical step in this process.

3.8 There are two aspects to student assessment, formative and summative. Summative assessment is intended to describe student attainment at a particular time, whereas formative assessment is intended to promote further improvement of student attainment. Educational research has shown that providing high quality feedback is a very powerful way of raising the standard of student work. Three elements that are crucial to the effectiveness of formative assessment are:

- helping students to recognise their desired goal by understanding what is required
- providing students with evidence about how well their work matches that goal, and
- explaining ways to close the gap between the goal and their current performance.

3.9 Feedback should be focused on the qualities of the student's work, and not on comparisons with other students; specific ways in which the student's work could be improved and; improvements that the student has made compared to his or her earlier work.

Standard-setting

3.10 An important aspect of student assessment is setting the standard that defines the pass mark. There are two general approaches to setting the standard for passing a particular assessment. One is referred to as norm-referenced, the other as criterion-referenced.

3.11 In norm-referenced assessment, the number of students passing is a chosen proportion of the cohort (how well an individual student does is related to how well others did who took the same test). This assumes that from year to year, the cohort is of the same ability and competence. This approach is unacceptable for assessments that are used to ensure that a student is safe to practise *(eg in an able cohort of students some students may fail who otherwise would have passed if they had taken the test within a less able cohort of students)*.

3.12 In criterion-referenced assessment, the choice of standard does not involve a direct comparison between individuals, but is made on predefined criteria of what constitutes competency. The standard of competency is set by experts. A number of different procedures are used to set standards.[10] The most commonly applied procedure is the modified Angoff method,[11] in which experts decide on the probability that a minimally-competent student will answer a particular question correctly. One difficulty using this approach is conceptualising the minimally competent student - not the average student. Using this approach implies that the experts are familiar with the competence of the minimally competent test taker.

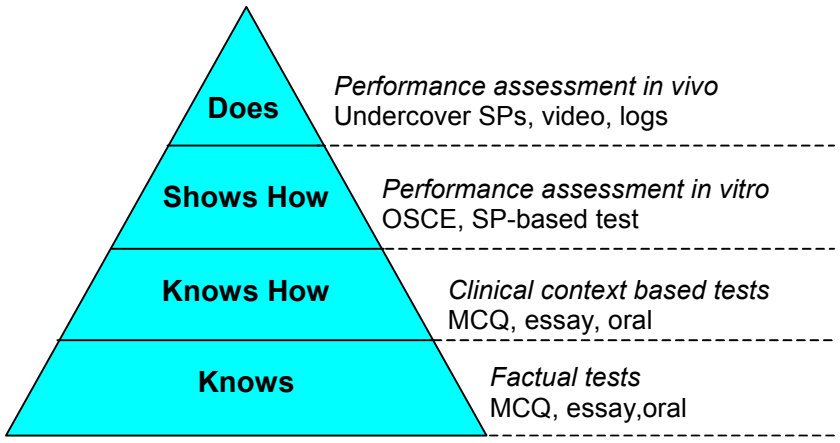
3.13 Use of global likert type ratings of performance to determine the passing score is another approach. Examiners rate whether the student is pass, borderline or fail on the individual item and use this to compare with the scores obtained from the question checklist. This identifies what score on the checklist defines a borderline/fail performance.[12] Clearly, if Rehabilitation Medicine competencies are set then it is important that the pass standard is easily explained, understood and implemented. The Angoff and borderline approaches appear to provide reasonable approaches to standard setting.[13]

Developing assessments of competency

3.14 The development of appropriate assessments should include evaluation of their validity and reliability. The pyramid of competence developed by Miller provides a conceptual framework to ensure validity.[14] No single assessment format can adequately assess all the learning objectives within the Rehabilitation Medicine programme and therefore a number of different formats should be used.[7]

3.15 Knowledge and problem solving can be assessed using EMQs, clinical skills by OSCEs (using 'real' patients, simulated patients, interpretation of data, videos) and skills laboratories, and clinical performance by case presentations and log-books. Performance in these areas can be judged by the clinician, but also by students themselves through self and peer assessment. OSCEs are frequently used in summative assessment, but when such

examinations are performed during the teaching programme and are videoed, students may formatively assess their own performance. Furthermore, the patients' perspective on student competence can be assessed using structured questionnaires to ensure that a comprehensive evaluation of students' performance in communication and other skills is obtained. These perspectives can be gained from patients in wards or clinics where students are based, or from patients participating in examinations.



Miller's pyramid of competence[†]
SP = simulated patients
OSCE = objective structured clinical examination
MCQ = multiple-choice questions

3.16 There is also a need to recognise and utilise other types of assessment, including individual and group projects, portfolios and reflective journals. The appropriateness of any particular assessment format needs to be addressed within the context of the curriculum, eg using multiple choice questions to assess communication skills would be inappropriate.

3.17 Log-books and reflective journals can fulfil the requirements of SSCs to facilitate students' development of their writing and presentation skills. Entries could consist of brief summaries of the day's activities followed by reflective comments on the activities. Reflective analysis should include a critical appraisal of the concepts raised, skills practised, and issues that were considered difficult.

3.18 Assessments used should be reliable. That is they must be as free from bias and random error as possible. The Medical Education Unit within the Faculty should provide advice and support to evaluate the psychometric properties of the assessments used.

[†]Reprinted from The Lancet, Vol 357 number 9260, Wass V, Van der Vleuten C, Shatzer J, Jones R. Assessment of clinical competence: 945-9 Copyright 2001 with permission from Elsevier.

4. Resources to deliver teaching

4.1 It is important to elect a lead person who is responsible for the overall delivery of the Rehabilitation Medicine component of the undergraduate course (this does not mean that this person delivers all the teaching). The role of such a person involves a combination of academic and administrative duties which include:

- Being familiar with the undergraduate curriculum as a whole, and able to identify where Rehabilitation Medicine learning and teaching activities may best be incorporated
- Being the link person with the medical school's Medical Education Unit
- Leading the development of the course blueprint, and formative and summative assessment processes
- Addressing internal and external examiner and student feedback
- Keeping up to date with developments in learning and teaching
- Organising the programme of teaching
- Identifying teachers.

4.2 Once a programme has been offered, it is paramount that the teaching is delivered. It is recognised that all NHS staff are busy and therefore teaching medical students may be relegated to the bottom of the list of priorities. However, to tackle the issue of undergraduate Rehabilitation Medicine learning and teaching seriously, teaching must have a higher priority. There should be no illusion about the workload that is involved in leading the organisation and delivering high quality teaching. Therefore it is important that this role is recognised as a specific time allocated activity within an individual's job plan.

Teaching resources

4.3 An important part of delivering high quality teaching is ensuring teaching competence. Fortunately, there are many opportunities that are available at different levels to develop these teaching skills. This training may be through a taught course (preferred) or through a series of ad hoc courses.

4.4 Most NHS Trusts offer basic courses in teaching skills, often in conjunction with the Regional Postgraduate Deanery. Several universities, as well as the Royal College of Physicians in London, provide postgraduate qualifications in teaching and offer the enthusiastic teacher extra opportunities for improvement, as well as the chance to research into educational topics.

4.5 Several publications also cover these topics and are available in medical school libraries or on the Internet through the Athens system. Professional societies for teachers in universities, such as the Higher Education Academy, provide support and advice for teachers keen to develop their skills.

Administrative support

4.6 Inevitably, to deliver a high quality teaching programme there is need for good administrative support *(eg to organise timetables, study guides, web-based learning resources)*. The person with designated responsibility for Rehabilitation Medicine learning and teaching activities needs to negotiate with the medical school about the administration support required to deliver the programme of teaching that is proposed.

5. Evaluation of the course and its teachers

Student feedback

5.1 Student feedback should include positive and negative learning experiences of the module, whether core content or SSC. In addition, broader feedback in the following areas may also be useful for the course developer:

- Will the content of the module help in your medical career?
- How has the module affected your view of the medical profession, its purpose, identity and integrity?
- Has the module opened up new career avenues?
- Will this module influence how you interact in the future with other health/social care professionals and patients?

5.2 This list is not exhaustive as there may be many other educational issues to discuss. Moreover, not all topics need to be covered in each evaluation as students develop evaluation fatigue,[15] but one or two need to be discussed in some depth in order to examine the students' reflection on the module.

Internal and external peer review processes

5.3 Quality management and enhancement review (QME) provides a vehicle for an independent assessment of the teaching programme. It is an obligatory part of all teaching programmes and is used in the process of the Quality Assurance Assessment, which is the Research Assessment Exercise (RAE) equivalent for teaching.

5.4 Individual teachers should also organise peer review of the quality of their teaching. This can be carried out informally between colleagues, or may be a formal part of revalidation within each institution. As Rehabilitation Medicine is a small speciality, with many single-handed consultants, organisation of peer review may be difficult and institutions must be prepared to facilitate teachers in reviewing their teaching with appropriate colleagues, which may include other health care professionals such as therapists and nurses who are involved in undergraduate medical education.

5.5 The General Medical Council also stipulates that external examiners should be employed during assessment procedures.[2] This is to ensure that the process is open, fair and meets appropriate standards. External examiners should also be seen as a source of constructive criticism to enhance future learning and teaching activities.

APPENDIX 1

Rehabilitation Medicine learning and teaching for undergraduate medical students – grid of knowledge, skills and attitudes

Learning theme	Knowledge	Skills	Attitude	Clinical context (examples)
Impact of disease on the person and family Disability awareness and equal opportunities	Definition of function, ability and participation Components of activities of daily living Essentials of the Disability Discrimination Act Driving regulations and their impact on people with disability Impact on vocation and understanding barriers to equal access and return to work Understanding medical and legal perspectives of capacity of an individual to make decisions Palliative aspects of severe disability	Take a history to identify basic and extended ADL, leisure, family, housing and work issues Avoiding the use of discriminatory language Sickness certification Breaking bad news	Respect the role and autonomy of the individual within society The effect of disability on the family Barriers that disabled people encounter – environmental, cultural, attitudinal, at work, etc Equality for disabled persons	Young and older stroke Traumatic brain injury Rheumatoid arthritis Ischaemic heart disease Psoriasis Person with sensory impairment such as deafness Work/student colleagues who have disability Person with learning disability
Goal setting	Characteristics of rehabilitation goals eg relevance, feasibility	Ability to identify and negotiate specific rehabilitation goals with a person who has disability	Appreciation that goals must be jointly held between patient, family, rehabilitation team and any other professionals	Any person with disability
Multidisciplinary team working	Role of the different disciplines	Working in teams Participate in MDT meeting Participate at a therapy session	Respecting the roles and contributions of other disciplines	Any musculoskeletal or neurological rehabilitation team with medical member

Learning theme	Knowledge	Skills	Attitude	Clinical context (examples)
Communicating with people who have difficulty communicating	Differences between dysarthria and dysphasia and types of dysphasia Devices to help people with communication problems Communication with those with hearing /visual impairments	Identification of dysarthria and dysphasia (receptive and expressive elements) Obtaining a history and seeking consent from a patient with communication difficulties (including those with hearing or visual impairments)	Patience and avoiding discrimination towards people with communication difficulty Recognition that communication difficulty need not imply cognitive impairment	Person with stroke who has communication difficulty Person with deafness or visual impairment Person with learning disability
Walking	Normal gait pattern and common causes of walking impairment Gait abnormality associated with foot drop; spastic hemiparesis; primary muscle disease; hip disease Reasons why people fall Use of walking aids, rigid ankle foot orthosis and heel raise Role of physiotherapy	Assessment of walking ability and limiting factors Assessment of gait pattern	Appreciation of the environment from the perspective of someone with walking difficulty Understanding patients' fears of falling	Ambulant stroke patient LMN foot drop Muscular dystrophy Hip arthropathy Mobility in old age and osteoporosis
Complications in people with neurological diseases causing disability	Musculo-skeletal effects of immobility Shoulder problems after stroke Venous effects of immobility Mechanisms of malnutrition Factors affecting tissue viability Osteoporosis Back pain	Examine the shoulder in stroke Examine for DVT Assess pressure areas Assess swallowing	Appreciation of the need for holistic approach to managing patients with neurological disability	Patient with painful shoulder following a stroke Non-ambulant patient with MS Patient with impaired swallowing Patient with back pain and stroke Patient with pressure sore
Pharmacology	Indications and adverse effects of spasticity treatments: baclofen and tizanidine; intrathecal baclofen; Botulinum toxin. Drug treatment of neuropathic and musculoskeletal pain Antidepressant treatment in people with brain injury	Assessing the functional impact of spasticity Being able to describe in lay terms the effect and adverse profile of common medications		Stroke Cerebral Palsy Multiple sclerosis
Emotional consequences of long-term neurological conditions	Direct and indirect mechanisms of emotional disturbance Relevance of emotion within the rehabilitation process	Recognise emotional impact of disabling condition on the individual. Identify major mechanisms Assess mood disorder Identify treatable depression	Appreciation of the emotional dimension of physical disability on the patient and family	Patient with mood disorder following a stroke

Wheelchair use	Basic categories of wheelchair Considerations in wheelchair prescription	Assessment of the category of wheelchair most appropriate for a patient	Appreciation of the environment from the perspective of a wheelchair user Appreciation of society's attitudes to wheelchair users	Patient with hemiparesis Patient with paraplegia
Posture	Factors involved in healthy posture Postural disorders associated with: hamstring contractures; scoliosis; inappropriate seating Common causes of posture problems	Description of sitting and standing posture Assessment of postural ability Identification of factors impairing good posture	Appreciation of the importance of maintaining adequate posture and how this relates to the practicalities of daily living	MS patient with hamstring contracture or windsweeping deformity
Hypertonicity	Differences between spasticity and rigidity Factors influencing spasticity Practical consequences of spasticity Principles of spasticity management	Ability to identify spasticity	The effect of the cosmetic appearance of deformity on the individual	Patients with limb spasticity
Cognition	Typical cognitive impairments associated with stroke and traumatic brain injury (memory, apraxia, agnosia, inattention, confusion and disorientations)	Assess mental state Clinical and paper and pencil tests for inattention Assess Post Traumatic Amnesia Assess Glasgow Coma Scale	Appreciation of the impact of cognitive impairment on how one interacts with the patient	Patients with visual inattention Patient with traumatic brain injury Patients with dementia
Pain	Features of central or musculoskeletal pain Mechanisms of pain after amputation Factors influencing pain perception Principles of pain management	Ability to distinguish central and musculo-skeletal pain Analgesic prescription	Holistic approach to pain management Developing appropriate attitudes to those with chronic pain	Patient with upper limb pain of partially central origin Patient with stoke who has shoulder pain Phantom pain following amputation
Rehabilitation of people with limb loss	Causes of limb loss in relation to age Types of limb amputation Types of prostheses Common medical problems Factors governing functional recovery after amputation and the ability to benefit from a prosthesis	Assess the stump Example: why is the prosthetic limb tight or loose? Check for secondary medical complications Check for arthritis, diabetic and vascular complications in other leg	Appreciating the patient's perspective on issues such as cosmetic appearance	Vascular amputee Traumatic amputee

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