Font Fusions Publication

Clinical Decision – Making & Case Management in Physiotherapy

What's Inside?

- Introduction to Clinical Decision-Making
- Steps in Clinical Decision-Making
- Case Management in Physiotherapy
- Tools & Frameworks in Clinical Decision-Making
- Ethical and Legal Considerations
- Common Pitfalls and How to Avoid Them
- Real-World Case Scenarios
- Tips for Clinical Interns and New Graduates

EDITED BY :-

- Prof. (Dr.) Supriya Awasthi
- Dr Rohit Rathore (PT)
- Dr Drishti Pachauri (PT)

Printed and bound in India by Font Fusions Publication, Noida, India.

First Published: 03 January 2026

Font Fusions Publication
www.fontfusionspublication.com
Contact - +917004837260

ABOUT THE PUBLISHER

Font Fusions Publication: Advancing Knowledge in Dental and Health Sciences. Font Fusions Publication is a dynamic platform committed to revolutionizing academic publishing in the fields of dental and health sciences. With a focus on open-access dissemination, the organization aims to provide researchers, clinicians, and academicians with avenues to share their work globally, fostering innovation and collaboration. Dr. Ritik Kashwani, a renowned expert in the field of dental and health sciences, leads Font Fusions Publication.

Oral Sphere Journal of Dental and Health Sciences of the flagship initiatives under Font Fusions Publication is the Oral Sphere Journal of Dental and Health Sciences. This peer-reviewed, open-access journal provides a comprehensive resource for contemporary research in dentistry and related health disciplines. The journal encompasses a broad range of topics, including digital dentistry, artificial intelligence in diagnostics, oral manifestations of systemic diseases, and advancements in therapeutic modalities. The journal's commitment to quality is evident in its rigorous editorial process and its inclusion in indexing platforms such as Crossref and Google Scholar (as of 2025), which enhances the visibility and impact of published research.

Advancements Across Oral Sphere: Innovations Shaping Modern Dentistry: Complementing the journal, Font Fusions Publication has also released a seminal book titled Advancements Across Oral Sphere: Innovations Shaping Modern Dentistry. Published on December 30, 2024, this book delves into cutting-edge developments in dental science and practice. Topics explored include digital dentistry, CAD/CAM technology, teledentistry, and the integration of artificial intelligence in clinical settings. The book aims to provide readers with insights into how these innovations are transforming patient care and clinical workflows. Authored by experts in the field, Advancements Across Oral Sphere serves as both a scholarly reference and a practical guide for professionals seeking to stay abreast of technological advancements in dentistry.

Innovations in Oral Sphere: Ahead of the Curve: It is a comprehensive exploration of the latest advancements in oral health, offering a forward-looking perspective on the future of dental care and oral sciences. This meticulously curated volume brings together contributions from esteemed professionals in the field, providing readers with a detailed and up-to-date account of transformative progress in oral health. The book explores cutting-edge technologies, interdisciplinary research, and a deeper understanding of the complex relationships between oral health and overall well-being. It encompasses a broad range of topics, including regenerative treatments, digital dentistry, innovative diagnostic tools, and minimally invasive procedures. Each chapter presents insights into how these innovations are shaping the future of dental care, emphasizing the importance of integrating discoveries with ethical practices and patient-centered care. What sets this book apart is its forward-thinking approach. It not only examines the current state of oral health but also anticipates future developments, highlighting the growing importance of prevention, technology-driven solutions, and collaborative research in driving the future of oral health. This makes it an invaluable resource for students, practitioners, and researchers alike,

serving as a guide to the ever-evolving world of oral health. Published by Font Fusions Publication Private Limited in May 2025, this book is priced at ₹270 and is available in India. It is printed and bound in Noida, India, and is available for purchase through Font Fusions Publication's website.

Cephalometrics for Orthognathic Surgery: Principles, Planning, and Precision: This essential text unravels the science and clinical relevance of cephalometry in orthognathic surgery. From foundational anatomical landmarks to advanced radiographic analyses, "Cephalometrics for Orthognathic Surgery" provides a structured and insightful approach to diagnosing dento-facial deformities and planning treatment.

Evidence Based Dentistry: Dentistry is both an art and a science. This book explores the integration of scientific research and clinical expertise to provide the highest quality dental care. It defines evidence-based dentistry (EBD) as the judicious use of the best available clinical evidence combined with the dentist's experience and the patient's needs. The text covers the history and evolution of EBD, emphasizing its importance in the modern dental practice and the changing role of the patient in the decision-making process. From understanding the foundational principles to the step-by-step process of evidence based learning, this book guides dental professionals through the process of applying evidence in clinical practice. It highlights the shift from tradition-based to evidence-based care, offering practical insights into improving clinical decision-making, enhancing patient care, and staying current with the latest research. A must-read for dental practitioners aiming to bridge the gap between scientific research and everyday clinical decisions.

Commitment to Open Access and Global Collaboration: Font Fusions Publication's dedication to open access publishing ensures that knowledge is freely available to a global audience, breaking down barriers to information dissemination. By providing platforms like the Oral Sphere Journal and publishing comprehensive works such as Advancements Across Oral Sphere, the organization plays a pivotal role in advancing the fields of dental and health sciences. For researchers, clinicians, and academicians looking to contribute to or benefit from the latest developments in these fields, Font Fusions Publication offers valuable resources and opportunities for collaboration.

FOREWARD

In the dynamic field of physiotherapy, where patient outcomes depend on precise, evidence-informed choices, mastering clinical decision-making is a cornerstone of effective practice. Clinical reasoning directly shapes not only patients' outcomes but also safety and satisfaction. In an era of healthcare services, the ability to think critically, integrate evidence, and individualize care is most important it is a core competency for every physiotherapist. This book, *Clinical Decision Making and Case Management in Physiotherapy*, distils decades of clinical wisdom and research into a practical roadmap, guiding practitioners from foundational principles to real-world mastery. It is my great pleasure to write the foreword for this timely and much-needed book.

This book fills a crucial gap in our literature by systematically unpacking the process of clinical decision making in a way that is both academically rigorous and clinically relevant. Beginning with an Introduction to Clinical Decision-Making, it lays the groundwork for understanding this vital process. Readers then progress through the Steps in Clinical Decision-Making, essential Case Management in Physiotherapy, and innovative Tools & Frameworks that streamline complex assessments. Critical Ethical and Legal Considerations ensure decisions align with professional standards, while Common Pitfalls and How to Avoid Them equips users to sidestep frequent errors. The journey culminates in Real World Case Scenarios and Tips for Clinical Interns and New Graduates, bridging theory to practice for novices and experts alike.

As a physiotherapy educator with over 20 years in curriculum development and interdisciplinary rehabilitation blending physiotherapy with psychological insights. This volume resonates deeply with my work at different eminent Institutes. It advances competency-based education, supports sustainable health goals, and empowers the next generation to deliver transformative care.

I congratulate the editors and authors on this significant contribution to our profession. I am confident that this book will become a valuable companion for physiotherapists across all specialties and career stages, helping them to think more clearly, act more confidently, and care more effectively. It will serve as an excellent textbook for academic programs and a trusted reference for clinicians striving for excellence in everyday practice.

Dr. Kshitija Bansal
Professor, Department of Physiotherapy, School of Allied Health Sciences Manav Rachna International, Institute of Research & Studies, Faridabad, India

PREFACE

Clinical decision making lies at the heart of physiotherapy practice. Every assessment, every manual contact, every exercise prescription represents a choice made in the context of a unique human story, evolving evidence, and often-limited resources. This book, "Clinical Decision Making & Case Management in Physiotherapy," has been written to support physiotherapists and students as they navigate that complex landscape with greater clarity, confidence, and accountability.

The text grew out of day-to-day clinical encounters, classroom discussions, and research questions that repeatedly highlighted a simple reality: technical skills alone are not enough. What distinguishes safe and effective practice is the ability to reason systematically, integrate best evidence with clinical expertise, and translate this reasoning into individualized management plans. The chapters in this book aim to make that often "invisible" thinking process explicit through clear frameworks, decision pathways, and real-world case narratives.

Structured around the continuum of patient care from first contact and examination, through diagnosis, goal-setting, intervention planning, and re-evaluation each section emphasises practical reasoning over rote protocols. Cases span musculoskeletal, neurological, cardiopulmonary, sports, and community-based rehabilitation, reflecting the breadth of physiotherapy practice. At each step, readers are invited to question assumptions, recognise red and yellow flags, weigh risks and benefits, and adapt plans as patients respond or circumstances change.

This book is intended for undergraduate and postgraduate students, early-career therapists developing their clinical reasoning, and experienced clinicians seeking to reflect on and refine their decision-making habits. Educators may also find the cases and reflection prompts useful for facilitating problem-based learning, viva examinations, and journal clubs. The overarching goal is not to prescribe "the one right way" to manage a condition, but to cultivate flexible, evidence-informed thinking that can be applied across settings and patient populations.

In an era of increasing accountability, constrained time, and growing complexity of patient presentations, physiotherapists are called upon to justify their choices with transparency and rigor. It is hoped that the ideas and cases presented here will encourage a culture of reflective practice where decisions are not only effective, but also ethical, patient-centered, and grounded in sound reasoning. If this book helps readers pause, think more deeply, and make even one better decision for a patient, it will have achieved its purpose.

ACKNOWLEDGMENT

This book, "**Clinical Decision Making & Case Management in Physiotherapy**" is the result of the guidance, encouragement, and generosity of many people, and it is a pleasure to acknowledge their contributions here.

Heartfelt gratitude is extended to the teachers and mentors in physiotherapy and related disciplines whose clinical wisdom and academic rigor have shaped the author's thinking about assessment, reasoning, and patient-centered care. Their lectures ward rounds, case discussions, and constructive criticism created the foundation on which this book is built. Special thanks are due to colleagues who reviewed chapters, challenged ideas, and shared their own cases and experiences to enrich the content.

Sincere appreciation is offered to the students undergraduate and postgraduate whose curiosity, difficult questions, and real-life dilemmas in the classroom and clinic inspired many of the scenarios and reflective exercises in these pages. Their willingness to think aloud, admit uncertainty, and engage in critical debate gave life to the concept of clinical decision making as a shared journey rather than a fixed formula.

The author remains deeply grateful to family and friends for their patience, emotional support, and constant belief throughout the long hours of writing and revision. Their understanding during missed gatherings and late nights at the desk turned an individual effort into a collective achievement.

Finally, profound thanks go to the patients and caregivers whose stories form the true heart of this book. Their trust, resilience, and openness to collaborative decision making continue to remind physiotherapists why thoughtful, ethical, and evidence-informed case management matters. This book is dedicated to them and to all clinicians striving each day to make better decisions for those in their care.

CONTRIBUTING AUTHORS

1. **Dr. Pallavi Prakash (PT)**
   Associate Professor, Department of Physiotherapy, SOAHS, Noida International University, Gautam Budh Nagar, Greater Noida, Uttar Pradesh.

2. **Dr. Priyanshi Aggarwal (PT)**
   Assistant Professor, Department of Physiotherapy, SOAHS, Noida International University, Gautam Budh Nagar, Greater Noida, Uttar Pradesh.

3. **Dr. Rishika Yadav (PT)**
   Assistant Professor, Department of Physiotherapy, SOAHS, Noida International University, Gautam Budh Nagar, Greater Noida, Uttar Pradesh.

4. **Dr. Anjali Rawat (PT)**
   Assistant Professor, Department of Physiotherapy, SOAHS, Noida International University, Gautam Budh Nagar, Greater Noida, Uttar Pradesh.

5. **Dr. Ritu Singh (PT)**
   Assistant Professor, Department of Physiotherapy, SOAHS, Noida International University, Gautam Budh Nagar, Greater Noida, Uttar Pradesh.

6. **Dr. Joginder (PT)**
   Assistant Professor, Department of Physiotherapy, SOAHS, Noida International University, Gautam Budh Nagar, Greater Noida, Uttar Pradesh.

7. **Dr. Rajeev Kumar Singh (PT)**
   Assistant Professor, Department of Physiotherapy, SOAHS, Noida International University, Gautam Budh Nagar, Greater Noida, Uttar Pradesh.

8. **Dr. Ranu Mukherjee (PT)**
   Assistant Professor, Department of Physiotherapy, SOAHS, Noida International University, Gautam Budh Nagar, Greater Noida, Uttar Pradesh.

9. **Dr. Soniya Sharma (PT)**
   Assistant Professor, Department of Physiotherapy, SOAHS, Noida International University, Gautam Budh Nagar, Greater Noida, Uttar Pradesh.

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CHAPTER 1

CLINICAL DECISION-MAKING IN HEALTHCARE

PROF. (DR.) SUPRIYA AWASTHI, DR. DRISHTI PACHAURI (PT)

Clinical decision-making is a vital component of effective healthcare delivery. It denotes the intricate, dynamic process by which healthcare professionals assess patient information to make judgments and choose the most suitable course of action. The decision-making process is non-linear, requiring continual reassessment and adjustment in response to new evidence, patient input, and therapeutic advancements. Achieving optimal patient outcomes necessitates a meticulous equilibrium of scientific knowledge, professional experience, patient preferences, ethical considerations, and contextual factors.

I. Core Components of Clinical Decision-Making

Gathering Information: The initial and important phase in clinical decision-making entails the methodical gathering of patient information. This includes a diverse range of sources, such as a thorough medical history that comprises previous illnesses, familial history, lifestyle factors, and present complaints.
• Results from a comprehensive physical assessment.
• Outcomes from diagnostic assessments include hematological analyses, imaging modalities (e.g., X-rays, MRIs), and specialised examinations.
• Contributions from additional healthcare professionals, carers, or family members where relevant.

Effective communication with the patient is essential at this juncture. Active listening, open-ended enquiries, and sympathetic engagement are critical for obtaining precise and pertinent information that underpins later clinical reasoning.

a. **Identifying Problems**: Upon data collection, the subsequent stage entails evaluating and synthesizing the information to identify particular health issues or anomalies. This approach requires a thorough understanding of both normal and abnormal physiology.
   • The capacity to identify subtle indications and symptoms.
   • The ability to distinguish which issues require immediate attention as opposed to others that are secondary or less urgent.

This phase convert's unrefined data into significant clinical concerns that necessitate additional investigation.

b. **Generating Hypotheses**: With clearly defined problems, clinicians then formulate possible explanations or differential diagnoses. This step involves:

- Considering a broad spectrum of potential conditions.
- Drawing on clinical knowledge, experience, and epidemiological data.
- Prioritizing hypotheses based on likelihood, severity, and clinical urgency.

Hypothesis generation is both a creative and logical endeavour that helps narrow down possible diagnoses for more focused evaluation.

c. **Testing Hypotheses**: To validate or refute the proposed hypotheses, further diagnostic actions are taken. These may include:

- Additional laboratory or imaging tests.
- Referral to specialists for expert opinion.
- Trial treatments to observe response and refine diagnosis.

This stage requires ongoing clinical judgment, as new information may confirm a diagnosis, lead to revisions, or prompt reconsideration of initial assumptions.

d. **Selecting a Course of Action**: After establishing a likely diagnosis, clinicians must decide on the most effective and appropriate management strategy. This involves:

- Evaluating available evidence regarding treatment efficacy and safety.
- Incorporating clinical expertise and prior case experience.
- Aligning decisions with the patient's goals, preferences, and social circumstances.

Shared decision-making is encouraged at this point, where the clinician and patient work together to select a plan that is both evidence-based and tailored to individual needs.

e. **Evaluating Outcomes**: Clinical decision-making does not end with treatment initiation. Ongoing evaluation is crucial to:

- Monitor the patient's response to treatment.
- Identify adverse effects or complications.
- Determine the need for modifications in the management plan.

This step reinforces the importance of adaptability in clinical care and the commitment to continuous improvement in patient outcomes.

II. Clinical Reasoning Vs. Decision-Making

Clinical Reasoning and Clinical Decision-Making: Interconnected yet Distinct Processes in Healthcare

In healthcare, clinical reasoning and clinical decision-making are two fundamental ideas that frequently coexist and are occasionally used synonymously. Nonetheless, they embody separate cognitive and procedural aspects of patient care. Comprehending the distinction between them and their integration is essential for healthcare workers aiming to deliver superior, patient-centered care.

Clinical reasoning fundamentally denotes the cognitive process via which a clinician collects and interprets patient data, synthesizes results, and formulates diagnostic hypotheses. It is the analytical framework that facilitates comprehension of the patient's condition. Conversely, clinical decision-making is the action-oriented process that ensues from reasoning, when physicians assess available options and ascertain the optimal course of action based on their clinical acumen, evidence, and patient context.

Clinical reasoning is "thinking about what to do," while clinical decision-making is "deciding what to do."

a) Clinical Reasoning: The Cognitive Engine of Patient Understanding

Clinical reasoning is the foundation of all healthcare interactions and involves a continuous, iterative cycle of thinking and re-thinking. It helps clinicians make sense of complex clinical situations by identifying patient problems and considering appropriate responses. The steps of clinical reasoning typically include:

1. Data Acquisition

2. Information Processing

3. Problem Representation

4. Hypothesis Generation

5. Hypothesis Testing

Clinical reasoning can be broken down into two key cognitive approaches:

- **Analytical reasoning**: A logical, step-by-step, methodical analysis often used in unfamiliar or complex cases. It involves conscious application of medical knowledge and critical thinking.

- **Non-analytical reasoning**: An intuitive, pattern-recognition-based approach that relies heavily on experience and familiarity with similar past cases. It allows for faster decision-making, especially in routine clinical settings.

b) Clinical Decision-Making: Translating Understanding into Action

While clinical reasoning lays the cognitive groundwork for understanding patient problems, **clinical decision-making** involves applying that understanding to choose an appropriate intervention. It is the act of moving from insight to action.

Key elements of clinical decision-making include:

1. **Integration of Evidence-Based Practice**
    - Using current, high-quality research to inform and justify clinical choices.
    - Balancing population-level evidence with individual patient circumstances.
2. **Utilization of Clinical Expertise**
    - Drawing from accumulated professional experience to make informed judgments.
    - Tailoring interventions based on knowledge of how similar cases have progressed.
3. **Incorporating Patient Values and Preferences**
    - Engaging patients in shared decision-making.
    - Respecting patient autonomy and ensuring that selected interventions align with their goals, beliefs, and life context.
4. **Considering Resource and Contextual Constraints**
    - Adapting decisions based on the availability of medications, equipment, institutional protocols, and socio-economic factors.
5. **Ethical Considerations**
    - Ensuring decisions align with ethical principles such as:
        - **Beneficence** (doing good)
        - **Non-maleficence** (avoiding harm)
        - **Autonomy** (honouring the patient's choices)
        - **Justice** (equity in healthcare access and outcomes)

Clinical decision-making encompasses not only selecting diagnostic tests or treatments, but also determining when to refer, discharge, educate, or follow up with the patient.

Key Differences and Interconnections

Feature	Clinical Reasoning	Clinical Decision-Making
Focus	Understanding and analysing patient problems	Choosing and implementing a plan of action
Primary Process	Cognitive interpretation and diagnostic reasoning	Evaluative and strategic planning
Outcome	Diagnosis, problem formulation	Treatment, referral, education, management strategy
Key Components	Data gathering, pattern recognition, hypothesis testing	Evidence application, ethical judgment, collaboration
Central Question	“What is going on with this patient?”	“What should we do for this patient?”

III. Models of Clinical Reasoning

Clinical reasoning is the intricate cognitive process employed by healthcare professionals to evaluate patient information, analyse symptoms and signs, formulate diagnoses, and choose management and care strategies. Due to its essential role in healthcare practice, numerous models have been created to elucidate and examine the process of clinical reasoning. These models not only augment our comprehension of clinicians' cognitive processes but also guide the formulation of pedagogical tactics and decision-support instruments. The most frequently examined models include hypothetico-deductive reasoning, pattern recognition, and narrative reasoning. Each model embodies a unique methodology for processing clinical information, possessing specific advantages and drawbacks.

1. Hypothetico-Deductive Reasoning

Definition and Process

The **hypothetico-deductive model** is one of the most well-established and widely taught frameworks of clinical reasoning, particularly among novice practitioners and students. In this model, the reasoning process begins with the generation of initial hypotheses based on limited patient information, usually during history-taking. These hypotheses are then tested through further questioning, physical examination, and diagnostic investigations.

The process involves the following steps:

1. **Cue acquisition** – Gathering initial information through patient interaction.
2. **Hypothesis generation** – Proposing multiple potential diagnoses or explanations.
3. **Data interpretation** – Comparing collected data against the expected findings of each hypothesis.
4. **Hypothesis testing** – Seeking confirming or disconfirming evidence through additional investigation.
5. **Final diagnosis** – Selecting the most likely diagnosis based on accumulated evidence.

Example in Practice

A patient presents with chest pain. A clinician may initially hypothesize acute coronary syndrome, gastroesophageal reflux disease (GERD), and musculoskeletal strain. As more information is gathered through ECG, lab results, and history, each hypothesis is tested until one becomes more probable than the others.

Strengths

- Encourages systematic and logical thinking.
- Useful in complex or unfamiliar clinical scenarios.
- Ideal for teaching diagnostic reasoning to medical students.

Limitations

- Can be time-consuming.
- May lead to cognitive overload, especially in busy clinical environments.
- Risk of **confirmation bias** – favouring information that supports the first hypothesis.
- Often ineffective when speed is crucial, such as in emergencies.

2. Pattern Recognition

Definition and Process

Pattern recognition is a fast, intuitive reasoning model where clinicians identify a diagnosis or condition based on the recognition of familiar symptom patterns. This model is primarily used by **experienced clinicians** who have developed a rich repository of illness scripts through years of clinical exposure.

This reasoning process typically includes:

1. **Exposure to clinical cues** – The clinician quickly notes key signs and symptoms.
2. **Comparison with stored knowledge** – Matching the presentation with known clinical patterns.
3. **Immediate recognition or diagnosis** – Diagnosis is reached with minimal conscious analysis.

Example in Practice

An experienced neurologist sees a patient with sudden onset hemiparesis, facial droop, and slurred speech. Without further analysis, the physician recognizes the pattern as an acute ischemic stroke and immediately initiates stroke protocol.

Strengths

- Very fast and efficient, especially in emergencies.
- Reduces cognitive load.
- Often highly accurate when used by experienced practitioners.

Limitations

- Prone to error in atypical presentations.
- Inaccessible to novices who lack clinical experience.

- May foster **premature closure** – the tendency to stop considering alternatives after an initial diagnosis is formed.
- Less adaptable to complex or multi-morbid patients where patterns are not clear.

3. Narrative Reasoning

Definition and Process

Narrative reasoning is a more holistic and patient-centred model that emphasizes understanding the patient's **story** including their personal experiences, beliefs, values, and social context. This model is particularly prevalent in nursing, rehabilitation, palliative care, and mental health settings, where psychosocial factors significantly influence clinical decision-making.

The narrative reasoning process includes:

1. **Listening actively to the patient's story** – Understanding symptoms within the broader life context.
2. **Building a shared understanding** – Exploring how illness affects the patient's identity and daily life.
3. **Collaborative meaning-making** – Co-constructing interpretations and care goals with the patient.
4. **Integrating medical and personal narratives** – Aligning clinical management with patient values and experiences.

Example in Practice

A patient with chronic pain narrates how the pain affects her ability to work, care for her children, and engage socially. Rather than focusing only on biomedical factors, the clinician explores her fears, beliefs, and support systems to co-design a comprehensive pain management plan.

Strengths

- Enhances therapeutic alliance.
- Promotes shared decision-making and patient autonomy.
- Integrates psychosocial, cultural, and emotional aspects into care.
- Especially valuable in chronic disease and rehabilitation contexts.

Limitations

- Time-intensive; may not be feasible in fast-paced clinical settings.
- Requires strong communication skills and emotional intelligence.
- May lack diagnostic precision without integration with analytical reasoning.

4. Other Models and Hybrid Approaches

In real clinical practice, reasoning rarely follows a single model. Clinicians often shift between models depending on the clinical situation, time pressure, patient complexity, and personal expertise. Some additional or integrated approaches include:

Dual Process Theory

This model integrates both intuitive (System 1) and analytical (System 2) reasoning. System 1 is fast, automatic, and based on pattern recognition, while System 2 is slow, deliberate, and analytical. Expert clinicians often use System 1 but switch to System 2 when faced with uncertainty.

Script Theory

Script theory proposes that clinicians store mental "illness scripts" – structured knowledge of diseases that include predisposing conditions, pathophysiological mechanisms, signs/symptoms, and typical progression. These scripts help in both pattern recognition and hypothesis testing.

Educational Implications

Understanding these models of clinical reasoning is crucial for medical educators. Teaching strategies should:

- Encourage hypothesis generation and testing for novices (hypothetico-deductive reasoning).
- Provide ample case exposure to build illness scripts and support pattern recognition.
- Promote reflective practice and patient narrative skills to develop holistic reasoning.
- Introduce cognitive bias awareness and encourage metacognition (thinking about one's thinking).

Simulation, case-based learning, reflective journaling, and mentorship are effective tools to foster reasoning development across all models.

CHAPTER 2

STEPS IN CLINICAL DECISION-MAKING

PROF. (DR.) SUPRIYA AWASTHI, DR. ROHIT RATHORE (PT), DR. PALLAVI PRAKASH (PT)

Clinical decision-making is a systematic process that enables physiotherapists to assess, diagnose, plan, and deliver optimal care for patients. Effective case management relies on adopting a structured approach, ensuring that every step is evidence-based and patient-centred. Below, each step in the process is broken down.

1. WHAT IS SUBJECTIVE ASSESSMENT?

Subjective assessment is the initial and crucial step in the clinical decision-making process where the physiotherapist gathers detailed information from the patient about their condition through conversation. It focuses on the patient's personal experiences, symptoms, history, and the impact of their problems on daily life. This step helps build rapport, establish trust, and form hypotheses for further objective examination.

Before starting the initial assessment we have to take a small demographic data of the patient. As some part of demographic data will help you to understand the conditions patients have and also helps in treatment goals. Demographic data refers to the essential personal and social information collected about patients during their clinical assessment. This information provides a foundational understanding of the patient's background, which is crucial for personalized treatment planning, effective communication, and improving overall care outcomes in physiotherapy.

Key Elements of Demographic Data

- **Age**: Helps determine risk factors, treatment approaches, and prognosis. As some conditions are Age related also. By age we can also concludes the differential diagnosis.
- **Gender**: Influences susceptibility to certain conditions and guides tailored interventions.
- **Ethnicity/Race**: Important for cultural competence, understanding disease prevalence, and genetic considerations.
- **Occupation**: Indicates physical demands and assists in planning rehabilitation for return to work. As many of the conditions are occupation related, this question is important to ask.
- **Education Level**: Affects health literacy and patient engagement in treatment.
- **Marital Status and Social Support**: Influences recovery and adherence to treatment.
- **Residence (Urban/Rural):** May affect access to healthcare resources.
- **Floor:** if the patient has lower extremity conditions then it will hampers his/her ADLs activities.

Components of Subjective Assessment

1. **History of Present Condition (HPC):**

- Onset and mechanism of injury (e.g., traumatic, repetitive, insidious)
- Duration and progression (better, worse, same)
- Pain characteristics (location, type, severity, aggravating and easing factors)
- Functional limitations (e.g., difficulty climbing stairs, reduced work capacity)
- Previous treatments and response
- Sleep quality affected by the condition

2. **Past Medical History (PMH):**

- Previous relevant illnesses like hypertension, Diabetes Mellitus, Cardiovascular disease, Thyroid, Seizures, etc.
- Surgical history
- Medications

3. **Social and Occupational History:**

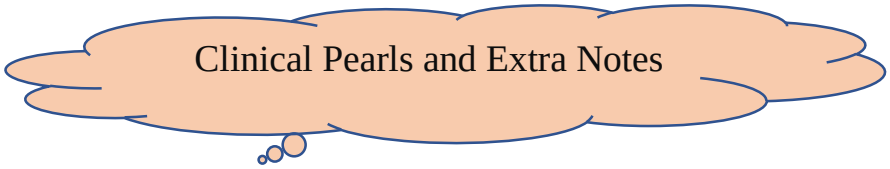
- Work nature and physical demands
- Lifestyle habits (smoking, exercise)
- Psychosocial factors (stress, family support)

4. **Patient's Expectations and Concerns:**

- Goals for recovery
- Understanding and attitudes towards the condition

✓ **Examples of Subjective Assessment Questions**

- "When did your symptoms begin, and can you describe how they started?"
- "What activities aggravate or relieve your pain?"
- "How does this problem affect your daily activities or work?"
- "Have you had any similar problems in the past?"
- "Are you currently taking any medications or undergoing any treatments?"
- "How is your sleep affected by this problem?"



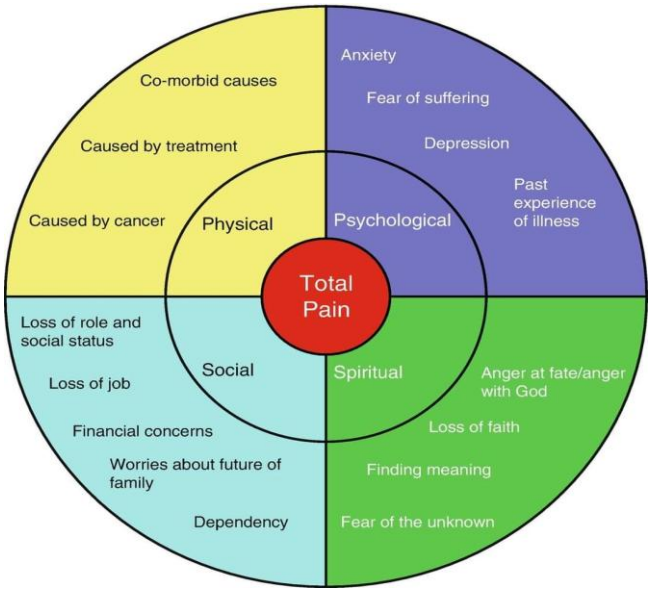
Patient History

A complete medical and injury history should be taken and written to ensure reliability. Often, the examiner can make the diagnosis by simply listening to patient. The history of present illness or injury, relevant past history, treatment, and result should be noted. The examiner should listen for

any potential "red flag" signs and symptoms that would indicate the problem is not musculoskeletal one and that the problem should be referred to the appropriate health care professional.

Red flag signs findings in patient history that indicate need for referral to physician.

1) Cancer : persistent pain at night, constant pain anywhere in the body, unexplained weight loss (.5 to 6.8 kg in 2 weeks or less)
2) Cardiovascular: Shortness of breath, dizziness, pain or a feeling of heaviness in the chest, pulsating pain anywhere in body, constant and sever pain in lower leg or arm.
3) Gastrointestinal/genitourinary: frequent/severe abdominal pain, frequent heartburn or indigestion, frequent vomiting or nausea, change in or problems with bladder functions (e.g., urinary tract infections), unusual menstrual irregularities.
4) Neurological: Change in hearing , frequent or severe headaches with no history of injury, problems with swallowing or changes in speech, changes in vision, problems with balance, coordination or falling, faint spells, sudden weakness.



Pain

Pain is very subjective and its manifestation is unique to each individual. Area of pain enlarges or becomes more distal as the lesion worsens and becomes smaller or more localized as it improves. Some called **peripheralization** of the symptoms and the **centralization** of the symptoms.

Pain and Its Relation to Severity of Repetitive Stress Activity

- Level 1: Pain after specific activity
- Level 2: Pain at start of activity resolving with warm-up
- Level 3: Pain during and after specific activity that does not affect performance
- Level 4: Pain during and after specific activity that does affect performance
- Level 5: Pain with activities of daily living (ADLs)
- Level 6: Constant dull aching pain at rest that does not disturb sleep
- Level 7: Dull aching pain that does disturb sleep

NOTE: Level 7 indicates highest level of severity.

Mnemonic for Subjective Assessment: "OLD CARTS"

This classic mnemonic helps physiotherapists remember the key elements to ask about the presenting complaint:

- Onset: When and how did the problem start?
- Location: Where is the pain/problem?
- Duration: How long has it been present?
- Character: What is the nature of the symptom (sharp, dull, burning)?
- Aggravating factors: What makes it worse?
- Relieving factors: What makes it better?
- Timing: Is there a pattern (morning, night, constant)?
- Severity: How bad is the symptom (pain scale)?

Flow Chart of Subjective Assessment Process

Patient Introduction (Demographic Data)

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Chief Complaint & History of Present Condition

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Pain/ Symptom Characteristics Using OLD CARTS

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Past Medical History & Previous Treatments

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Social/Occupational History & Lifestyle Factors

↓

Patient Expectations & Concerns

↓

Summary & Clarification

↓

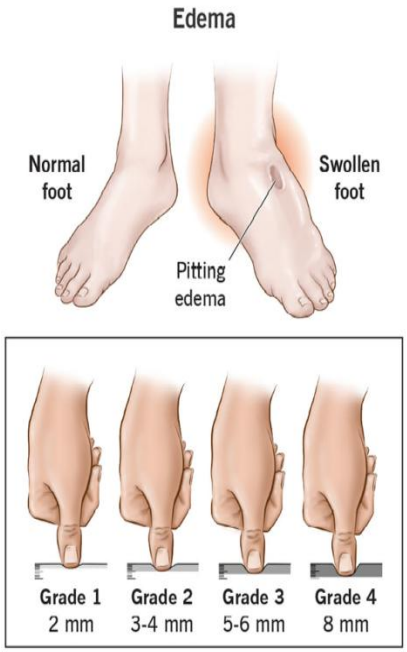
Ready for Objective Assessment

2. OBJECTIVE ASSESSMENT

In the context of physiotherapy, orthopedics or medical documentation, "Objective Assessment" typically summarises **observable, measurable clinical findings** from the patient's physical examination not subjective complaints or history, but what the examiner detects through inspection, palpation, range of motion tests, neurologic checks, special tests, measurements, gait analysis, etc.

General Observation:

- Patient observed in standing, sitting, and walking positions.
- Posture assessed for symmetry, any pelvic tilt, spinal curvature, limb length discrepancy, or abnormal alignment.
- Gait pattern analysed for abnormalities (e.g., antalgic gait, Trendelenburg lurch, high-stepping, waddling, hemiplegic, scissors, shuffling).
- Signs of muscle wasting, swelling, scars, skin discoloration, callosities or trophic skin changes noted.
- Presence of orthotic devices, walking aids, or abnormal shoe wear patterns documented.



Regional Examination

1. Bone and Joint Examination - General Framework Applied to Each Site

Inspection:

- Swelling: location, size, shape, symmetry with contralateral side.
- Skin changes: inflammation, scars, sinuses, ulcers, discoloration, trophic changes.
- Deformities: angular, rotational or length discrepancies; malalignment; contractures.
- Muscle bulk: wasting or hypertrophy.
- Functional posture and resting attitude of limb.

Palpation:

- Temperature (comparative with contralateral side).
- Tenderness: site, depth, and quality (localized, diffuse).
- Swelling: consistency (hard, firm, soft, fluctuant), surface, margins, fixity to underlying bone/skin.

- Bony landmarks for alignment and irregularities.
- Synovial thickening, joint line tenderness, joint effusion.
- Crepitus bony or cartilaginous.
- Neurovascular status distal pulses, capillary refill, peripheral nerve palpation.
-

Range of Motion (ROM):

- Active ROM: movements performed by patient, measured in degrees; noting limitations, substitutions, pain.
- Passive ROM: movements performed by examiner, noting end-feel (soft, firm, and hard) and range.
- Comparison with normal side.
- If limited: note capsular vs non-capsular pattern.

Neurologic Examination:

- **Motor**: Manual muscle testing (grades 0–5) for all key muscle groups supplied by relevant myotomes.
- **Reflexes**: deep tendon (biceps, triceps, knee, ankle) and pathological reflexes (Babinski, Oppenheim if indicated).
- **Sensory**: dermatomal light touch, pinprick, proprioception, vibration sense.
- **Special nerve tension tests** (e.g., straight leg raise, femoral stretch, Tinel's).

Special Orthopaedic Tests:

- Conducted as per regional anatomy e.g., McMurray's/Apley's for knee, Yergason for biceps, Apprehension for shoulder, Drawer test for ankle instability, FABER for hip/SI joint.

2. Upper Limb - Shoulder, Elbow, Wrist & Hand

Shoulder:

- **Inspection**: asymmetry, drooping, step deformity, atrophy (deltoid, supraspinatus), scars.
- **Palpation**: bony prominences (clavicle, acromion, coracoid), rotator cuff, bursae, axilla.
- **ROM**: flexion (0–180°), abduction (0–180°), external rotation (0–45°), internal rotation (0–55°) with scapulohumeral rhythm.
- **Strength**: deltoid (C5), supraspinatus, biceps (C5/6), triceps (C7), rotators.
- **Special tests**: Apley's scratch, Drop arm, Apprehension, Yergason.

Elbow:

- **Inspection**: carrying angle, swelling, deformity, scars.
- **Palpation**: epicondyles, olecranon, joint line, radial head, collateral ligaments.

- **ROM**: flexion (0–135°), extension (0°), pronation/supination (80–90°).
- **Strength**: flexion (C5/6), extension (C7), supination/pronation.
- **Special**: Varus/valgus stress, Tinel's at cubital tunnel, tennis/golfer's elbow tests.

Wrist & Hand:

- **Inspection**: resting posture, deformities (ulnar drift, swan-neck, boutonniere), scars, nodules.
- **Palpation**: carpal bones, tendon sheaths, anatomic snuff box.
- **ROM**: wrist flexion (80°), extension (70°), radial dev. (20°), ulnar dev. (30°); finger flex/ext, abd/add; thumb opposition.
- **Strength**: grip, pinch, finger ab/adduction, wrist flex/ext.
- **Special**: Phalen's, Finkelstein, Allen's test, intrinsic muscle tightness tests.

3. Lower Limb Hip, Knee, Ankle & Foot

Hip & Pelvis:

- **Inspection**: pelvic tilt, gluteal symmetry, gait deviations.
- **Palpation**: bony landmarks (ASIS, greater trochanter), femoral triangle, sciatic nerve.
- **ROM**: flexion (0–135°), extension (0–30°), abd/adduction, internal/external rotation.
- **Strength**: hip flexors (L1–3), extensors (S1), abductors (L5), adductors (L2–4).
- **Special**: Thomas, Trendelenburg, FABER, limb length.

Knee:

- **Inspection**: varus/valgus, swelling, wasting, scars.
- **Palpation**: joint line tenderness, effusion, collateral/ cruciate palpation.
- **ROM**: flexion (0–135°), extension (0°), tibial rotations (10°).
- **Strength**: quadriceps (L3/4), hamstrings (L5/S1).
- **Special**: Lachman/anterior drawer (ACL), posterior drawer, McMurray's, Apley's.

Ankle & Foot:

- **Inspection**: arches (pes planus, cavus), deformity (hallux valgus), swelling.
- **Palpation**: malleoli, ligamentous structures, metatarsal heads, plantar fascia.
- **ROM**: ankle dorsiflexion (20°), plantar flexion (50°), inversion/eversion (5–15°).
- **Strength**: dorsiflexors (L4–5), plantar flexors (S1–2), invertors & evertors.
- **Special**: Anterior drawer, talar tilt, Thompson test, Homan's.

4. Spine

Cervical Spine:

- **Inspection**: alignment, lordosis, torticollis.
- **Palpation**: spinous processes, paraspinals, facet joints.
- **ROM**: flexion, extension, rotation, sidebending quantify limitations.
- **Neuro**: myotomes C5–T1, dermatomes, reflexes (biceps, brachioradialis, triceps).
- **Special**: Spurling's (compression), distraction, Valsalva, Adson.

Lumbar Spine:

- **Inspection**: scoliosis, kyphosis, lordosis, list.
- **Palpation**: spinous processes, paraspinals, SI joints.
- **ROM**: flexion, extension, sidebend, rotation.
- **Neuro**: lower limb myotomes (L2–S2), dermatomes, reflexes (knee, ankle), neural tension (SLR, slump).
- **Special**: FABER, sacroiliac provocation, Beevor's sign.

5. Gait Analysis

- Cadence, step length, stride length, arm swing.
- Phases: stance/swing ratio, heel strike, toe-off mechanics.
- Deviations: antalgic, Trendelenburg, steppage, ataxic, scissors, shuffling, hand-to-knee, calcaneus gait, circumduction.

Measurements

- Limb length: true (ASIS to medial malleolus) and apparent (umbilicus to medial malleolus).
- Joint girth: thigh, calf, forearm, arm.
- Muscle bulk circumference.
- Leg alignment: Q-angle, tibial torsion.
- Spinal mobility tests (Schober's).

Helpful Mnemonics for Orthopedic Clinical Examination

General Physical Examination

- **GALS** Screening (for quick musculoskeletal assessment):
    - **G**ait
    - **A**rms
    - **L**egs
    - **S**pine

Order of Local Examination:

- **"Look, Feel, Move, Measure, Special tests, Neurovascular"**
    - *Mnemonic*: **LFM MSN** ("Lieutenant FM: MSN" as a memory hook!)
    - **L**ook (Inspection)
    - **F**eel (Palpation)
    - **M**ove (Range of motion)
    - **M**easure (Length/Circumference)
    - **S**pecial tests
    - **N**eurovascular examination

Inspection Findings (SWADES):

- **S**welling
- **W**asting of muscles
- **A**lignment/Attitude
- **D**eformities/Discoloration
- **E**rythema/Edema
- **S**cars/Sinuses

Palpation Points (TL-TENS):

- **T**emperature
- **L**ocal tenderness
- **T**exture of swelling
- **E**dges
- **N**eurovascular status
- **S**urface of swelling

ROM and Neurological Exam (ROM MRS)

- **R**ange of motion (Active & Passive)
- **M**uscle power (graded)
- **R**eflexes
- **S**ensation

Clinical Examination in Orthopedics: Flow Chart

Below is a standardized **flow chart** for local musculoskeletal assessment.

Start
|
General Observation (Gait/Posture)
|
Inspection (Look)
|
Palpation (Feel)
|
Range of Motion (Move)
(Active ➔ Passive ➔ Note limitations)
|
Measurement (Limb length, Circumference if needed)
|
Special Orthopedic Tests
|
Neurological Examination
(Motor ➔ Sensory ➔ Reflexes ➔ Vascular)
|
Examination of Adjacent Joints Above/Below
|
Finish

Example: Applying Mnemonics in Practice

Assessing the Knee Joint (LFM MSN):

- **Look:** Check for SWADES items (swelling, wasting, alignment, deformity, scars).
- **Feel:** TL-TENS (temperature, tenderness, surface irregularities).
- **Move:** ROM (flexion/extension, compare passive and active).
- **Measure:** Limb length for discrepancies; circumference for muscle wasting.
- **Special tests:** e.g. McMurray's, Apley's, drawer, valgus/varus stress.
- **Neurovascular:** Sensation (L3–S2), motor power (quadriceps, hamstrings), pulses.

3. PROBLEM LIST FORMULATION

A clear problem list is foundational after the objective assessment. It includes:

- **M**ajor clinical diagnoses (fracture, arthritis, nerve injury, etc.)
- **F**unctional limitations (e.g., unable to walk, loss of ROM, muscle weakness)
- **I**mpairments (swelling, pain, deformity, sensory loss)
- **R**isk factors or complications (infection, poor wound healing, limb length discrepancy)

Example (Knee Osteoarthritis):

1. Pain in right knee aggravated by walking, relieved by rest
2. Reduced right knee flexion (max 90°), extension lag of 10°
3. Quadriceps wasting, muscle power grade 3/5
4. Swelling and medial joint line tenderness
5. Antalgic gait
6. Functional limitation: Difficulty squatting, climbing stairs

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4. GOAL SETTING

Set **SMART Goals** (Specific, Measurable, Achievable, Relevant, and Time-bound) divided into short-term and long-term.

a) Short-Term Goals (1–2 weeks)

- Reduce knee pain from VAS 7/10 to ≤4/10
- Reduce swelling: >1cm decrease in knee circumference
- Restore at least 100° knee flexion
- Enable patient to walk 50m without severe pain

b) Long-Term Goals (4–6 weeks or more)

- Achieve independent ambulation (≥300m) without aids
- Regain nearly full joint range (flexion ≥120°, full extension)
- Improve quadriceps strength to ≥4/5
- Return to activities of daily living (ADLs) such as stair climbing and squatting

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5. PLANNING AND IMPLEMENTING TREATMENT

Follow evidence-based, phased management drawn from clinical principles in the book:

1. **Education:**
    - Brief the patient/family about the diagnosis, prognosis, importance of exercise, and joint protection strategies.
2. **Symptom Relief and Protection:**
    - Rest and splintage if acute inflammation is present
    - Cryotherapy/heat modalities as appropriate (shortwave diathermy, cold packs)
    - Pain management (analgesics, physiotherapy)
    - Joint protection: Use of sleeves, assistive devices if required
3. **Restoration of Function**
    - Gradual mobilization: Range of motion and stretching exercises (passive and active), e.g., heel slides, terminal extension exercises for knee
    - Muscle strengthening, especially quadriceps and hip abductors (isometrics progressing to isotonic exercises)
    - Proprioception and balance training (standing, single-leg stance)
    - Gait training, correct use of walking aids if needed
4. **Prevention of Complications:**
    - Monitor for deformity progression, address limb length discrepancy, prevent secondary contractures
    - Early identification of adverse events (redness, increased pain, fever, etc.)
5. **Functional and Occupational Integration:**
    - Teach safe transfer techniques, ADL modifications
    - Advise on workplace ergonomic adaptations where relevant

Note: Plan should be individualized according to age, comorbidities, severity, and social context as emphasized throughout the book.

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6. MONITORING AND MODIFYING TREATMENT PLANS

Regular Review Includes:

- Reassessment of pain, range of motion, muscle strength, and function at set intervals (daily/weekly)
- Documentation of progress using objective measures (goniometry, muscle power grading, pain scales)
- Checking the status of swelling, wound (if postoperative/injury), and gait analysis
- Early detection of setbacks, complications, non-adherence, or plateau in improvement

If Goals Are Not Met:

- Adjust exercise prescription (increase/decrease intensity, add modalities)
- Review for unrecognized complications (e.g., infection, DVT, nerve palsy)
- Re-refer to orthopedics if severe mechanical block/structural deformity persists

- Consider adjunctive modalities or more structured rehabilitation

7. OUTCOME EVALUATION

At Discharge/End of Episode:

- Compare baseline and current objective measures:
  - Pain score reduction
  - ROM gains
  - Return of muscle strength (MMT grades)
  - Resolution or improvement of gait/functional limitation
- Patient's accomplishment of ADLs and specific functional goals
- Patient/caregiver satisfaction using validated scales or structured feedback
- Prevention of recurrence/secondary complications

If Desired Outcomes Achieved:

- Provide a home program and precautions for self-management
- Schedule follow-up for reassessment as needed

If Partial/No Success:

- Re-evaluate the diagnosis, consider alternative treatments or multidisciplinary referral

CHAPTER 3

CASE MANAGEMENT IN PHYSIOTHERAPY

DR. ROHIT RATHORE (PT), DR. DRISHTI PACHAURI (PT)

Introduction

Contemporary healthcare is built upon the pillars of multidisciplinary collaboration, evidence-based practice, and individualized, patient-centered care. Within this context, case management has emerged as a central organizing framework coordinating services, guiding patient journeys, and optimizing outcomes across the continuum, from acute hospital admission to community-based rehabilitation and chronic disease management. Physiotherapists, as frontline rehabilitation professionals, play a critical case management role beyond the realm of direct physical therapy interventions.

1. Definition and Concepts of Case Management

Case management in healthcare refers to the systematic coordination, planning, facilitation, and evaluation of options and services required to meet a person's needs. It is patient- and family-centred, incorporating advocacy, communication, and resource management to achieve quality, cost-effective outcomes.

In physiotherapy, case management extends to:

- Comprehensive assessment (impairments, functional limitations, participation restrictions)
- Development, implementation, and adaptation of personalized treatment plans
- Coordination with other professionals and services
- Ongoing monitoring and outcome measurement

This approach prioritizes holistic, integrated care a cornerstone of modern health services

The Evolving Role in Physiotherapy:
Historically, physiotherapists were seen as executors of prescribed tasks. Today, they are autonomous practitioners, clinical decision-makers, and essential case managers whose scope includes prevention, early intervention, and long-term care, particularly important in chronic and complex conditions.

2. Roles and Responsibilities of a Physiotherapist in Case Management

Clinical Assessment and Diagnosis

Physiotherapists conduct detailed evaluation encompassing:

- Subjective history (including red and yellow flags)
- Objective assessment (inspection, palpation, ROM, neurological, special tests)
- Analysis of functional status, environmental and social context

They use standardized tools, observation, and skilled clinical reasoning to define the core problems and establish a baseline for intervention

3. Goal Setting and Individualized Treatment Planning

Adhering to patient priorities, therapists:

- Formulate realistic, measurable goals (short- and long-term)
- Design tailored treatment strategies (therapeutic exercise, manual therapy, modalities, education)
- Negotiate interventions with patients and their families (shared decision-making)

4. Advocacy and Navigating Health Systems

Physiotherapists advocate for patients' rights and best interests, helping overcome barriers in complex healthcare systems, including access to support services, rehabilitation aids, and community reintegration resources.

5. Communication and Documentation

Effective information exchange and clinical documentation are vital, ensuring continuity, accountability, and safety.

6. Monitoring Progress and Quality Improvement

Ongoing re-assessment allows for timely modification of care plans, using objective measures and outcome indicators, and is essential for optimizing functional recovery and preventing complications.

7. Examples from Orthopaedic and Neurological Practice

- **Orthopaedic**: Post-total knee replacement, the physiotherapist leads the team in pain management, mobilization, gait and functional training, monitoring for complications (e.g., DVT, contracture), and discharge planning.

- **Neurological**: In stroke, therapists identify rehabilitation potential, set mobility and ADL goals, train the family, anticipate community needs, and coordinate with social services.

8. The Multidisciplinary Team

The multidisciplinary team (MDT) spans a broad array of professionals:

- Physicians (orthopedic, neurologist, internist)
- Nurses
- Physiotherapists
- Occupational therapists
- Speech and language therapists
- Social workers
- Psychologists
- Prosthetist/orthotists
- Pharmacists
- Dietitians

Each brings specialized skills; the physiotherapist is often pivotal in linking physical, functional, and psychosocial domains.

Models of Teamwork

1. **Multidisciplinary:** Parallel assessments with limited coordination
2. **Interdisciplinary:** Collaborative, with shared goals and decision-making
3. **Transdisciplinary:** Blurring of roles, highly integrated

Best practice recommends an interdisciplinary approach joint assessment, mutual respect, and shared documentation and review (e.g., family conferences, electronic records). Structured meetings, use of handoff tools (SBAR Situation, Background, Assessment, Recommendation), and digital platforms (EHRs, WhatsApp groups for rapid updates) are key.

Post-hip fracture elderly patient: Surgeon, nurse, physiotherapist, occupational therapist, social worker all coordinate to expedite mobility, ensure safe discharge, and prevent readmission

CONTINUUM OF CARE: ACUTE TO CHRONIC

A. Acute Care Settings: Role of the Physiotherapist

- Early assessment (within 24–48h of admission for trauma/surgery)
- Prevention of complications: pressure sores, contractures, respiratory infection, DVT (early mobilization, chest physiotherapy)
- Pain management (modalities, education, manual therapy)
- Initial functional training (bed mobility, transfers, safe ambulation)

- Education for patients/families

B. Post-Acute Rehabilitation and Community Integration

- Outpatient or inpatient rehabilitation: progression of strength, ROM, coordination, endurance, functional mobility
- Home visits: environmental modifications and adaptive equipment provision
- Community reintegration: return-to-work, school adaptations, leisure and sports reintegration

C. Chronic Condition Management

- Long-term monitoring for secondary complications
- Support for pain self-management (including psychological strategies)
- Maintenance programs (home exercise, support groups)

D. Transitional Care and Care Coordination

- Liaison between acute, subacute, and community providers
- Use of discharge summaries and care plans
- Patient navigators or case managers sometimes are physiotherapists

PATIENT-CENTRED CARE AND SHARED DECISION-MAKING

A) Principles and Philosophy

- Recognizes the patient's experience, values, and individual life context as central.
- Respect, dignity, empathy, open communication

B) Tools for Enhancing Participation

- Motivational interviewing
- Shared decision aids (e.g., option grids)
- Goal-setting worksheets
- Family/caregiver engagement (education sessions, feedback loops)

C) Cultural Sensitivity and Personalized Care

- Understanding patient’s beliefs, traditions, and family dynamics
- Adapting communication style and rehabilitation interventions (e.g., gender or age preferences in India, holiday/religion accommodations)

D) Overcoming Barriers

- Literacy gaps: Use of visual aids, translated material
- Empowerment: Encourage questions, promote self-efficacy
- Trust-building: Consistent, honest, and compassionate care

PRACTICAL APPLICATIONS: CASE SCENARIOS

A. Orthopedic Example: Proximal Femur Fracture

Patient: 68-year-old female, surgically fixed for a proximal femur fracture

Case Management Steps:

- Acute: Prevent complications; pain management; partial weight bearing with walker; ROM and strengthening of non-involved limbs
- MDT: Coordination with surgeon, nurses, OT, and social worker (assess for safety at home)
- Goal: Independent transfer and ambulation by week 3; discharge home with continued rehab plan

B. Neurological Example: Post-Stroke Rehabilitation

Patient: 57-year-old male, left hemiparesis

- Assessment: Cognitive status, motor/sensory, postural control, swallowing
- Treatment: Task-oriented upper limb rehab, gait training, communication with speech therapist, home modifications
- MDT: Nurse, neurologist, OT, speech, social work (vocational reintegration)
- Goal: Reach maximal independence in self-care and mobility for home transfer

C. Chronic Musculoskeletal Pain

- Biopsychosocial assessment (physical, emotional, work factors)
- Interventions: Exercise, pacing strategies, pain education, CBT elements by psychologist
- MDT: Pain specialist, physiotherapist, mental health
- Goal: Improve function, reduce pain behaviours, increase participation

DOCUMENTATION AND OUTCOME EVALUATION

A) Clinical Reasoning Records

- SOAP format (Subjective, Objective, Assessment, Plan) or ICF-based documentation
- Use of problem lists, regular progress notes, and discharge summaries

B) Standardized Tools

- Gait, balance scales (e.g., Berg Balance Scale)
- Functional Independence Measure (FIM)
- Modified Rankin Scale for neurological recovery

C) Feedback Loops

- Routine outcome measurement at milestones
- Patient and family feedback integrated

CHALLENGES AND FUTURE DIRECTIONS

A) Integration with Digital Health and AI

- Electronic Health Records, remote monitoring
- AI-driven clinical decision support (predicting outcomes, tailoring interventions)
- Tele-rehabilitation in underserved and rural areas

B) Resource Constraints and Solutions

- Scarcity of specialists: task sharing/delegation, upskilling of family or lay workers
- Cost: advocacy for affordable assistive devices, government schemes (India: Ayushman Bharat, state disability funds)
- Education for self-management

Conclusion

Case management in physiotherapy is a multifaceted, dynamic process that underpins high-quality, patient-centered care. It integrates expert clinical assessment, coordinated multidisciplinary interventions, and a respectful, empowering partnership with patients and caregivers. By supporting the continuum from acute crisis to chronic adaptation, physiotherapists are essential to modern health systems, driving better outcomes, satisfaction, and cost-effectiveness. As healthcare evolves, the physiotherapist's role in case management as a clinician, coordinator, educator, and advocate will only grow in prominence.

CHAPTER 4

TOOLS & FRAMEWORKS IN CLINICAL DECISION-MAKING

DR. DRISHTI PACHAURI (PT), DR. ROHIT RATHORE (PT)

Introduction

Clinical decision-making and patient-centered care in rehabilitation demand a structured approach to assessment, planning, intervention, and evaluation. Standardized tools and frameworks enable healthcare professionals, especially physiotherapists and rehabilitation specialists, to collect and interpret data systematically, plan care, set goals, and track patient progress. This chapter explores the essential tools and frameworks used in clinical practice, namely:

- The SOAP and ICF frameworks
- Functional Independence Measure (FIM)
- Outcome Measurement Tools
- Clinical Algorithms and Pathways

Each of these components plays a pivotal role in optimizing clinical outcomes, ensuring evidence-based practice, and enhancing interdisciplinary communication.

1. SOAP Framework

1.1 Definition

The SOAP note is a widely used method of documentation in medical and rehabilitation settings. The acronym stands for:

- **S: Subjective**
- **O: Objective**
- **A: Assessment**
- **P: Plan**

It organizes patient data in a manner that facilitates coherent and consistent clinical reasoning and care continuity.

1.2 Components

Subjective:
Includes the patient's self-reported symptoms, history of present illness, lifestyle habits, pain levels, and functional complaints.

Objective:
Encompasses measurable data such as vital signs, physical examination findings, diagnostic results, and observations.

Assessment:
Professional interpretation of the subjective and objective data, including differential diagnosis and clinical impressions.

Plan:
Outlines interventions, further diagnostic tests, referrals, patient education, and follow-up care.

1.3 Clinical Utility

The SOAP format is beneficial because it:

- Encourages logical thinking.
- Supports interdisciplinary communication.
- Enhances documentation for legal and quality assurance purposes.
- Allows structured case reviews and outcome evaluations.

1.4 Limitations

- May underrepresent the patient's narrative.
- Tends to be clinician-centric.
- Does not explicitly address the social or environmental context.

2. ICF Framework

2.1 Background and Evolution

Developed by the **World Health Organization (WHO)** in 2001, the **International Classification of Functioning, Disability and Health (ICF)** represents a paradigm shift from a purely biomedical to a biopsychosocial model.

2.2 Structure

The ICF model includes:

- **Body Functions and Structures**
- **Activities and Participation**
- **Environmental and Personal Factors**

Functioning is viewed as a dynamic interaction between a person's health condition and contextual factors.

2.3 Application in Rehabilitation

ICF allows practitioners to:

- Evaluate functional status in physical, psychological, and social domains.
- Develop personalized care plans considering environmental facilitators or barriers.
- Set goals aligned with the patient's life participation roles.

2.4 Integration with Clinical Practice

- **Assessment Tool:** Standardized checklists derived from ICF are used for comprehensive assessments.
- **Documentation Framework:** Facilitates consistent recording of functional limitations and progress.
- **Outcome Evaluation:** Enables classification of outcomes in a universally understood language.

2.5 Advantages

- Holistic and patient-centered.
- Cross-cultural applicability.
- Encourages interdisciplinary approaches.

2.6 Challenges

- Requires training for proper implementation.
- Time-consuming in busy clinical settings.
- Limited awareness in some healthcare sectors.

3. Functional Independence Measure (FIM)

3.1 Definition and Purpose

The **Functional Independence Measure (FIM)** is a standardized assessment tool used to gauge a patient's functional ability in physical and cognitive domains. Developed in the 1980s by the Uniform Data System for Medical Rehabilitation (UDSMR), it is widely applied in inpatient rehabilitation settings.

3.2 Components

FIM consists of **18 items**, divided into:

- **Motor Domain (13 items):**
  - Self-care (eating, grooming, bathing)
  - Sphincter control
  - Transfers (bed, chair, toilet, tub)
  - Locomotion
- **Cognitive Domain (5 items):**
  - Communication (comprehension and expression)
  - Social cognition (social interaction, problem-solving, memory)

Each item is scored on a **7-point ordinal scale** (1 = total assistance, 7 = complete independence), resulting in a total score between 18 and 126.

3.3 Clinical Applications

- Assesses baseline functional status.
- Guides goal setting and care planning.
- Measures rehabilitation outcomes.
- Enables resource allocation and discharge planning.

3.4 Benefits

- Standardized and validated across settings.
- Enables benchmarking and quality monitoring.
- Supports interdisciplinary decision-making.

3.5 Limitations

- May be less sensitive to small changes in high-functioning individuals.
- Cognitive aspects are underrepresented.
- Cultural biases in performance interpretation.

4. Outcome Measurement Tools in Rehabilitation

4.1 Importance

Outcome measures in physiotherapy and rehabilitation help in:

- Monitoring treatment efficacy.
- Setting realistic goals.
- Enhancing accountability.
- Facilitating research and audits.

4.2 Classification

A. Patient-Reported Outcome Measures (PROMs):

- Focus on the patient's perspective.
- Examples:
    - **Oswestry Disability Index (ODI)** for back pain
    - **SF-36** (Short Form Health Survey)
    - **Visual Analog Scale (VAS)** for pain

B. Clinician-Reported Outcome Measures (CROMs):

- Based on clinician's observation and measurement.
- Examples:
    - Range of Motion (ROM)
    - Manual Muscle Testing (MMT)
    - Berg Balance Scale

C. Performance-Based Measures (PBMs):

- Require the patient to perform specific tasks.
- Examples:
    - 6-Minute Walk Test (6MWT)
    - Timed Up and Go Test (TUG)
    - Functional Reach Test

4.3 Criteria for Selection

A good outcome measure should be:

- **Valid:** Accurately measure what it claims.
- **Reliable:** Produce consistent results.
- **Responsive:** Detect meaningful changes.
- **Feasible:** Practical to administer in clinical settings.

4.4 Integration in Practice

- Baseline and follow-up assessments.
- Clinical audits and documentation.
- Personalized rehabilitation plans.
- Evidence-based modifications of intervention protocols.

5. Clinical Algorithms and Pathways

5.1 Definition

Clinical algorithms are step-by-step decision trees guiding clinicians through diagnostic and therapeutic options. **Clinical pathways** (also known as care pathways or integrated care plans) are standardized multidisciplinary plans that outline essential steps in patient care for specific clinical conditions.

5.2 Purpose

- Enhance efficiency and consistency of care.
- Reduce variation in clinical practice.
- Improve patient outcomes and satisfaction.
- Optimize resource utilization.

5.3 Types and Examples

- **Post-Stroke Rehabilitation Pathway**
- **Total Knee Replacement Pathway**
- **Chronic Pain Algorithm**
- **ICU Mobilization Protocol**

5.4 Advantages

- Support novice clinicians in decision-making.
- Reduce errors and delays in care.
- Provide benchmarks for performance assessment.

5.5 Implementation Strategies

- Developed by interdisciplinary teams.
- Customized to institutional settings.
- Periodic reviews for updates based on evidence and feedback.

5.6 Challenges

- Risk of oversimplification.
- May restrict clinician autonomy.
- Requires ongoing training and audit for effective use.

Integration of Tools in a Multidisciplinary Context

In practice, these tools and frameworks do not function in isolation. An effective rehabilitation team integrates:

- **SOAP** for documentation and communication.
- **ICF** for holistic goal setting and assessment.
- **FIM and PROMs** for progress tracking and outcome evaluation.
- **Pathways and algorithms** for structuring the rehabilitation journey.

For example, a post-stroke patient may be evaluated using FIM and ICF, documented via SOAP notes, and managed through a stroke rehabilitation pathway that includes mobility algorithms and PROMs such as the Stroke Impact Scale.

CHAPTER 5

ETHICAL AND LEGAL CONSIDERATIONS

DR. PRIYANSHI AGGARWAL (PT), DR. RANU MUKHERJEE (PT)

Clinical learning through hands-on practice is a fundamental component of physiotherapy education to develop the ability to deliver patient-centred care, which is deeply rooted in both clinical experience and ethical understanding. These are fundamental to the practice of physiotherapy, ensuring that patient care is delivered with professionalism, integrity, and accountability. An **ethical situation (ES)** arises when a conflict between moral values occurs. These situations often provoke strong emotions and uncertainty, as students may fear making incorrect decisions. In physiotherapy, ethical dilemmas may occur when patients are denied the recommended amount of care due to resource limitations or when issues related to patients' autonomy and rights to self-determination occur.

As healthcare continues to evolve with increasing emphasis on patient rights and regulatory compliance, understanding and applying ethical standards related to boundaries and accountability has become essential for safe, effective, and legally sound physiotherapy practice.

Physiotherapists are guided by national codes of ethics that align with the ethical framework of the **World Confederation for Physical Therapy (WCPT)**. These codes emphasise respecting patients' rights, complying with legal regulations, providing competent and honest care, and maintaining accountability and transparency. Interestingly, while many physiotherapists perceive themselves as ethically competent, they may lack familiarity with formal codes of ethics or structured methods for ethical problem-solving.

5.1 INFORMED CONSENT

Informed consent is a foundational principle of ethical healthcare practice, grounded in respect for patient autonomy, self-determination, and shared decision-making. It reflects the fundamental **respect for patient autonomy**, ensuring that healthcare users are fully aware of and agree to any proposed interventions. It is a decision-making process in which the client, guided by information provided by the treating physiotherapist, makes an informed choice. This information is tailored to the client's level of understanding and includes details about the proposed treatment, potential risks, available alternatives, and the possible outcomes of declining the treatment.

In the physiotherapy context, Informed Consent is essential due to the hands-on nature of treatment, potential risks involved, and the therapeutic alliance that shapes patient outcomes. Healthcare without informed consent may constitute a **violation of basic human rights**, professional misconduct, and even legal assault or battery. This makes IC not only a legal

requirement but a **moral and professional obligation**. Important ethical considerations in physiotherapy practice are:

1. Autonomy

Autonomy is the principle that upholds a patient's right to self-determination, allowing them to make informed, voluntary decisions about their own body and treatment. It recognizes the ability of mentally competent individuals to make rational choices. In physiotherapy, respecting autonomy requires practitioners to provide honest, understandable information about treatment options, including potential benefits, risks, and alternatives. This enables patients to take an active role in their care. Physiotherapists are ethically obligated to support this right by ensuring that consent is both informed and freely given, while also allowing patients the freedom to refuse or discontinue treatment at any time.

2. Beneficence & Non-Maleficence

The principles of beneficence and non-maleficence require clinicians to actively promote the well-being of their patients while avoiding actions that could cause harm. Rooted in the Hippocratic ideals of “do good” and “do no harm,” these principles form a foundational ethical framework in healthcare practice. For physiotherapists, beneficence involves intentionally supporting the patient’s recovery and health, while non-maleficence demands a careful evaluation of potential risks to prevent unnecessary harm. Clinical decisions such as selecting appropriate manual therapy or exercise interventions must balance potential benefits against possible negative outcomes to ensure the patient's best interests are served. Studies on physiotherapists' ethical perspectives reveal a frequent emphasis on beneficence, often guided by clinical indications. However, without adequate ethics education, there may be less attention to a broader ethical approach that fully integrates both beneficence and non-maleficence in patient care.

3. Justice

Justice in healthcare emphasizes the fair and equitable treatment of all patients, as well as the just distribution of healthcare resources. In physiotherapy, ethical justice operates on two levels: interpersonal justice providing care impartially, without discrimination based on race, socioeconomic status, disability, or other non-clinical factors and distributive justice, which involves allocating limited healthcare services in an unbiased and transparent manner. The global physiotherapy ethics literature highlights persistent concerns around resource limitations and unequal access to care, especially in musculoskeletal and public health contexts. Physiotherapists have an ethical duty to promote justice by ensuring that care is not unfairly withheld or delayed for marginalized groups, and by making treatment decisions that uphold fairness in resource distribution.

Informed consent in physiotherapy goes beyond a routine formality. It represents a fundamental affirmation of patient rights, autonomy, and ethical practice. Although legal requirements and professional standards emphasise its significance, the quality and effectiveness of informed consent are often compromised by practical challenges such as language barriers, high workloads,

and limited practitioner knowledge. These ongoing issues continue to affect the integrity of the informed consent process within physiotherapy care.

1. **Language Barriers**: India's multilingual population presents significant communication challenges in healthcare. Many physiotherapists face difficulties in delivering clear, understandable information to patients who speak different regional languages, especially in rural or semi-urban areas where interpreters or multilingual staff may not be available.
2. **Heavy Workload and Time Constraints**: Physiotherapists in government hospitals and busy urban clinics often have only 5–10 minutes per patient due to high caseloads, emergencies, and administrative burdens. While some may feel this is sufficient, it increases the risk of incomplete or hurried consent processes.
3. **Limited Awareness of Patient Rights Frameworks**: Many practitioners are unaware of national policies such as the *Charter of Patients' Rights* issued by the Ministry of Health and Family Welfare, or hospital-specific consent protocols, indicating gaps in clinical governance and ethical engagement.
4. **Poor Documentation Practices**: Verbal consent is frequently obtained, especially in physiotherapy settings. However, a lack of proper written documentation can pose serious medico-legal risks, particularly for procedures involving discomfort, risk, or multiple treatment sessions.
5. **Uncertainty About Legal Age of Consent**: There is often confusion among physiotherapy professionals regarding the legal age for medical consent in India. According to the Indian Majority Act (1875), the age of majority is 18, but in practice, adolescents may seek treatment independently, raising questions about consent validity and ethical responsibility.
6. **Insufficient Training in Ethics and Law**: Many physiotherapy graduates and support staff (such as physiotherapy assistants or technicians) receive limited formal education in medical ethics and health law. Yet, they are expected to participate in obtaining consent, often without clear institutional guidelines or legal protection.

5.2 CONFIDENTIALITY AND DOCUMENTATION

Confidentiality in physiotherapy is defined as the principle of safeguarding any information obtained within the professional-patient relationship. This obligation extends beyond data directly shared by the patient. It includes any information the patient is likely to consider private, regardless of whether they explicitly request confidentiality or receive a specific assurance from the practitioner. Respecting confidentiality is fundamental to upholding patient autonomy, and any breach that causes harm may violate the principle of non-maleficence. Physiotherapists, like other health professionals, increasingly encounter confidentiality clauses in institutional policies and employment contracts.

The scope of confidentiality extends to all forms of communication and documentation, reinforcing the professional responsibility to protect the privacy and dignity of every patient. It is crucial in building a trusting therapeutic relationship. It shows respect for the patient's autonomy and their right to control how their personal information is used. It ensures compliance with legal and ethical standards set by regulatory bodies and institutions.

Several **environmental and systemic barriers** within physiotherapy settings make it challenging to maintain confidentiality. For example, treatments often occur in shared wards or open rehabilitation gyms, where private conversations are difficult. Group therapy settings further increase the risk of unintended disclosures.

Common **breaches of confidentiality** in physiotherapy include discussing patient cases in public spaces such as canteens or elevators, leaving case notes unattended on desks, or answering phone calls regarding patients in areas where others can overhear. Sometimes, clinicians use patient names in informal discussions among staff when doing so is unnecessary. These breaches often stem from a lack of clear understanding of what information is truly confidential or what constitutes a "need-to-know" scenario.

To promote best practices in maintaining confidentiality, physiotherapists should consistently obtain informed consent before disclosing any patient information, unless there is an immediate threat to the patient or others that warrants disclosure without consent. When information is used for educational or referral purposes, it should be anonymised to protect patient identity wherever feasible. In situations involving ethical uncertainty, practitioners are advised to seek guidance from supervisors, legal counsel, or institutional ethics committees. Additionally, both undergraduate and continuing education programs should include comprehensive training on confidentiality, privacy legislation, and ethical decision-making. It is essential for physiotherapists to stay informed about their organisation's policies, national legal frameworks (such as the Right to Privacy under Indian law), and the professional ethical standards governing their practice.

Documentation in Physiotherapy refers to the systematic recording of a patient's medical history, assessment findings, treatment plans, interventions, progress, and outcomes by a physiotherapist. It involves both written and electronic health records and forms a legal, ethical, and clinical record of care.

One of its primary functions is to provide clinical justification and promote continuity of care. By maintaining accurate, clear, and comprehensive records, physiotherapists can ensure that treatment plans are consistent and informed. This is especially important when care is transferred between providers or across different healthcare settings, enabling seamless continuation of therapy based on past interventions and clinical findings.

It also serves as a legal and ethical record of the services provided. It acts as a formal record that can be reviewed in cases of disputes, audits, or complaints, thus protecting both the therapist and the patient. A well-maintained record also demonstrates that the physiotherapist has adhered to ethical principles and professional standards of practice.

In addition to these roles, documentation is a crucial **communication tool** within the multidisciplinary healthcare environment. It allows for clear and efficient information exchange among team members, such as physicians, nurses, occupational therapists, and other physiotherapists. This interprofessional communication supports integrated care and prevents redundancy or clinical errors.

Another essential purpose of documentation is its use as **evidence for reimbursement**. In many healthcare systems, insurers and third-party payers require detailed documentation to verify that physiotherapy services were necessary and effectively delivered. Without proper records, therapists may face challenges in obtaining payment for services rendered.

Moreover, documentation supports **research, audits, and quality improvement initiatives**. Systematically recorded patient data can be used to monitor outcomes, evaluate the effectiveness of interventions, and identify areas needing improvement. This contributes to the advancement of evidence-based practice and helps physiotherapy departments optimise their services.

5.3 PROFESSIONAL BOUNDARIES AND ACCOUNTABILITY

Professional boundaries refer to limits that define the **roles**, **responsibilities**, and **identity** of each healthcare profession. Maintaining professional boundaries and upholding accountability are critical to fostering trust, protecting patient autonomy, and preventing misconduct. Physiotherapists are often in close, ongoing contact with patients, which creates both opportunities for therapeutic rapport and risks for boundary violations if ethical principles are not clearly defined and followed.

Physiotherapists must avoid engaging in dual relationships where the therapeutic role may overlap with personal, financial, romantic, or social involvement. Such overlaps can compromise objectivity, interfere with clinical judgment, and negatively affect the quality of care.

Boundaries also extend to communication, both verbal and non-verbal. Therapists must use professional language, avoid unnecessary physical contact, and be aware of body language and tone. With the rise of digital communication, professional boundaries also apply to social media and electronic messaging; forming personal online connections with patients or sharing patient-related content can breach ethical and legal standards. Respecting time boundaries, such as avoiding excessive contact outside of clinical hours, is equally important. Additionally, physiotherapists must recognise power dynamics in the therapeutic relationship. Patients may be vulnerable due to pain, disability, or emotional stress, making it essential for therapists to act with sensitivity and integrity.

Maintaining professional boundaries protects both the patient and the therapist. It preserves trust, enhances the therapeutic alliance, and promotes a safe and supportive environment for recovery. Breaching these boundaries can lead to disciplinary action, legal consequences, and loss of professional registration. Therefore, physiotherapists must engage in regular self-reflection, seek guidance when unsure, and follow institutional policies and professional codes of conduct. Education on boundary-setting should be emphasised during training and throughout one's career as part of ethical and professional development. By consistently upholding professional boundaries, physiotherapists contribute to high standards of care and safeguard the dignity and well-being of their patients.

Accountability in physiotherapy refers to the obligation of physiotherapists to take full responsibility for their professional actions, decisions, and outcomes in patient care. It is a key ethical principle that ensures clinicians provide competent, safe, and patient-centred services.

Accountability involves delivering evidence-based treatment, maintaining accurate records, explaining care plans clearly to patients, and being answerable to professional bodies, employers, and patients themselves. It also means acknowledging and addressing any errors or adverse outcomes in a transparent and responsible manner. According to the **World Physiotherapy (formerly WCPT)**, accountability is central to the integrity and trust placed in the profession, requiring therapists to act consistently in accordance with ethical and legal standards (World Physiotherapy, 2019).

In cases of clinical error, professional accountability demands transparency, ethical reasoning, and proactive steps to rectify the situation. A physiotherapist should not only acknowledge mistakes but also report critical incidents, contribute to investigations, and use the experience as an opportunity for learning and improvement. Furthermore, accountability extends to the duty of speaking up against unsafe, unethical, or substandard practices, thereby reinforcing a culture of patient safety and professional integrity.

Ethics in physiotherapy is not an isolated component but an integral thread woven through every patient interaction, decision, and professional judgment. Beyond compliance with codes and regulations, ethical practice calls for self-awareness, compassion, and critical thinking in real-life clinical contexts. As physiotherapists face challenges involving resource constraints, patient vulnerability, and systemic inequalities, ethical competence empowers them to make balanced, patient-centred decisions. Ultimately, the strength of the profession lies in its ability to uphold these values not just in policy, but in practice. By staying grounded in ethical principles and evolving with the needs of society, physiotherapists can continue to deliver care that is not only effective but also just, respectful, and humane.

CHAPTER 6

COMMON PITFALLS AND HOW TO AVOID THEM

DR. ROHIT RATHORE (PT), DR. DRISHTI PACHAURI (PT), DR. SONIYA SHARMA (PT)

Clinical decision-making and case management in physiotherapy require a balance of evidence-based knowledge, clinical reasoning, and patient-centered care. Despite the best intentions, certain pitfalls frequently occur in practice, compromising patient outcomes, clinician confidence, and the profession's credibility. This chapter highlights three common pitfalls biases in decision-making, over- or under-treatment, and inadequate documentation and provides strategies to avoid them.

Biases in Decision-Making

Physiotherapists often rely on cognitive shortcuts known as heuristics to make rapid decisions. While helpful in some circumstances, these mental shortcuts may introduce unconscious biases that distort judgment.

- **Confirmation bias:** The tendency to favor information that supports an initial hypothesis (e.g., assuming all shoulder pain in athletes is related to rotator cuff pathology without adequate assessment).
- **Anchoring bias:** Placing too much weight on the first impression or initial clinical findings, which may prevent exploration of alternative causes.
- **Availability bias:** Relying on recent or memorable cases instead of objective evidence (e.g., over diagnosing disc herniation after seeing several such cases in a short period).

How to avoid these biases:

- Use structured clinical reasoning frameworks, such as the Hypothesis-Oriented Algorithm.
- Collect both subjective and objective data before drawing conclusions.
- Regularly reflect on decisions through peer discussions and clinical audits.
- Remain open to modifying working hypotheses as new evidence emerges in the rehabilitation process.

Example:
A physiotherapist assesses a middle-aged patient with chronic lower back pain. The therapist, recalling successful results from a specific exercise program in prior patients, quickly anchors

on a diagnosis of mechanical low back pain and prescribes the same regimen. However, subtle red-flag symptoms (nocturnal pain, unexplained weight loss) are overlooked due to confirmation bias. Later, further investigations reveal a spinal pathology requiring urgent medical attention. This case highlights how prior experiences and expectations can lead to misdiagnosis by narrowing clinical reasoning.

Over- or Under-Treatment

Another common pitfall is an imbalance in treatment intensity and duration. Both extremes over-treatment and under-treatment carry risks.

- **Over-treatment:** This can burden patients financially, increase the risk of treatment-related adverse effects (e.g., excessive manual therapy leading to soreness), and reduce adherence due to therapy fatigue.
- **Under-treatment:** Conversely, insufficient treatment may fail to address patient goals, limit functional recovery, and prolong disability. Under-treatment is often linked to fear of exacerbating symptoms or lack of adherence to evidence-based guidelines.

How to avoid this pitfall:

- Establish clear, measurable goals using SMART criteria (Specific, Measurable, Achievable, Relevant, Time-bound).
- Apply clinical practice guidelines to determine evidence-based dosage, frequency, and progression of interventions.
- Reassess outcomes regularly and adjust treatment plans according to functional improvements.
- Educate patients to promote shared decision-making, ensuring treatment aligns with their expectations and lifestyle.

Example:
A 22-year-old athlete undergoes ACL reconstruction and is prescribed a highly intensive rehabilitation protocol modeled on elite sports guidelines, despite having a moderate fitness background. The aggressive approach leads to excessive swelling, recurrent pain, and poor functional gains, forcing several treatment breaks and ultimately delaying return to sport. In contrast, a more measured program paced to patient tolerance could have optimized outcomes. Over-treatment, often driven by external protocols or clinician enthusiasm rather than patient capacity, can impede rather than enhance recovery.

Inadequate Documentation

Accurate documentation is not merely an administrative requirement; it is a legal, ethical, and clinical necessity. Poor or inconsistent documentation reduces continuity of care, increases the risk of medical errors, and undermines professional accountability.

Common documentation errors include:

- Vague descriptions of assessment findings (e.g., "ROM improved" without exact degrees).
- Omission of patient-reported outcomes or functional measures.
- Lack of justification for clinical decisions or chosen interventions.
- Missing progress notes, discharge summaries, or follow-up plans.

How to avoid inadequate documentation:

- Adopt standardized documentation formats such as SOAP notes (Subjective, Objective, Assessment, Plan).
- Record both impairments and activity limitations to reflect holistic patient outcomes.
- Incorporate validated outcome measures (e.g., Oswestry Disability Index, Six-Minute Walk Test).
- Ensure all documentation is completed promptly, legibly, and in alignment with institutional and legal frameworks.

Example:
A therapist documents vague assessments such as "ROM improved" and "pain less" over multiple visits for a patient with chronic neck pain, omitting objective data and functional outcomes. When the patient's condition worsens and new therapists take over, the lack of specific, timely notes prevents accurate evaluation of progress and risks repeating ineffective interventions. In a legal complaint, it was found that copy-pasting identical notes and not updating records contributed to treatment delays and confusion within the care team, leading to financial and reputational consequences for the provider.

CHAPTER 7

REAL-WORLD CASE SCENARIOS

[1]DR. ROHIT RATHORE (PT), [2]DR. ANJALI RAWAT (PT), [3]DR. RISHIKA YADAV (PT)

[1]LOW BACK PAIN

Low back pain (LBP) is one of the most common musculoskeletal illnesses and a primary cause of global impairment. A significant proportion of adults encounter some kind of low back pain (LBP) throughout their lives, making it a primary impetus for pursuing physiotherapy treatment. Effective management necessitates precise diagnosis, categorisation, and tailored action, frequently demanding an intricate clinical reasoning process.

FACTORS ASSOCIATED WITH LOW BACK PAIN

- Heavy lifting
- Twisting and bending
- Physical activity
- Obesity
- Arthritis and osteoporosis
- Pregnancy
- Age > 30 years
- Bad posture
- Stress and depression

PREDICTORS OF DELAYED RECOVERY

- Depression / Anxiety
- Passive coping
- Job Dissatisfaction
- Significant Disability
- Disputed Compensation Claims
- Somatization
- Emotional Distress

VISCERAL DISEASES REFERRING PAIN TO THE LOW BACK

- Peptic ulcer
- Pancreatitis
- Nephrolithiasis
- Pyelonephritis
- Prostatitis
- Pelvic infection or tumors
- Aortic dissection

CONSIDERATION FOR CONSULTATION

Specific Problems to Target

- Axial Pain
- Myofascial
- Tendinous / Ligamentous
- Facet Joint
- Vertebral
- Sacroiliac
- Discogenic
- Radiculitis / Neuroforaminal Stenosis
- Spinal canal stenosis
- Piriformis Syndrome
- Lumbar Post-Laminectomy Syndrome

With Neurologic symptoms

AXIAL LOW BACK PAIN: HISTORY

- Mechanism of Injury
- Specific Injury (e.g. T-bone MVA)
- Indolent course
- Radiation
- Above knee (e.g. sacroiliac pain, facet pain)
- Below knee, dermatomal (e.g. L5 radiculopathy)
- Below knee, non-dermatomal (e.g. spinal stenosis, CRPS)

SUMMARY OF COMMON PHYSICAL EXAM

- **Maneuvers for LBP**
  - ✓ Gait: Identify potential problems below the spine
  - ✓ Neurological
    - Sensation, Strength (L5 extensor hallicus longus)
    - Reflexes: L4 (patellar), L5 (biceps femoris), S1 (ankle)
  - ✓ Quadrant loading / Prone hip extension (facet joints)
  - ✓ Segmental tenderness / trigger points (facet / myofascial)
  - ✓ Faber / Gaenslen tests (hips/SIJ)
  - ✓ Straight leg raise (SLR) test / Crossed SLR (radiculitis)
  - ✓ SLR 91% sensitive / Crossed SLR 88% specific *

RED FLAGS

• "Red Flags" are symptoms suggestive of serious underlying pathology.

• In isolation – not very predictive, guidelines vary

• Screening questions for acute LBP, or chronic LBP with change in symptoms

- Present in about 1-4% of cases.
- Fracture (5-6%)
- Malignancy (1-2%) esp. metastasis from prostate, breast and lung
- Infection (1%) osteomyelitis, discitis, abscess
- Cauda Equina Syndrome (0.4%)
- Ankylosing spondylitis : 0.3%

ASSOCIATIONS OF SERIOUS BACK PAIN ETIOLOGY

Fracture

- Trauma

Malignancy

- H/o cancer
- Unexplained weight loss
- Pain awakens from sleep

Infection

- Fevers, chills, sweating
- Recent infection
- Pain awakens from sleep
- Persistent night sweats

Cauda equina syndrome

- Recent loss of bowel control
- Recent loss of bladder control

WHEN TO REFER TO SPECIALIST / SURGEON

- ❖ Bladder/bowel dysfunction
- ❖ Hypoesthesia over the perineum
- ❖ Rapidly progressing neurological dysfunction
- ❖ Loss of strength/sensation
- ❖ Hypo or Hyperreflexia
- ❖ Failed non-operative therapy in presence of known HNP, severe stenosis, spinal instability

REFERRAL PATTERNS FOR THE LOW BACK / LOWER EXTREMITIES

I. Types of Low Back Pain

LBP is generally classified by *duration* and *underlying cause*:

- **Duration:**
  - **Acute:** < 4 weeks
  - **Subacute:** 4–12 weeks
  - **Chronic:** > 12 week
- **Cause:**
  - **Non-specific (Mechanical):** Most common; does not have a clear structural or pathological source.
  - **Specific:** Due to identifiable structural problems (e.g., herniated disc, fracture, tumor, infection).

II. Common Mechanical Subtypes

Subtype	Key Features
Muscle strain/sprain	Post-trauma or overuse, localized pain, worse with movement
Degenerative changes	Worse with activity, older age, stiffness
Disc herniation	Radiating pain (often down leg), sensory/motor loss, reflex change
Spinal stenosis	Pain/sensory loss/weakness in legs, worse with walking
Spondylolisthesis/lolysis	Young athletes, pain increased with extension, imaging shows slippage
Vertebral fracture	Older age/osteoporosis/trauma history, point tenderness

III. Differentiating Types: History, Exam, and Imaging

Accurate differentiation guides management. Here's how history, special tests, and imaging each help:

1. History

- Thorough questioning about onset, character, duration, location, radiation, factors that worsen/relieve pain, and past history. Ask about red flag symptoms (unexplained weight loss, fever, cancer history, trauma, incontinence).
- **Muscle strain:** Acute onset after trauma/overexertion, localized pain. No neurological symptoms. Aggravated by activity.
- **Degenerative changes:** Gradual onset, morning stiffness, pain after prolonged activity. No nerve symptoms unless severe.
- **Disc herniation:** Acute or gradual onset. Leg pain (sciatica), numbness, tingling, and sometimes weakness. Worsens with sitting, improves when lying down.
- **Stenosis:** Older patients, leg pain/cramping with walking (neurogenic claudication), relieved by sitting/bending forward.
- **Fracture:** Acute pain after fall/trauma, point tenderness, older age, possible osteoporosis. Sudden disability.

2. Physical Examination & Special Tests

- **Inspection, palpation, range of motion** to identify tenderness, muscular spasm, or deformity.
- **Neurological screening:** Sensory, motor, and reflex testing for nerve involvement.
- **Special tests:**
    - **Straight Leg Raise (SLR):** Positive in radiculopathy (disc herniation); reproduces leg pain between 30–70°.
    - **Slump test:** Assesses nerve root tension (radiculopathy).
    - **Femoral nerve stretch:** Upper lumbar disc herniation.
    - **Extension-based tests:** Exacerbate symptoms in spondylolysis, spondylolisthesis.
    - **Palpation:** Localized tenderness (fracture/strain).

3. Imaging (X-Ray, MRI, Others)

- **Not routinely needed** for most acute, non-specific LBP without red flags, but useful for confirming diagnosis in:
    - **Disc herniation:** MRI shows nerve root compression.
    - **Fracture:** X-ray or MRI shows vertebral break, height loss.
    - **Spinal stenosis:** MRI shows canal narrowing.
    - **Spondylolysis/spondylolisthesis:** X-ray shows defect/slippage at pars interarticularis/lower vertebrae.

CASE SCENARIOS & DIFFERENTIATION

Case 1: 25-year-old lifts heavy box, develops sharp, localized low back pain. No leg pain.

- **Likely diagnosis:** Lumbar muscle strain.
- **Findings:** Normal neuro exam, tender paraspinals, full (but painful) range of motion. Special tests negative. Imaging not needed.

Case 2: 42-year-old office worker with 10 years of intermittent back pain, morning stiffness, and gradual worsening. No leg pain or neuro deficit.

- **Likely diagnosis:** Lumbar spondylosis (degenerative changes).

- **Findings:** Reduced flexibility, possible crepitus, normal neurology. X-ray may show disc space narrowing/osteophytes if done.

Case 3: 38-year-old reports acute low back pain radiating down left leg after lifting. Describes numbness and weakness in foot.

- **Likely diagnosis:** Lumbar disc herniation with radiculopathy.
- **Findings:** Positive SLR/slump test, sensory/motor/reflex deficit in L5/S1 dermatome/myotome. MRI confirms herniation.

Case 4: 67-year-old with sudden severe pain after trivial fall. Localized midline tenderness; history of osteoporosis.

- **Likely diagnosis:** Vertebral compression fracture.
- **Findings:** Marked tenderness over vertebra, limited movement due to pain. X-ray/MRI shows fracture.

Case 5: 73-year-old with pain and numbness down both legs, aggravated by walking, relieved by sitting.

- **Likely diagnosis:** Lumbar spinal stenosis.
- **Findings:** Neurogenic claudication, normal neuro exam at rest. MRI shows spinal canal narrowing.

Summary Table: Differentiating Features

Condition	Age	History	Special Test	Imaging
Muscle strain/sprain	Any	Acute, post-trauma	None specific	Normal
Degenerative (spondylosis)	>40 yrs	Gradual, stiff, activity	None specific	Narrowed discs/osteophytes
Disc herniation	30–50 yrs	Acute radiating leg pain	SLR/Slump positive	Bulge/herniation on MRI
Compression fracture	>60 yrs	Trauma/osteoporosis	Point tenderness	Fracture lines
Spinal stenosis	>65 yrs	Leg pain with walking	Neurogenic claudication	Narrowed canal (MRI)
Spondylolysis/olisthesis	Young/adult	Extension pain, athletes	Pain on extension	Slippage (X-ray)

KEY POINTS

- Start with a structured history and physical exam to distinguish mechanical from non-mechanical and specific from non-specific LBP.
- Use imaging selectively to confirm or clarify uncertain or severe cases.
- Special tests and accurate functional assessment (e.g. ODI, Roland-Morris Questionnaire) support diagnosis and monitoring.
- Management depends on diagnosis, patient factors, and prognostic indicators.

[2]NEUROLOGICAL: STROKE REHABILITATION

Introduction

Stroke is among the leading causes of mortality and disability around the world. Although incidence rates are projected to rise over the next few decades, survival rates are predicted to improve. As a result, more stroke survivors will have to learn to cope with the repercussions. One of the key aims for stroke survivors is to return home following acute stroke care or rehabilitation. Physiotherapy is an important component of stroke rehabilitation. Physiotherapy has been shown to help restore and preserve gait and mobility-related functions, as well as improve activities of daily living (ADLs). This is necessary for social reinstatement. Physiotherapy also helps to restore motor functions and physical fitness, as well as to prevent secondary ailments.

UNDERSTANDING STROKE

Definition and Types

A stroke is characterized by an abrupt loss of neurological function brought on by a disruption in the blood flow to the brain. It falls under the following categories:

i) *Ischemic Stroke*: caused by an embolus or thrombus obstructing of the cerebral arteries.

ii) *Hemorrhagic Stroke*: When a blood vessel ruptures, blood leaks into the brain tissue, resulting in a hemorrhagic stroke.

Pathophysiology & Its Effects

Neuronal cell death results from disruptions in cerebral blood flow. It impacts language centers, motor pathways, sensory processes, and cognitive regions. Patients may suffer from visual field abnormalities, neglect, hemiplegia, or aphasia, depending on the site.

Typical Post-Stroke Disability

1. Motor: hemiparesis, spasticity, and aberrant tone.
2. Sensory: Reduced proprioception, touch, and pain perception.
3. Cognitive: Memory loss, executive dysfunction, and reduced attention.
4. Communication: aphasia or dysarthria.
5. Emotional: depression, anxiety, and emotional instability.

FUNDAMENTALS OF STROKE REHABILITATION

A) Neuroplasticity and Movement - based learning

Rehabilitation makes use of neuroplasticity, or the brain's ability to reorganize itself. Repeated, purposeful activities develop new motor pathways.

B) Early Mobilization

By starting mobilization within the first 24 to 48 hours, problems like deterioration

or deep vein thrombosis are avoided and functional recovery is enhanced.

C) Task-oriented Training

It places a strong emphasis on practicing daily living tasks including walking, transferring, and dressing in order to improve independence and practical function.

D) **Basics of Exercise Prescriptions:**

E) **Patient Specific -** Exercises should be prescribed based on the patient's functional level.

- *Progressive* - Gradually increase the degree of intricacy and severity.
- *Target Driven* - Exercises should be consistent with the objectives of the patient

PHYSIOTHERAPY ASSESSMENT

The foundation for creating rehabilitation plans that genuinely address the needs of stroke survivors is a thorough physiotherapy evaluation. Adopting a multifaceted framework allows the physician to assess the patient's state from a physical, functional, sensory, and cognitive perspective, creating a comprehensive picture that guides individualized treatment.

COMPREHENSIVE EVALUATION STRATEGY

Motor function, postural control, coordination, sensory processing, cognitive ability, and the ability to perform daily tasks are all included in the evaluation. The clinician can determine exactly where deficiencies exist, set attainable functional milestones, and create a rehabilitation plan based on the most recent clinical research by methodically examining each of these categories.

Thorough Patient History

A thorough medical history is essential. A list of current medications, the patient's former level of autonomy, any pertinent chronic illnesses like diabetes or hypertension, the time, nature, and severity of the stroke, and the patient's own rehabilitation goals are all required pieces of information. Predicting discharge needs and making plans for continued care require knowledge about the patient's routine, living situation, and the availability of social and family support.

Observation

The first phase of clinical observation highlights:

- Postural Alignment: Keep an eye out for telltale signs of hemiplegia, like elevated shoulders on the afflicted side.
- Movement and Balance Techniques: Keep an eye out for compensatory techniques used when standing, sitting, or walking, and note any asymmetries or over-reliance on the unaffected side.

Muscle Tone and Synergy Patterns: Evaluating abnormal reflexes, spasticity, and flaccidity.

TOOLS AND TECHNIQUES FOR ASSESSMENT

Motor Function

- Fugl-Meyer Assessment: A standardized instrument for assessing the recovery of motor function following a stroke, including motor, sensory, and coordination components, is the Fugl-Meyer Assessment (FMA).
- Chedoke-McMaster Stroke Assessment: Evaluates physical function and disability within a stroke context.

Balance

- Berg Balance Scale (BBS): The Berg Balance Scale (BBS) evaluates both static and dynamic balance while performing functional tasks such as turning and reaching.
- Timed Up and Go (TUG): Assesses mobility with additional focus on fall risk.

Gait

- Gait Speed and Stride Length: Measurement of mobility and functional efficiency.
- Observational Gait Analysis: Qualitative evaluation of the gait cycle.

Sensory Function

- Involves assessing light touch, pain perception, and proprioception in order to identify sensory deficiencies and develop a sensory retraining program.
- ***Cognitive Function***
- Mini-Mental State Examination (MMSE): evaluates cognitive function.
- Montreal Cognitive Assessment (MoCA): It is sensitive to mild cognitive impairments that impact executive function, memory, and attention. .

Outcome Measures

- Vital for monitoring development, directing therapeutic choices, and modifying rehabilitation objectives. Frequent evaluation guarantees that the treatment continues to be responsive to the needs of the patient.

PHYSIOTHERAPY MANAGEMENT

Early Intervention in Acute Phase (≤7 Days Post-Stroke)

To avoid complications and encourage neural recovery, early physiotherapy during the acute phase is essential.

- *Positioning:* In order to avoid joint stiffness, lessen respiratory issues, and prevent pressure sores, positioning techniques are used. Skin deterioration and musculoskeletal contractures are reduced by regular repositioning, cushioning, and proper limb alignment.
- *Respiratory Management:* Diaphragmatic breathing exercise, productive coughing, and chest physical therapy are all part of respiratory physiotherapy, which aims to improve lung function and prevent pneumonia.

- *Early Mobilization:* Bed mobility, sitting balance, and passive or active range of motion (ROM) exercises are all part of early mobilization. These activities lower the risk of learned non-use, deconditioning, and venous thromboembolism.

Sub-Acute and Chronic Management

In the subacute phase (7 days-3 months) and chronic phase (>3 months), rehabilitation therapies concentrate on restoration of independence and function.

- *Motor Retraining:* Goal-directed movement repetition is the main focus of motor retraining. Neuroplasticity is facilitated by biofeedback and mirror therapy, which improve motor learning.
- *Task-based Training:* Self-care activities and movement patterns like transfers are prioritized in task-specific training.
- *Constraint-Induced Movement Therapy (CIMT):* To encourage the use of the affected side, the unaffected limb is restrained throughout the process.
- *Strengthening:* Key muscle groups are targeted to improve functional endurance and reduce fatigue during daily activities.
- *Balance and Coordination:* Training for balance and coordination includes both static exercises, such as standing on foam, and dynamic exercises such as reaching or walking. Proprioceptive training uses unstable surfaces, such as wobble boards.
- *Gait Training:* Gait training includes supervised walking on treadmills or overground with verbal and tactile prompting. Gait recovery may be aided by walkers, canes, or ankle-foot orthoses (AFOs).
- *Sensory Integration Approach:* Coordinated movements of the body are enhanced through sensory integration therapy, which refines how sensory input is interpreted.
- *Spasticity and pain:* Stretching, splinting, heat, or cold therapy are used to treat pain and spasticity disorders.
-

EMERGING THERAPIES AND TECHNIQUES

- Robotics: Robotic devices for gait and upper limb training deliver intense, repetitive exercise. By ensuring patients practice movements repeatedly, these systems foster neuroplastic changes that underpin motor recovery.
- Virtual Reality: Patients are immersed in realistic, meaningful tasks using virtual reality solutions. This device keeps patients actively involved in their therapy while also improving motor control and cognitive thinking.
- Functional Electrical Stimulation (FES): Electrical currents are used in functional electrical stimulation to activate weak or dormant muscles. This technique facilitates smoother movements by improving voluntary motion, reducing spasticity, and fine-tuning gait mechanics.

These tools, when paired with conventional therapy, maximize recovery outcomes by developing customized rehabilitation paths that center on the objectives of each patient.

Conclusion

Rebuilding capabilities, reducing long-term disability, and improving survivors' daily well-being are the goals of the fluid, continuous process of stroke recovery. Physiotherapy addresses issues with mobility, sensation, thought, and everyday activities at every step, from hospitalization to community reintegration. Interventions such as moderate movement, airway control, and careful body alignment immediately following a stroke help to prevent complications and create the conditions for healing. Therapy focuses on retraining movement patterns, strengthening, balancing, repairing walking mechanics, and practicing everyday abilities during the sub-acute and chronic phases. These strategies are guided by how the nervous system can reorganize and how individuals can regain their ability to move.

Assessment tools like the MoCA, the Berg Balance Scale, and the Fugl-Meyer provide us with accurate, unbiased pictures of our patients' current conditions and assist us in planning their futures. Alongside these, individualized, progressively more intense, and goal-oriented workout programs maintain the individual's center of attention. New technologies like virtual reality, robots, and functional electrical stimulation are revolutionizing stroke treatment by increasing interaction and fully using the brain's plasticity. A quicker return to independence and more pronounced functional gains result from combining this state-of-the-art equipment with conventional hands-on techniques. A comprehensive, evidence-based physiotherapy program that not only expedites physical rehabilitation but also encourages reintegration into society, strengthens emotional resilience, and establishes the foundation for long-lasting quality of life is the final result of tying all these threads together.

[3] GERIATRIC: FALL RISK AND MOBILITY TRAINING

Introduction

Global Population Aging and Rising Falls Prevalence

The rate at which the world's population is aging is unprecedented. The World Health Organization (WHO) predicts that the number of people 60 and older will nearly double from 1 billion in 2020 to 2.1 billion by 2050. Age-related physiological changes and comorbidities increase the risk of falls as people age. Falls are a major public health concern and the second most common cause of unintentional injury deaths globally.

Relevance of Mobility in preserving one's independence and Standard of Living

Mobility is crucial to the independence and well-being of older persons. It involves having the ability to navigate one's environment safely and effectively. Impaired mobility is associated with decreased engagement in community activities, institutionalization, functional decline, and an increased risk of falls.

UNDERSTANDING FALLS IN THE GERIATRIC POPULATION

Definition and the Effects of fall

A fall is defined as "an event which results in a person coming to rest inadvertently on the ground or floor or other lower level". The consequences of falls can include severe physical injuries such as head trauma and fractures, psychological repercussions such as anxiety and low self-esteem, and financial constraints due to increased healthcare expenses.

Epidemiology of Fall

Annually, 32-42% of persons over 70 fall, and 28-35% of adults 65 and older fall. Fall rates are higher among older persons living in long-term care institutions than among those living in the community.

Risk Factors for Falls

Internal Factors:

- Age-related physiological changes: Hearing loss, proprioception, muscle weakening, vestibular dysfunction, and reduced visual acuity all impair balance and coordination [7].
- Cognitive impairment: Dementia and moderate cognitive impairment raise the risk of falls [8].
- Chronic conditions: Diabetes, osteoarthritis, stroke, and Parkinson's disease all raise the chance of instability.

External Factors:

- Uneven surfaces, slippery floors, poor lighting, and inappropriate footwear are examples of environmental hazards.

- Polypharmacy: The risk of falls is increased when four or more drugs are taken, especially sedatives, antihypertensives, and anticholinergics.

Complications and Injuries Associated with Falls

Traumatic brain injury, wrist fractures, hip fractures, and vertebral fractures are among the common injuries. Fall risk is further increased by post-fall syndrome, which is characterized by a fear of falling and results in decreased activity levels and deconditioning.

EVALUATION OF THE RISK OF FALLS

All-inclusive Evaluation Method

Multifactorial assessment is necessary to determine who is at risk and how to create individualized intervention plans.

Taking History

- Fall History: The reasons, incidents, and outcomes of previous falls.
- Medical Ailments: it includes visual and auditory impairments, as well as chronic diseases.
- Examine prescriptions to identify those that may cause sedation or hypotension.

Physical Examination

- Vision and hearing screening: Snellen's chart and audiometry are used to test vision and hearing respectively.
- Neurological examination: Evaluate reflexes, coordination, and motor control.
- Musculoskeletal assessment: evaluation of pain, joint integrity, and range of motion.

Functional Evaluation

- Balance: Assess using standardized tools.
- Gait: Look out for abnormalities such as ataxia or shuffling.
- Activities of Daily Living (ADL): Establish level of independence.

TOOLS FOR STANDARDIZED ASSESSMENT

Balance Examination

- *Berg Balance Scale:* Static and dynamic balance are assessed using the Berg Balance Scale (BBS). A fall risk is elevated when the score is less than 45.
- *The Timed Up and Go (TUG) test* calculates the amount of time it takes to get out of a chair, walk three meters, come back, and sit down. A time of more than 13.5 seconds indicates a high risk of falling.

Gait Evaluation

- *Dynamic Gait Index:* The Dynamic Gait Index (DGI) evaluates a person's capacity to alter their gait in response to outside demands. Fall risk is indicated by scores less than 19.

Muscle Strength Examination

- *Grip Strength Assessment:* Hand held Dynamometer is used to assess the grip strength. Weakness in general is correlated with low grip strength.
- *Lower Extremity Strength Assessment*: manual muscle testing or chair stand test.

Cognitive Evaluation

- The Mini-Mental State Examination (MMSE) evaluates cognitive function, memory, and orientation. Cognitive impairment is indicated by an MMSE score of less than 24.

Evaluation of the Environment

- Fall hazards like loose rugs, poor lighting, or missing grab bars are identified by the Home Safety Checklist.

APPROACHES FOR MOBILITY TRAINING

Fundamentals of Prescription Exercise for Elderly People

- Programs that are customized based on patient objectives and assessment results.
- Progressive overload: progressively raise the level of difficulty or intensity.
- Specificity: Learn the skills necessary for day-to-day living.
- Safety tips include using assistive technology, keeping an eye on vital signs, and making sure someone is watching.

Types of Mobility Training

- *Training for Balance*

Exercises that are both dynamic and static.

Enhance Postural Control.

Yoga improves proprioception and flexibility.

- *Strength Training*

Weight-bearing exercises and resistance bands.

Pay attention to your ankle, gluteal, and quadriceps muscles.

- *Gait Training*

Walking on both the ground and the treadmill.

Dual task training to enhance motor-cognitive coordination.

- *Flexibility and Range of Motion Exercises*

Monitor and work on ankle dorsiflexion, hamstring suppleness, and spinal mobility.

Using Technology to Enhance Mobility Training

- Balance-enhancing interactive simulations in virtual reality (VR).
- Wearable sensors: Offer posture and gait feedback.
- Exergaming: Encourages participation through physical activities based on games.

FALL PREVENTION INTERVENTION TECHNIQUES

Interventions involving multiple factors

- Incorporate medical care, environmental changes, and physical training.
- Engage interdisciplinary groups.

Thorough Evaluation and Tailored Intervention Strategies

- Create objectives based on the hazards that have been identified.
- Put into practice attainable and progressive exercise regimens.

Care Coordination

- Work together with pharmacists, occupational therapists, and doctors.
- Frequent communication and team meetings.

Changes in the Environment

- Install grab bars, non-slip mats, and brighter lights as home modifications.
- Teach and train senior citizens how to use assistive technology properly.

Counseling and Education

- Organize workshops on fall prevention.
- Inform people about the negative effects of medications.
- Reduce your fear of falling by using cognitive-behavioral techniques.

Conclusion

The autonomy, safety, and general well-being of older adults are directly threatened by falls, which are a serious problem in the geriatric population. This chapter emphasizes how fall risk is multifactorial, involving environmental hazards, chronic conditions, and inherent physiological changes. Through early risk factor identification, customized interventions, and all-encompassing rehabilitation techniques that improve older adults' mobility and confidence, physiotherapists play a critical role in fall prevention.

A thorough and multifaceted assessment is the first step in an effective physiotherapy approach to fall prevention. This includes taking a patient's history, performing functional and physical assessments, and using standardized instruments like the Mini-Mental State Examination, Timed Up

and Go Test, and Berg Balance Scale. Therapists can create goal-directed, secure, and progressive training programs by using these evaluations to gauge the degree of impairments in strength, balance, gait, and cognition.

The foundation of physiotherapy interventions for reducing the risk of falls is mobility training. Strength training of important lower limb muscle groups, gait retraining with or without assistive devices, flexibility exercises, and balance improvement through static and dynamic exercises are all included. By making rehabilitation more engaging, motivating, and results-driven, the incorporation of contemporary technologies like virtual reality, wearable sensors, and exergaming has further enhanced physiotherapy practice.

When administered in a multidisciplinary setting and customized for each individual, multifactorial interventions work best. A comprehensive care plan that addresses the domains of physical, cognitive, and environmental risk is ensured by collaboration between physiotherapists, doctors, occupational therapists, pharmacists, and caregivers. Additionally, counseling and education are crucial resources for equipping older adults and their caregivers with information about preventing falls and overcoming a fear of falling.

The goal of fall prevention for the elderly is to maintain their independence, dignity, and quality of life, not just to lower injury rates. Physiotherapists are in a unique position to spearhead proactive fall prevention initiatives as the world's population ages. Creating safer and more encouraging environments for senior citizens will require embracing patient-centered care, technology advancements, and evidence-based practice. In order to promote aging in place and reduce the burden of falls, it is now essential to widely implement these strategies in clinical and community settings.

[4] POST OPERATIVE CORONARY ARTERY BYPASS GRAFTING REHABILITATION

Introduction

Atherosclerosis is a chronic and progressive disease defined by the accumulation of lipids and fibrous materials in the arterial walls, resulting in narrowed and stiffened arteries. The condition typically begins with injury to the endothelium due to risk factors such as hypertension, smoking, diabetes, and elevated LDL cholesterol, which in turn provoke an inflammatory response and the development of atherosclerotic plaques.

When these changes occur in the coronary arteries, they lead to coronary artery disease (CAD), the most prevalent form of cardiovascular disease worldwide[2]. CAD reduces blood flow to the myocardium, manifesting as symptoms like angina, dyspnea, and myocardial infarction. Risk factors can be broadly categorized as modifiable (e.g., smoking, obesity, physical inactivity) and non-modifiable (e.g., age, sex, genetic predisposition).

While initial management emphasizes lifestyle changes and pharmacotherapy, advanced CAD especially in the presence of multi-vessel disease, diabetes, or left main coronary artery involvement may require surgical treatment in the form of Coronary Artery Bypass Grafting (CABG).

7.4.1 Risk Factors for Coronary Artery Disease

Modifiable Risk Factors

These are lifestyle-related or medical conditions that can be improved or controlled, such as:

- Smoking
- Physical inactivity
- High blood pressure
- Diabetes mellitus
- Unhealthy cholesterol levels
- Obesity

Non-modifiable Risk Factors

These are fixed attributes that cannot be altered, including:

- Advancing age
- Male gender
- Family history of premature cardiovascular disease

Symptoms and Clinical Presentation

Common clinical features of CAD include:

- **Angina** (chest pain or discomfort)
- **Shortness of breath** (dyspnea)

- **Fatigue**, especially during exertion

In more severe cases, CAD may culminate in a **myocardial infarction**, necessitating immediate medical intervention.

7.4.2 Management and Treatment

7.4.2.1 Conservative Management

Early stages of CAD are often managed with a combination of:

- Lifestyle modifications (e.g., heart-healthy diet, regular physical activity, smoking cessation)
- Medications (e.g., stations, antiplatelet agents, beta-blockers, ACE inhibitors)
- Control of comorbid conditions such as hypertension and diabetes

7.4.2.2 Surgical Intervention: Coronary Artery Bypass Grafting (CABG)

Coronary Artery Bypass Grafting (CABG) is a definitive surgical procedure used to restore myocardial perfusion in patients with advanced coronary artery disease, particularly in those with multi-vessel involvement, left main coronary artery stenosis, or anatomically complex lesions unsuitable for **percutaneous coronary intervention (PCI)**. The primary objectives of CABG include improving long-term survival, relieving ischemic symptoms, and enhancing quality of life in patients with compromised coronary circulation.

The procedure involves the use of **autologous grafts**, typically the **left internal thoracic artery (LITA)**, **saphenous vein**, or **radial artery**, to bypass severely narrowed or occluded coronary vessels. These grafts are connected proximally to the aorta and distally to the coronary arteries beyond the blockage, allowing oxygenated blood to reach the ischemic myocardium.

CABG can be performed through two main techniques:

- **On-pump CABG**, where a **cardiopulmonary bypass (CPB)** machine temporarily assumes cardiac and pulmonary functions to provide a bloodless, motionless field for surgery
- **Off-pump CABG**, which is conducted on a beating heart without CPB, has emerged as a viable alternative in selected patients, showing benefits such as reduced inflammatory response, shorter hospital stays, and fewer neurocognitive complications.

7.4.3. Complications of CABG

Despite its therapeutic benefits, the postoperative course of CABG may be complicated by several cardiopulmonary and musculoskeletal issues, including:

- **Atelectasis** and **pulmonary infections** due to anesthesia effects and impaired inspiratory efforts
- **Pleural effusion** and **decreased lung compliance**
- **Post-sternotomy pain**, which leads to shallow breathing and impaired airway clearance
- **Functional decline** and **physical deconditioning**
- **Sternal wound complications**, particularly in patients with diabetes, obesity, or poor nutritional status

These complications necessitate early and structured **physiotherapy-based rehabilitation**, beginning immediately after surgery and extending through the recovery phases, with the goal of

minimizing complications, improving pulmonary hygiene, restoring mobility, and enhancing overall recovery.

7.4.4. CABG: Indications and Outcomes

CABG is particularly beneficial for patients with:

- Multi-vessel coronary artery disease
- Left main coronary artery involvement
- Co-existing diabetes mellitus

Clinical trials have demonstrated that CABG offers **superior long-term outcomes**, including **reduced mortality**, **improved quality of life**, and **lower rates of repeat procedures**, especially when compared to percutaneous coronary interventions like stenting.

Despite its effectiveness, recovery following CABG is often complicated by pain, limited mobility, respiratory issues, fatigue, and psychological stress. This highlights the essential role of **physiotherapy** and **cardiac rehabilitation** in post-operative care.

7.4.5. Physiotherapy in Post-CABG Recovery

- **Acute Phase Rehabilitation**

During the immediate post-operative phase (first few days), the focus is on:

- Preventing pulmonary complications via **breathing exercises**, **incentive spirometry**, and **early mobilization**
- Initiating progressive ambulation and functional activities once the patient is clinically stable.
- **Subacute and Outpatient Rehabilitation**

As recovery advances, physiotherapy shifts to:

- **Aerobic and resistance training** to enhance cardiovascular endurance and strength
- **Balance and mobility training**
- **Patient education** regarding cardiac health and risk management
- **Monitoring of vital signs**, risk-based activity adjustment, and psychological support

According to the **American Heart Association**, structured cardiac rehabilitation significantly boosts cardiovascular fitness, reduces the risk of hospital readmission, and improves overall patient wellbeing.

7.4.5.1. Preoperative Physiotherapy Assessment

Optimizing patients before CABG not only reduces postoperative complications but also accelerates recovery and enhances long-term outcomes. A comprehensive physiotherapy assessment forms a cornerstone of prehabilitation, guiding individualized interventions to maximize perioperative readiness.

- **Subjective Evaluation**

A detailed patient history is crucial to understand the risk profile and baseline functional capacity. The evaluation should include:

- Documentation of comorbidities such as hypertension, diabetes, COPD, and smoking status
- Recording symptoms including dyspnea, fatigue, and chest discomfort
- Assessment of activity levels, sleep hygiene, and lifestyle habits
- Evaluation of psychological preparedness and medication adherence

Early identification and modification of risk factors during this phase contribute significantly to improved surgical and rehabilitation outcomes.

- **Objective Physical Examination**

The physical assessment aims to evaluate the cardiorespiratory and musculoskeletal baseline:

- Vital parameters: Heart rate (HR), blood pressure (BP), oxygen saturation (SpO_2), and respiratory rate (RR)
- Anthropometric measures: Body mass index (BMI), weight, and height
- Postural alignment and range of motion (ROM), particularly in the thoracic spine and shoulders
- Pulmonary function tests (PFTs), including forced expiratory volume in 1 second (FEV_1) and forced vital capacity (FVC), to detect any preexisting pulmonary impairment

- **Functional Capacity Testing**

Assessment of functional tolerance is essential to gauge surgical fitness and predict postoperative performance. Common tests include:

- **6-Minute Walk Test (6MWT):** Evaluates submaximal aerobic capacity and endurance[14]
- **NYHA Classification:** Grades heart failure severity and effort tolerance.

These evaluations help tailor the intensity of prehabilitation and predict recovery trajectories.

- **Education and Psychological Preparation**

Patient education plays a pivotal role in preparing individuals for the surgical journey:

- Instruction in breathing techniques, including diaphragmatic breathing, incentive spirometry, and supported coughing
- Explanation of the postoperative care plan, including activity restrictions, use of assistive devices, and pain control strategies
- Introduction to **Inspiratory Muscle Training (IMT)**, shown to reduce postoperative pulmonary complications in high-risk patients.

By addressing emotional and informational needs, patients exhibit better adherence and psychological readiness for surgery.

7.4.5.2. Postoperative Physiotherapy Assessment

Post-CABG rehabilitation requires continual monitoring and phased physiotherapeutic interventions to mitigate complications and restore optimal function.

- **Early Postoperative Phase (Day 1 to Day 5)**

During the immediate postoperative phase, assessment and interventions should be initiated under close medical supervision. Key areas of focus include:

- **Vital signs monitoring:** HR, BP, temperature, and SpO_2
- **Pulmonary assessment:** Identification of signs of atelectasis or secretion retention through auscultation and observation of breathing patterns
- **Pain evaluation:** Using the **Visual Analogue Scale (VAS)** to guide safe mobilization
- **Functional assessment:** Evaluation of bed mobility, ability to sit, stand, and initiate ambulation
- **Wound inspection:** Observation of sternal healing and adherence to sternal precautions

Prompt initiation of mobility and breathing exercises in this phase significantly reduces pulmonary complications and accelerates recovery.

- **Subacute and Outpatient Phase (Week 1 to Week 12)**

As the patient transitions to outpatient rehabilitation, a comprehensive reassessment ensures continued progress and identifies emerging limitations:

- Re-evaluation using **6MWT** and **Timed Up and Go (TUG)** test to track improvements in endurance and mobility.
- Joint and postural assessment, especially for thoracic stiffness or limited shoulder ROM
- Monitoring tolerance to structured aerobic and resistance training
- Administration of **quality of life (QoL)** tools such as the **SF-36** and **Seattle Angina Questionnaire** to quantify functional and psychosocial recovery

Patient counseling on lifestyle modification, including dietary guidance, smoking cessation, and stress management, remains a critical part of secondary prevention during this phase.

Physiotherapy Management in CABG Patients

Physiotherapy is an integral component in the holistic care of patients undergoing Coronary Artery Bypass Grafting (CABG). A well-structured physiotherapy plan reduces the risk of pulmonary complications, enhances postoperative functional recovery, improves quality of life, and facilitates early mobilization. It encompasses preoperative education and conditioning, early postoperative care, and phase-wise rehabilitation extending into long-term maintenance.

7.4.5.2. Preoperative Physiotherapy Management

A. Patient Education and Counseling
Educating patients about the surgical process and expected postoperative course enhances compliance and reduces anxiety. Topics include breathing exercises, physiotherapy goals, wound care precautions, and lifestyle advice. Counseling encourages smoking cessation and dietary improvement to support surgical outcomes.

B. Pulmonary Hygiene
Preoperative pulmonary care aims to optimize respiratory mechanics and reduce postoperative complications:

- **Breathing techniques**: Diaphragmatic, segmental, and pursed-lip breathing
- **Airway clearance**: Incentive spirometry and supported coughing effectively reduce atelectasis and infection risk.

C. Inspiratory Muscle Training (IMT)
A regimen of IMT (15–30 minutes daily for at least two weeks) significantly strengthens respiratory muscles, improving postoperative lung function and reducing infection rates.

D. Functional Conditioning
Light aerobic exercises such as walking and stationary cycling improve cardiovascular fitness and increase postoperative VO_2 max, which contributes to better tolerance during recovery.

7.4.5.3. Postoperative Physiotherapy Management

A. Oxygen Therapy
Appropriate oxygen delivery supports early postoperative recovery. Common delivery devices include:

- **Nasal cannula** (1–6 L/min): For mild hypoxia
- **Simple face mask** (5–10 L/min): For moderate oxygen requirements
- **Non-rebreather mask** (up to 15 L/min): For high-concentration oxygen needs
- **Venturi mask**: Provides accurate FiO_2 levels, ideal for cardiac and COPD patients

Phase-Wise and Day-Wise Rehabilitation Protocol

Phase I: In-Hospital Rehabilitation (Day 0–5)

Day	Intervention Focus
Day 0 (ICU)	Pain management Deep breathing with O_2 support Passive ROM exercises
Day 1	Bedside sitting Incentive spirometry every 2 hrs Ankle toe movements
Day 2	Sit-to-stand Ambulation with assistance Thoracic expansion exercises
Day 3	Corridor ambulation Upper limb ROM Monitor vitals pre/post exercise
Day 4–5	Independent walking (100–200m) Begin stair climbing (if stable) Teach energy conservation

Phase II: Subacute Phase (Week 2–6)

- Conducted in a supervised outpatient or home-based setting, this phase includes:
- Low-intensity aerobic training (walking, cycling)
- Sternal precaution reinforcement
- Light upper limb resistance exercises

Phase III: Outpatient Rehabilitation (Week 6–12)

As healing progresses, the focus shifts to:

- Moderate aerobic training at 40–60% of Heart Rate Reserve (HRR)
- Treadmill or cycle ergometry
- Resistance training for major muscle groups
- Education on lifestyle changes, medication adherence, and self-monitoring.

Phase IV: Maintenance Phase (Beyond 12 Weeks)

This long-term phase emphasizes:

- Continued supervised or home-based exercise
- Lifestyle interventions including dietary modification, stress management, and smoking cessation
- Use of tele-rehabilitation for patients in remote areas
- Periodic functional reassessment with tools such as 6MWT and SF-36.

7.4.6 Precautions during Physiotherapy

A. Sternal Precautions (First 6 Weeks)

- Avoid lifting >5–8 lbs
- Refrain from pushing, pulling, or overhead arm movements
- Encourage log-rolling techniques during bed mobility

B. Hemodynamic Monitoring

- Continuous monitoring of HR, BP, and SpO_2 during activity
- Discontinue exercise if symptoms such as dizziness, chest discomfort, or desaturation <90% occur

C. Infection Prevention

- Maintain hygiene around surgical wound
- Avoid exposure to crowded environments in early recovery

D. Activity Guidelines

- Vigorous activities are discouraged in the first two weeks
- Gradual progression only when the patient is asymptomatic
- Ensure a safe environment and proper footwear to prevent falls

CHAPTER 8

TIPS FOR CLINICAL INTERNS AND NEW GRADUATES

DR. RITU SINGH (PT), DR. RAJEEV KUMAR SINGH (PT), DR. JOGINDER (PT)

It can be exhilarating and hard to go from learning in school to working in a physiotherapy clinic. Interns and recent grads need to be able to swiftly adjust to fast-paced environments, deal with ambiguity in clinical situations, and juggle many tasks at once. The following advice will help you develop two of the most important abilities for new professionals: managing your time well and dealing with complicated or unclear clinical issues.

8.1 Time Management in Clinical Settings

As a clinical intern or recent graduate, good time management is very important for success. Without structure and intentional habits, the many demands of patient care, paperwork, learning, and team communication can quickly become too much to handle.

• Make a list of tasks: At the start of each day, make a list of tasks based on how important and urgent they are. Use tools like the Eisenhower Box or colour-coded schedules to keep track of high-priority patients, urgent treatments, and regular tasks.
• Make sure your daily goals are realistic: Divide big tasks or learning goals into smaller, more manageable parts. Do the hardest or most time-consuming task first thing in the morning when you are most focused.
• Set aside time for writing things down: Set aside specified times during the day or after each patient to do notes and paperwork. Don't wait until the end of your shift to do paperwork to avoid mistakes and getting tired.
• Use digital tools and to-do lists: Keep track of appointments, follow-up reminders, and continuing education tasks with planners, apps, or checklists. Cross off things as you finish them to keep track of your progress.
• Set limits and take care of yourself: When you have a lot of work to do, learn to say no to jobs that aren't necessary. Plan breaks and time for yourself so you don't become tired and stay healthy overall.
• Stay flexible: Set aside some "buffer" time in your calendar for anything that come up, including urgent evaluations or extended therapy sessions. This flexibility lets you change things without messing up the whole day's work flow.

For example

Neha, a clinical physiotherapy intern, had a hard time managing her schedule during her first month. She often missed follow-up visits and was tired by the end of her shift. She started making prioritised to-do lists and setting aside little blocks of time after each consultation to finish paperwork. This cut down on her overtime and made her relationship with patients better. Neha's boss saw that she was doing better work and getting better results for her patients once she set up an organised workflow.

8.2 Communicating with Patients and Caregivers – A Clinical Guide for Physiotherapy Interns and new graduates.

8.2.1. Introduction

Communication lies at the heart of effective physiotherapy practice. For clinical interns and new graduates, mastering communication is just as important as mastering clinical skills. It enhances therapeutic outcomes, fosters trust, strengthens the patient-caregiver-provider triad, and supports shared decision-making. This chapter explores strategies, models, and scenarios to empower young professionals with tools for effective, ethical, and compassionate communication.

8.2.2. Principles of Clinical Communication

8.2.2.1 Goals of Communication

- Develop rapport and trust
- Encourage treatment adherence
- Facilitate shared decision-making
- Support emotional and informational needs[2,3]

8.2.2.2 Elements of Communication

- Verbal: Clear, jargon-free explanations
- Non-verbal: Posture, gestures, eye contact
- Paraverbal: Tone, pitch, rhythm
- Empathic Engagement: Active listening and emotional validation[4]

8.2.2.3 Space in Communication

- Intimate space: 0–18 inches (used cautiously in clinical settings)
- Personal space: 1.5–4 feet (ideal for patient interviews)
- Social space: 4–12 feet (group instructions or education)
- Respecting space demonstrates professionalism and comfort.

8.2.2.4 Touch as Communication

- Therapeutic touch: Used in physiotherapy to comfort or guide
- Boundary awareness: Always explain before physical contact and seek consent
- Example: “I’m going to place my hand on your shoulder to guide your movement. Is that okay?”

8.2.3. Types of Questions to Use in Interviews

8.2.3.1 Open-ended Questions

- "Can you describe your pain in your own words?"
- "What activities have become harder since the injury?"

8.2.3.2 Closed-ended Questions

- "Is the pain sharp or dull?"
- "Do you have any history of diabetes?"

8.2.3.3 Leading Questions (Used cautiously)

- "You feel better after heat therapy, don't you?"

8.2.3.4 Probing Questions

- "What do you mean by discomfort while walking?"
- "Can you tell me more about how this affects your job?"

8.2.3.5 Clarifying Question

- "When you say stiff, do you mean it's hard to move or painful to move?"

8.2.3.6 Reflective Listening

- Repeating or paraphrasing what the patient said to show understanding.

8.2.4. A Structured Interview Questionnaire for Physiotherapy Interns

8.2.4.1 Demographic Section

- Name, age, occupation
- Residence, lifestyle routine

8.2.4.2 Medical History

- Present complaints
- Onset, duration, and aggravating/relieving factors
- Medications and surgeries
- Co-morbidities like hypertension or diabetes

8.2.4.3 Family and Social Context

- Caregiver involvement
- Home accessibility
- Support system

8.2.4.4 Functional Status

- Limitations in ADLs (Activities of Daily Living)
- Vocational and recreational limitations

8.2.4.5 Emotional and Cognitive Screening

- Depression or anxiety presence
- Fear-avoidance behaviour

8.2.4.6 Patient Education and Consent

- Patient understanding of condition
- Willingness to proceed with physiotherapy
- Consent preference (verbal/written) for therapeutic interventions.

8.2.5. Informed Consent: A Legal and Ethical Pillar

- Informed consent should be both verbal and written, documenting understanding of treatment options, risks, and benefits[4].
- Use patient-friendly language and verify comprehension.

Special considerations:
- Minors: Guardian consent is mandatory
- Cognitively Impaired: Seek legal proxy

8.2.6. Communication Approaches by Population

- **Patient Type** -Communication Strategy
- **Geriatric** - Speak slowly, reinforce with visual aids, involve family[8]
- **Paediatric** - Use stories, play therapy, and simple analogies[9]
- **Disabled** - Use assistive tech, picture boards, respect their pace[10]
- **Terminal/Chronic Care** - Focus on quality of life, caregiver support, emotional validation[11]
- **Minors** - Guardian consent is mandatory
- **Cognitively Impaired** - Seek legal proxy[7]

8.2.7. Real-World Clinical Scenario

8.2.7.1 Case Overview

Mr. R.K., a 58-year-old retired schoolteacher, recently underwent Coronary Artery Bypass Grafting (CABG). He is anxious and resistant to physiotherapy. His daughter, the caregiver, is concerned about the effects of rehab on his heart.

8.2.7.2 Communication Strategy

Step 1: Initial Interaction (Building Rapport)
PT introduces herself respectfully.
- Uses open-ended question: “How are you feeling today?”

Step 2: Active Listening and Empathy
- Mr. R.K.: “I’m afraid... what if exercise puts pressure on my heart?”

PT: “It’s completely normal to feel anxious after heart surgery.”

Step 3: Patient Education in Layman's Terms

- “Simple breathing exercises and walking will make your heart stronger.”

Step 4: Caregiver Engagement

- PT gives printed home program, involves daughter in sessions.

Step 5: **Consent and Documentation**

- Explains before touch, asks: “Is that alright with you?”

- Obtains verbal and written consent[4,7]

Step 6: **Managing Emotional Barriers**

- PT: “What’s your biggest worry about starting today?”
- Reassures with pulse oximeter demo and paced breathing.

Step 7: **Follow-up and Motivation**

- “You’ve done the hardest part showing up.”
- Learning Points for Students:
- Begin with open-ended questions, clarify meaning.
- Explain every intervention.
- Engage caregivers.
- Reassure and educate.
- Document consent.

8 : Challenges and Solutions

- Language Barrier - Interpreter or translated material
- Anxiety or Denial - Motivational interviewing techniques[12]
- Low Literacy - Charts, videos, or analogies[13]
- Overwhelmed Caregiver - Break info into steps; provide emotional support[14]

9. Student Reflection and Documentation Practice

- Maintain a journal of patient interactions.
- Use structured interview forms.
- Record caregiver and patient feedback.
- Simulate communication in peer role-play.

8.3 Navigating Complex or Uncertain Cases

Many clinical presentations won't be as clear as they are in textbooks, and rookie clinicians sometimes find uncertainty scary. But if you look at these examples in a systematic way, they can turn into great learning experiences.
• Employ a Structured Clinical Reasoning Framework: Use well-known models like the

Hypothesis-Oriented Algorithm to make sure you take a full history, do a systematic exam, and come up with careful hypotheses.
• Work together and ask for help: When instances are confusing, talk to your supervising therapists, mentors, or more experienced team members. Talk about hard cases in team meetings or clinical rounds on a regular basis to help everyone learn more.
• Focus on communication that is centred on the patient: When you're not sure, be honest with your patients about probable diagnoses, the reasons for the interventions you've chosen, and the plan for continuous review.
• Keep track of your thoughts: Write down not just your findings but also your reasoning, differential diagnoses, red flag assessments, and backup plans. This openness makes it easier for people to study on their own and get feedback from their bosses.
• Make a commitment to reflective practice: After dealing with difficult cases, think about what happened, what you learnt, and what feedback you got. You can do this by using journals, case records, or talking with your peers.
• Accept Learning: Understand that being unsure doesn't mean you're not good at something. Stay curious, look for proof, and regard each case as a chance to improve your clinical reasoning skills.

For example

Raj, a recent graduate, was given a patient who had diabetes, persistent low back pain, and slight cognitive impairment, among other things. Raj felt overwhelmed by the case's intricacy and the unclear rehabilitation priorities, so he asked his mentor for help. The

Mentor helped him figure out what the patient's biggest problem was: walking endurance. They developed small, patient-centred goals, like walking for two minutes twice a day, and made changes to the plan every week depending on what the patients said. Raj wrote down his step-by-step reasoning and the progress of his patients. This not only made him more confident in his clinical skills, but it also gave him the motivation to keep making progress.

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Clinical Decision – Making & Case Management in Physiotherapy

This book provides a comprehensive guide to understanding the principles of clinical decision-making and the case management process in physiotherapy. It covers essential topics such as clinical reasoning models, including hypothetico-deductive, pattern recognition, and narrative reasoning, and emphasizes the importance of evidence-based practice. Key steps in clinical decision-making, from subjective and objective assessments to goal-setting, treatment planning, and outcome evaluation, are thoroughly explained.

The book also explores case management, highlighting the role of physiotherapists in coordinating care, working with multidisciplinary teams, and ensuring patient-centered care across different stages, from acute to chronic conditions. Ethical and legal considerations, including informed consent, confidentiality, and professional boundaries, are discussed to help practitioners navigate complex clinical and ethical situations. Real-world case scenarios provide practical insights into applying these concepts in musculoskeletal, neurological, and geriatric care settings. Overall, the book serves as an invaluable resource for physiotherapists to enhance clinical decision-making and improve patient outcomes.

About The Editor

Prof. (Dr.) Supriya Awasthi

Dean and Professor, School of Allied Health Sciences, Noida International University, Greater Noida. She has over 15 years of experience in clinical, teaching, administrative, and research roles. Her areas of interest include student welfare, education and training, as well as evidence-based research and practice. Her various research works have been published in Scopus-indexed national and international journals.

Dr. Rohit Rathore (PT)

Assistant Professor, Dept. of Physiotherapy, school of allied health sciences, Noida International University, Greater Noida having 8 years of experience in academics in different universities in INDIA. He obtained his Bachelor of Physiotherapy (BPT) from Delhi University and Master of Physiotherapy (MPT) from HNB Garhwal University. He has more than 14 research papers published in Scopus Indexed national, International journals, 3 patents and 1 copyright. His expertise spans neurorehabilitation, musculoskeletal therapy, sports physiotherapy, dry needling, and osteopathic techniques. He is known for his evidence-based and patient-centric approach, offering advanced treatments such as functional exercises, sports taping, and manual therapy. As an editor, Dr. Rathore contributes to academic development through research publications, professional workshops, and systematic reviews. His leadership in educational initiatives and research supervision supports continuous growth and excellence in physiotherapy practice and education

Dr. Drishti Pachauri (PT)

Assistant Professor, Dept. of Physiotherapy, School of Allied Health Sciences, Noida International University, Greater Noida. She is a qualified and committed physiotherapy professional specializing in Orthopaedics and Manual Rehabilitation. She obtained her Bachelor of Physiotherapy (BPT) from Galgotias University and Master of Physiotherapy (MPT) from Jaipur National University (JNU). With 1.5 years of academic experience and 2 years of clinical expertise. She has demonstrated excellence in the integration of theoretical knowledge with practical rehabilitation skills. Her areas of interest include evidence-based physiotherapeutic interventions, musculoskeletal rehabilitation, and manual therapy approaches for optimal patient recovery. A highly dedicated academician and clinician. she is committed to advancing the standards of physiotherapy education and clinical practice. Her professional ethos reflects a strong sense of discipline, compassion, and lifelong learning aimed at contributing meaningfully to the field of rehabilitation sciences. She has 5 research papers published in Scopus Indexed national and International journals, 3 patents and 2 copywrights as a contribution in healthcare sector and educational sector. Her expertise spans ortho and manual rehabilitation, musculoskeletal therapy, sports physiotherapy, dry needling, and osteopathic techniques As an editor, Dr.Drishti Pachauri (PT) contributes to academic development through research publications, professional workshops, and systematic reviews. Her leadership in educational initiatives and research supervision supports continuous growth and excellence in physiotherapy practice and education.

Publisher Information
Publisher:
FONT FUSIONS PUBLICATION PRIVATE LIMITED
Ground Floor, A-41 Noida, Sec-22,
Gautam Buddha Nagar, Uttar Pradesh, India,2013011
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Phone: +917004837260

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