Year 3 Case-based Learning 2024-25

Case 4 Part 1 Facilitator Guide

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Contents

Case overview: Chronic problems

Part 1:	Multimorbidity
Part 2:	Falls assessment

Student timeline

This timeline outlines when the Case materials will be released on the portal. Your CBL sessions may not coordinate exactly with this timeline as these details will be decided by each LIC site, but students should have the relevant session content available on the portal for each session.

27/1/25:	Y3 LIC2 begins
17/4/25:	Part 1 information released on portal
From 5/5/25:	Part 1 Independent Session 1
From 12/5/25:	Part 1 Facilitated Session 2
16/5/25:	Part 2 information released on portal
From 19/5/25:	Part 2 Independent Session 1
From 26/5/25:	Part 2 Facilitated Session 2

Part 1 presentation

An 82-year-old man gets in touch with his GP due to unsteadiness and other non-specific complaints.

Summary

Students first met the character Richard in Year 2 CBL. Richard is an 82-year-old retired PE teacher living with his wife. He initially recovered well from the knee replacement he had in the Year 2 case. Last year he was admitted to hospital with community acquired pneumonia. He suffered a non-ST elevation MI as an inpatient and had a prolonged recovery. A number of months have passed, but his mobility remains poor, and he is frustrated that he does not feel like his former self. His Parkrun days are in the past. He presents to his GP with unsteadiness on his feet and a history of falls. There are multiple contributing factors including instability due to arthritis, polypharmacy, postural hypotension, peripheral neuropathy secondary to diabetes, and muscle weakness and low energy

due to sarcopenia and hypothyroidism. The GP identifies a range of issues and management is commenced. He is referred to a Falls clinic for multidisciplinary input in Part 2.

Learning outcomes

Essential

Note that not all of these will be able to be covered in every session, but students should consider:

- How should we diagnose, manage and follow-up community acquired pneumonia?
- What is antibiotic stewardship?
- Can you tell me about the long-term management of non-ST elevation MI?
- How would you create and critique a problem list?
- How might we apply the clinical reasoning process to multifactorial problems?
- In this case, how should we interpret his investigations, including bedside and laboratory tests?
- What is polypharmacy? What are some of the different ways drugs can interact with each other?
- What therapeutic principles are relevant to patients living with multimorbidity and affected by polypharmacy?
- Are you aware of holistic evidence-based management plans for a range of chronic conditions including hypothyroidism, vitamin D deficiency and type 2 diabetes mellitus.
- What is the pathophysiology of postural hypotension?
- Do you remember calcium homeostasis? Why is it important physiologically?
- In this case, why are we focused on multidisciplinary services in his management plan?
    - How can we help develop integrated care, and how can we assess his needs for services?
- What are some of the systems in place for triaging patients in primary care?

Desirable

- What are some of the consequences of an ageing population on healthcare systems, on wider society and economy?
    - Do you know of any healthy ageing policy strategies?
- How might the socio-economic burden of chronic disease look in the community? How might integrated care be helpful here?
- What skills are required to treat patients with multiple issues?
    - Are these skills easy to develop and use?

- How might the biopsychosocial model be relevant here when looking at the impact of long-term conditions on physical health outcomes, psychological health and social outcomes?
    - Not just for individuals- what about for those close to them?
- What do you think about self-management of long-term conditions? How can healthcare professionals support this? (e.g. through prevention, screening, promoting self-care)
- Do you know the difference between functioning, disability, and health?
- How might ableism and ageism impact people with a disability?

Student guidance

There are two types of sessions – *independent* and *facilitated*. Students have been provided with a case guide and supporting materials, which includes medical documents and investigations. They should have met prior to the facilitated session and worked through the patient materials as a group, using the framework provided in the general guide to write learning outcomes. These should reflect the cognitive processes underlying the case. Students should also consider any additions they would make to the assessment and why, interpret the investigation results available, formulate a differential diagnosis, and suggest a management plan. They should have agreed how to present their learning to each other and their facilitator ahead of the facilitated session.

Key areas for discussion

The main topics for discussion during this session are:

- Community acquired pneumonia
- Community triage
- Chronic disease management
- Multimorbidity
- The patient journey

Facilitator guidance

The general guide outlines expectations about how both independent and facilitated sessions should be conducted. Students should present their learning from the independent session at the start of the facilitated session. You have been provided with a copy of the student materials.

In your facilitated session, there are a number of learning areas to be highlighted. The materials have intentional gaps which should be explored. Students should explore these in their discussions, facilitated by their Chair, however, we have *suggested some prompts* to stimulate discussion if required.

Discharge letter

- Community acquired pneumonia (CAP): Students should explore guidelines and evidence for diagnosis and severity classification for CAP using CURB-65, and consider the epidemiology, microbiology and associated public health strategies like pneumococcal vaccination. Management considerations include follow-up with CXR to ensure resolution of consolidation.
- Non-ST elevation myocardial infarction (NSTEMI): Students have explored STEMI management in previous cases, so are encouraged to apply guidelines in the management of NSTEMI, as well as consider the integration of care required. For patients under age 70 years, aspirin/ticagrelor is indicated as dual antiplatelet therapy. For patients under 70 there is no evidence that ticagrelor is better than clopidogrel, so clopidogrel is used.
- Multidisciplinary and stepdown care: Students should consider that patients who have long hospital stays can have functional decline and may require a period of rehabilitation. They should be prompted to consider the nature of stepdown services.
- Functioning, disability and health: Students may consider how the patient's decline in function may be classified. Disability is defined in legislation as "A physical or mental impairment which has a substantial and long-term adverse effect on a person's ability to carry out normal day-to-day activities." This focuses on the individual and their impairment, but the social model of disability focuses on society as disabling for people with disabilities. The social model has been included in the WHO's definition of disability as 'the interaction between individuals with a health condition and personal and environmental factors'. Therefore, providing care for people with disabilities involves taking into consideration people's social context.
- Ableism is discrimination in favour of able-bodied people. Anti-ableism requires society and healthcare to ensure that there are no barriers to people with disabilities in terms of facilities and attitudes. Ageism, also called age discrimination, is when someone is treated unfairly because of age. Because Richard had been so active before his mobility loss, the impact of his disability may impact him more than someone of the same age who was less active. Hence, the importance of treating the whole person.

Community triage

- Triage telephone assessment: This aims to identify red flags/ yellow flags, significant positives and negatives, and ensures safety netting, an important part of every consult.
- Medication list: Ensure students grasp the indication for each medicine and whether it is used for prevention or symptom control. Students should begin to appreciate the relevance of polypharmacy. There are various definitions of polypharmacy, but over five medicines per day is commonly suggested, and these may not always be appropriately prescribed. Students should reflect on the fact that drugs have both pharmacokinetic and pharmacodynamic interactions, so each drug increases the patient's risk of interaction in many ways. Polypharmacy is dealt with in more detail in Part 2.
- Investigations: Students should work through the investigation list and evaluate why each was requested.

Blood work

- As well as interpret these investigation results, students should consider the relevant basic and clinical science, and link the results to the patient's presenting complaint and baseline results.
- Thyroid function: The patient's fatigue and weakness can be partly attributed to hypothyroidism. Anti-TPO antibodies confirm this as an autoimmune disorder, provided in the additional materials. Primary hypothyroidism is defined as thyroid-stimulating hormone (TSH) concentrations above the reference range and free thyroxine (T4/T3) concentrations below the reference range. T4 is the main hormone produced by the thyroid gland, converted to T3 in target tissues, which mediates the main actions of thyroid hormone. Failure of the thyroid to produce T3/4 stimulates the pituitary to increase TSH production through negative feedback. Patients with primary hypothyroidism usually present with non-specific symptoms of fatigue, weakness, low mood and weight gain. A majority of patients have antithyroid peroxidase or antithyroglobulin antibodies, but other causes include infiltrative disorders, drug-induced, or following surgery, radioactive iodine or radiotherapy. Treatment is with levothyroxine and starting dose depends on age and co-existing heart disease.
- Calcium homeostasis: The results demonstrate vitamin D deficiency, and consequent hypocalcaemia and hyperparathyroidism, associated with a slightly high ALP. Vitamin D deficiency is the most common nutritional deficiency worldwide. Common causes include

low sun exposure, inadequate diet, malabsorption syndromes, obesity, and drugs. Most patients are asymptomatic. Prolonged deficiency causes rickets in children and osteomalacia and osteoporosis in adults. Treatment involves initial loading then often lifelong replacement with vitamin D2 or vitamin D3. 25-hydroxyvitamin D is the main circulating form of vitamin D and is measured in deficiency. Serum calcium is usually normal unless the vitamin D and calcium deficiencies are longstanding. Secondary hyperparathyroidism seeks to mobilise calcium from bones and conserve it renally to maintain a normal serum calcium. Raised serum ALP indicates high bone turnover. Serum magnesium is included so hypomagnesaemia as an important differential cause of hypocalcaemia can be ruled out.

- Folate deficiency: This is reflective of his nutritional deficiency state. In early folate deficiency haemoglobin is normal, but more severe states present as megaloblastic anaemia. Risk factors include malabsorption, high turnover states, certain drugs and toxins, and dietary deficiency. Given these deficiencies, a Coeliac screen would be useful to send (anti-tissue transglutaminase antibody).
- Diabetic control: HbA1c and urinary ACR are both high, reflecting poorly controlled diabetes and a patient at higher risk of complications. Students should refer to guidelines on the monitoring of diabetes. HbA1c should be checked at least every 6 months. Urinary ACR should be checked annually. Diabetic nephropathy is defined by albuminuria (urine excretion ≥3.4 mg/mmol [30 mg/g]) and progressive reduction in eGFR. It may take over 10 years to develop in type 1 diabetes, but may be present at diagnosis of type 2 diabetes. It is associated with retinopathy. A range of services should be involved in monitoring for complications, which are explored more in Part 2.

Bedside tests

- Postural hypotension: Postural hypotension is a drop in blood pressure (≥20 mm Hg systolic and/or ≥10 mm Hg diastolic) that occurs within 3 minutes of standing. Risk factors include age >60 years, diabetes, Parkinson's disease, and certain medications (Richard is on ramipril, amlodipine, bisoprolol, amitriptyline and tramadol which all increase risk, and has poorly controlled diabetes, so risks autonomic dysfunction). The aim of treatment is to reduce symptoms and risk of injury, rather than reduction of the postural drop itself. Addressing the underlying cause is the most important aspect of management.
- Urinalysis: The presence of glucose in urinalysis also represents poor diabetic control.

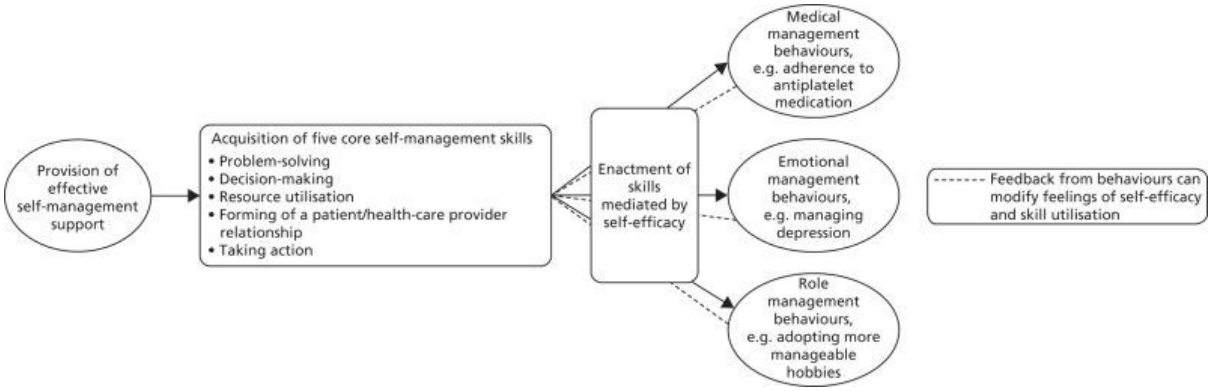
Clinical plan

- The plan has been intentionally left blank for students to develop and critique a management plan. Suggested points to highlight are as follows:
- Current issues needing managed
- Postural hypotension increasing risk of falls
- Poorly controlled diabetes
- New hypothyroidism
- Need to explore pain in legs- probably neuropathic (more in Part 2)
- Polypharmacy/ deprescribing
- Multimorbidity
- Risk of frailty in previously healthy for age man
- Non-pharmacological interventions
- Refer MDT re falls/falls clinic assessment
- Diabetic management – liaise with diabetic nurse, podiatry, retinopathy screening etc
- Explore health beliefs and frustrations/barriers to self-management
- Consider care package eg meals on wheels
- Explore health of spouse and wider family support
- Pharmacological interventions
- Diabetes management - consider empagliflozin or similar 1st line
- Start levothyroxine
- Start colecalciferol
- Start folic acid 5mg mane for 3 months then repeat bloods
- Reduce gabapentin – aim to wean to stop
- No increase to tramadol and consider stopping if pain better controlled
- Behavioural science:
- Self-management of long-term conditions: Students should use the biopsychosocial model to review the impact of long-term conditions such as diabetes on physical health outcomes, psychological health (including anxiety, depression, fear) and social outcomes (changes to roles, social isolation, loneliness) for the individual as well as their family. There are also impacts on communities and the healthcare system. Most people with long-term conditions spend just a few hours per year with healthcare professionals and need to manage their conditions largely themselves, so patients' motivation and abilities to engage in multiple daily self-regulatory behaviours are important. There is strong evidence that self-management support improves quality of life and reduces hospital attendances and

admissions. Self-management includes tasks related to medical management (e.g. taking medication at appropriate times), emotional management (e.g. fears about disease-related complications) and role management (could involve changes to activities, driving etc). Patient engagement is influenced by intrapersonal, social, and environmental factors.

- Strategies: To support self-management, healthcare professionals can elicit and identify barriers to self-care, such as functional limitations and emotional and cognitive factors. Health beliefs may impact on self-care and adherence e.g. beliefs about consequences and cause of the illness, treatment efficacy, and self-efficacy. It is also important to recognise signs of depression, which is three times more prevalent in people with diabetes and under-recognised in the elderly. Education (and correcting misperceptions) is often not enough on its own to improve self-management. Including social support in discussions about treatment may be particularly important for older people.

Figure 1: The process of adoption of self-management behaviours (adapted from Corbin & Strauss, 1988; Lorig & Holman, 2003)



Conclusion

Ask the students to summarise the session and direct them to areas where they should undertake more research. Advise them that the patient will be reviewed at the Falls Clinic in Part 2.

Useful resources

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Tijsen, L. M., Derksen, E. W., Achterberg, W. P., & Buijck, B. I. (2019). Challenging rehabilitation environment for older patients. *Clinical interventions in aging*, *14*, 1451–1460. https://doi.org/10.2147/CIA.S207863

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Learning opportunities for students

Lectures

Medicine – Cardiology – Chest pain

Medicine – Infectious diseases

Surgery – Malnutrition and nutrition support

Specialties – Endocrinology - Diabetes

Specialties – Endocrinology – Calcium and sodium abnormalities

Specialities – MSK – Rehabilitation medicine

Surgery – Fluids and electrolytes

Other opportunities

Specialties – Cardiology – Acute coronary syndromes

Specialties – Endocrinology and Diabetes – Thyroid, Diabetes

Medicine - Clinical decision making

Scientific basis of clinical practice – clinical biochemistry, pathology, haematology, microbiology

Foundations for Practice

- Fundamentals of Clinical Science: Pharmacology and therapeutics, sociology/psychology, public health, clinical biochemistry
- Blood, Cardiovascular and Respiratory Systems: Respiratory infection, acute coronary syndromes, pharmacology
- Musculoskeletal: Treatment of pain
- Gastrointestinal, Endocrine, Renal and Reproductive Systems: Chemical pathology, thyroid, calcium, diabetes
- Neurological system: Pain
- Family medicine

Previous cases

- Case 21 –‘ I think I need a new knee.’

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