



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

BMHP5032 Introduction to Physiology

Component 2 – Care Plan Presentation

Student ID: 2427265

Student name: Corazon Gallardo Parayno

Lecturer Name: Soban Sadiq

Trawsnewid Addysg; Trawsnewid Bywydau
Transforming Education; Transforming Lives



www.uwtsd.ac.uk

Evidence-Based Interventions in the Management of Cardiovascular Disease: A Case Analysis

This presentation analyses the management of Coronary Artery Disease through the lens of a fictional case study, bridging the gap between biological pathophysiology and individualized, evidence-based care. Highlighting that cardiovascular disease CVD (NHS, 2022) ,remains a leading global cause of mortality, the study examines how modifiable lifestyle factors drive disease progression.

Ultimately, it emphasizes the necessity of ethical, patient-centred strategies to facilitate long-term behavioural change and improve clinical outcomes."



Introduction of the fictional patient

Mr. Morgan was diagnosed with **coronary artery disease (CAD)** following a recent episode of unstable angina.

Working as a delivery driver a role that has high level of stress and long hours . He was admitted to hospital after experiencing chest pain and shortness of breath while walking to work.



Demographic Information

Age: 64

Gender: Male

Ethnicity: White British

Occupation: Delivery driver (sedentary)

Marital status: Married

Location: South Wales

Socioeconomic status: Moderate income with financial stress

His occupation and financial situation may limit healthy lifestyle choices.

Socioeconomic status can influence health behaviours and access to care (Propper, 2024).



Main health measurement

- **Blood Pressure:** 155/98 mmHg
- **Heart Rate:** 90 bpm
- **BMI:** 32 kg/m² (obese) –classified obese.
- **Cholesterol:** High LDL, low HDL
- **Blood glucose:** Pre-diabetic range

These measurements indicate increased **cardiovascular** risk (Ghimire and Sakiewicz , 2023).

Combine these **factors** significantly increase the likelihood of cardiovascular events.



Anatomy and Physiology

- Coronary Artery Disease is caused by **atherosclerosis**.
- Fatty plaques build up in coronary arteries
- Arteries narrow → reduced blood flow
- Decreased oxygen supply to heart muscle

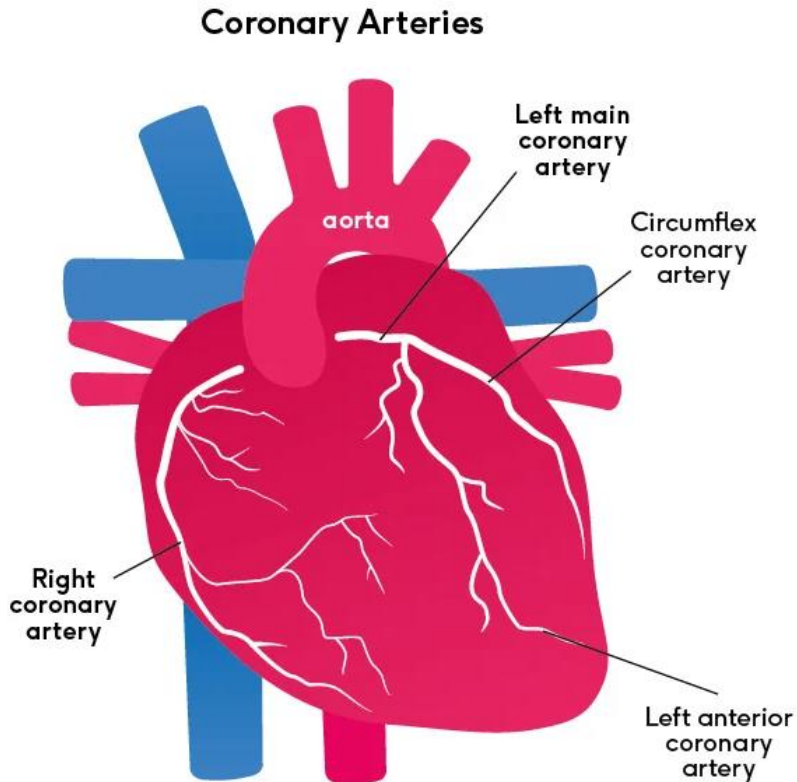
(British Heart Foundation, 2024)

The development of plaque and the advancement of disease are significantly influenced by endothelial dysfunction.



Heart Anatomy Diagram

(British Heart Foundation, 2024b)



The coronary arteries are essential vessels branching from the aorta to provide the myocardium with oxygenated blood. Coronary Artery Disease (CAD) develops when atherosclerotic plaque accumulates within these arterial walls, causing a significant narrowing of the lumen. If this plaque ruptures, a thrombotic response is triggered, leading to the formation of a blood clot. This sudden occlusion can entirely obstruct blood flow, resulting in myocardial ischemia and, ultimately, acute coronary syndrome, or heart attack. **(BHF, 2024b).**"

Lifestyle and health behaviour

Mr. Morgan's **lifestyle** includes:

- Smoking (10–15 cigarettes/day)
- High-fat, processed diet
- Low physical activity
- Alcohol above recommended limits

Mr. Morgan's lifestyle significantly contributes to disease progression. Smoking damages blood vessels , while poor diet and inactivity increase cholesterol.

These behaviours are major contributors to cardiovascular disease . Importantly, these are modifiable risk factors (Wu et al., 2025).

Everyday routines

- Mr. Morgan wakes at 6:00 am, skips breakfast or consumes a high-fat convenience meal, and begins work by 7:00 am. His job involves prolonged sitting with irregular meal breaks, often relying on fast food.
- Evenings are typically sedentary, spent watching television. He reports feeling fatigued and unease but does not engage in relaxation or exercise activities. Sleep averages 5–6 hours per night . He reports feeling fatigued and chest pains but tend to ignore these symptoms due to work loads pressure.

This highlights the importance of moving beyond just physical health to address the whole person including health but also behavioural patterns and habitual routines.



Communication and Ethical Considerations

- Person-centred care
- Clear communication
- Respect autonomy
- Confidentiality

Effective communication is fundamental to supporting Mr. Morgan's long-term management. A person-centred approach ensures information is clear and enables informed decision-making.

Respecting autonomy is essential, with Mr. Morgan involved in all care decisions and informed consent obtained. **Confidentiality and data protection** must also be maintained.

Importantly, care should be non-judgemental and culturally sensitive. This demonstrates that building trust can improve adherence and overall health outcomes.

(Wang et al., 2025)



Risk factors

- Smoking
- Poor diet
- Physical inactivity
- Obesity, hypertension, high cholesterol
- Age and gender

Mr. Morgan presents with multiple risk factors for coronary artery disease, including smoking, poor diet, and physical inactivity. These behaviours contribute to obesity, hypertension, and raised cholesterol, significantly increasing cardiovascular risk (World Health Organization, 2025).

While non-modifiable factors such as age and gender also influence risk, this highlights that the most effective interventions target modifiable lifestyle behaviours. Therefore, early prevention and behaviour change are essential to reduce disease progression and improve long-term outcomes.



Recommendations and Monitoring

- Healthy Diet
- Exercise (150 minutes/week)
- Smoking cessation
- Medication

A multidisciplinary approach is essential for managing Mr. Morgan's condition, This may involve collaboration between a GP, cardiologist, dietician and smoking cessation services.

Guidelines recommend lifestyle changes alongside medication such as statins and antihypertensives . This interventions reduced cardiovascular risks and improve outcomes NICE,2023.



Monitoring Care Plan

Regular monitoring of blood pressure and cholesterol, engagement in cardiac rehabilitation, and effective weight management are essential components of ongoing care. Guidance from the National Institute for Health and Care Excellence (NICE) emphasises that evidence-based interventions improve the safety and quality of health and social care services. However, the effectiveness of these interventions is dependent on patient adherence, which may be influenced by individual lifestyle factors, motivation, and access to appropriate support (NICE, 2021).



Care Planning

- Evidence-based guidelines for the routine care, monitoring, and planning of care for individuals with cardiovascular disease, such as Mr Morgan, emphasise the importance of personalised and technology-supported approaches.
- Digital tools, including clinical decision support systems (CDSS), can enhance remote monitoring by tailoring recommendations and integrating mobile health technologies such as wearable devices and health applications.

Emerging evidence from multicentre randomised controlled trials suggests that these digital health interventions have the potential to improve patient adherence, reduce cardiovascular events, and enhance engagement with cardiac rehabilitation programmes (Rink et al., 2025).



Additional Considerations

Occupational modifications may be required to reduce prolonged sedentary behaviour, particularly in relation to Mr Morgan's work demands. Family involvement can provide essential social support, improving adherence to lifestyle changes, while stress management strategies such as mindfulness and counselling may enhance cardiovascular outcomes (Marques et al., 2021).

However, the effectiveness of these interventions depends on patient engagement and access to support. Therefore, a comprehensive care plan should address barriers to adherence while incorporating nurse-led support, personalised self-management, and evidence-based secondary prevention within an integrated approach to chronic disease management (Cruz Neto and de Oliveira Lopes, 2024).



Conclusion

In conclusion, this case study demonstrates that coronary artery disease is a largely preventable condition, strongly influenced by modifiable lifestyle behaviours.

Importantly, this highlights the need for early identification and intervention to reduce disease progression and improve patient outcomes. This presentation has shown that effective management requires not only evidence-based treatment, but also a person-centred and holistic approach that supports long-term behavioural change.

Therefore, combining prevention, patient engagement, and ongoing monitoring is essential to reducing the burden of cardiovascular disease within the UK.



References

British Heart Foundation (2024). Coronary heart disease . Available at:
<https://www.bhf.org.uk/information-support/conditions/coronary-heart-disease>

British Heart Foundation (2024b). How Your Heart Works. British Heart Foundation. Available at:
<https://www.bhf.org.uk/information-support/how-a-healthy-heart-works> Accessed: [19 April 2026]

Cruz Neto, J. and de Oliveira Lopes, M.V. (2024). Nursing diagnoses related to cardiovascular function in primary care: A scoping review: Scoping review. International journal of nursing knowledge, 36(4), pp.10.1111/2047-3095.12489. Available at: <https://doi.org/10.1111/2047-3095.12489>

Ghimire, B. and Sakiewicz , A.J. (2023). Management Of Cardiovascular and Diabetes Risks Based On National Guidelines PubMed. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK580534/>

References

Marques, M. et al (2021). Patient-Centered Care for Patients with Cardiometabolic Diseases: An Integrative Review. Journal of Personalized Medicine, 11(12), p.1289.
Available at: <https://doi.org/10.3390/jpm11121289>

NHS (2022). Cardiovascular disease. NHS. Available at:
<https://www.nhs.uk/conditions/cardiovascular-disease/>

NICE (2023). Recommendations | Cardiovascular disease: risk assessment and reduction, including lipid modification | Guidance | NICE. [online] www.nice.org.uk.
Available at:
<https://www.nice.org.uk/guidance/ng238/chapter/Recommendations#lifestyle-changes-for-the-primary-and-secondary-prevention-of-cardiovascular-disease>
[Accessed:22 04 2026]

NICE (2021). NICE - Endorsed Clinical Guidelines 2021/2022 | Department of Health.
Available at: <https://www.health-ni.gov.uk/articles/nice-endorsed-clinical-guidelines-20212022>

References

Propper, C. (2024). Socio-economic inequality in the distribution of health care in the UK. Oxford Open Economics, 3(Supplement_1), pp.i577–i581.doi:

<https://doi.org/10.1093/ooec/odad090>

Rink, et al (2025). 'Imaging techniques in monitoring routines in coronary heart disease and post-stroke patients: A qualitative interview study from the patients' perspective. PLOS One, 20(12), p.e0338431. Available at:

<https://doi.org/10.1371/journal.pone.0338431>

Wang, H., (2025). Perceptions of shared decision-making participation during cardiac rehabilitation in coronary heart disease patients after coronary artery bypass surgery grafting: a qualitative study. BMC Cardiovascular Disorders, 25(1). Available at:

<https://doi.org/10.1186/s12872-025-04996-y>

References

World Health Organization (2025). Cardiovascular diseases (CVDs). World Health Organization .
Available at: [https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-\(cvds\)](https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds))
[Accessed:19 April 2026]

Wu ,S., et al (2025). Modifiable Factors and 10-Year and Lifetime Risk of Cardiovascular Disease in Adults With New-Onset Diabetes: The Kailual Cohort Study. Journal of the American Heart Association, 14(16), pp.e041223–e041223.doi: <https://doi.org/10.1161/jaha.124.041223>