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Coronary Heart Disease

Introduction: Coronary heart disease (CHD) develops through a gradual pathological process in which atherosclerotic material builds up along the walls of the coronary arteries, progressively restricting the delivery of oxygenated blood to the heart muscle. The condition is also commonly recognised as ischaemic heart disease or coronary artery disease. This narrows the arteries, reducing oxygen-rich blood flow to the myocardium and increasing the risk of angina, myocardial infarction, and other cardiovascular complications (NHS, 2024).

According to the NHS (2024), the most reported manifestations include chest pain (angina) and breathlessness. Angina may present as pressure, tightness, heaviness, or discomfort in the centre of the chest, with pain progressing to the arms, neck, jaw, back, or abdomen. Additional symptoms may include nausea, light-headedness, and sweating. In more severe cases, partial or complete obstruction of a coronary artery may result in myocardial infarction, where symptoms are generally more intense and prolonged than those associated with angina. CHD may also contribute to heart failure, which can lead to increasing breathlessness as the heart becomes less effective at circulating blood throughout the body.

Coronary heart disease (CHD) continues to represent a major global public health challenge because of its high prevalence, mortality, and long-term impact on individuals and healthcare systems. Worldwide, cardiovascular diseases (CVDs) were responsible for approximately 20.5 million deaths in 2021, making them the leading cause of death globally. Furthermore, around 80% of cardiovascular-related deaths occur in low- and middle-income countries, demonstrating the unequal global burden of the disease and the need for improved prevention, early diagnosis, and access to effective treatment. (Roth *et al.*, 2025). In the United Kingdom, coronary heart disease also places a considerable burden on public health and NHS services. Current estimates indicate that approximately 2.3 million people in the UK are living with coronary heart disease, while cardiovascular disease affects more than 8 million people overall (British Heart Foundation, n.d).

Evidence-Based Assessment and Monitoring of Coronary Heart Disease: Sandoval et al. (2022) reported that “coronary heart disease (CHD) is assessed using a combination of clinical assessment, laboratory investigations, and diagnostic imaging to evaluate the presence and severity of coronary artery disease. Initial assessment includes reviewing the patient's symptoms, medical history, cardiovascular risk factors, and physical examination to determine

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the likelihood of CHD. Electrocardiography (ECG) is routinely used to detect abnormalities in the heart's electrical activity. At the same time, high-sensitivity cardiac troponin is the preferred biomarker for identifying myocardial injury in patients with suspected acute coronary syndrome. Pontone *et al.* (2022) highlighted that "Coronary computed tomography angiography (CCTA) is recommended as a first-line non-invasive imaging technique because it accurately visualises coronary artery stenosis and atherosclerotic plaque. Additional imaging modalities, including stress echocardiography, cardiac magnetic resonance imaging (CMR), and positron emission tomography (PET), assess myocardial perfusion and determine the functional significance of coronary artery narrowing, thereby supporting diagnosis and treatment planning." Toia *et al.* (2020) state that... "Cardiac imaging has become increasingly important in the diagnosis and monitoring of CHD. Coronary computed tomography angiography (CCTA) is an advanced, non-invasive imaging modality that provides high-resolution evaluation of coronary anatomy, enabling the identification and characterisation of atherosclerotic plaque and clinically significant stenosis before irreversible myocardial injury occurs.

In clinically appropriate patients, advanced functional imaging modalities, including stress echocardiography, myocardial perfusion imaging, cardiac magnetic resonance imaging (MRI), and positron emission tomography (PET), facilitate comprehensive evaluation of myocardial perfusion and enable the identification of functionally significant coronary obstruction associated with inducible myocardial ischaemia. These imaging modalities improve diagnostic accuracy and assist clinicians in selecting appropriate therapeutic strategies."

Comprehensive Strategies for Disease Prevention and Management: Khunti, K. *et al.* (2007) reported that "coronary heart disease (CHD) remains a major contributor to illness and mortality across European populations. Although cardiovascular mortality has declined over recent decades, partly because of improvements in secondary prevention, further opportunities remain to strengthen the long-term management of individuals with established CHD. Primary care has an important role in this process because many individuals with CHD receive ongoing treatment and monitoring within community healthcare settings. Effective secondary prevention involves a combination of pharmacological treatment and lifestyle modification. Medical interventions may include antiplatelet therapy, together with appropriate management of blood pressure and cholesterol levels, to reduce the likelihood of further cardiovascular events. Lifestyle interventions are equally important and include increasing physical activity, adopting a healthier diet and stopping smoking. A systematic approach to CHD management can therefore support the control of modifiable cardiovascular risk factors

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and potentially prevent disease progression and complications. Structured secondary prevention and disease-management programmes can further strengthen the management of CHD. Evidence suggests that these programmes can improve the delivery of care, reduce hospital admissions and enhance patients' functional ability and quality of life. Consequently, coordinated primary care, appropriate medication, regular monitoring and sustained lifestyle support are important components of effective long-term CHD management."

The European Society of Cardiology (2024) emphasises that "Pharmacological treatment is also fundamental in controlling CHD. Medications such as antiplatelet agents reduce the risk of thrombus formation, while statins lower low-density lipoprotein (LDL) cholesterol and slow the progression of atherosclerosis. Additional medicines, including beta-blockers, angiotensin-converting enzyme (ACE) inhibitors, and nitrates, may be prescribed to improve cardiac function and relieve angina symptoms. For patients with significant coronary artery narrowing or persistent symptoms despite optimal medical therapy, coronary revascularisation procedures, including percutaneous coronary intervention (PCI) or coronary artery bypass grafting (CABG), may be required to restore blood flow to the myocardium." Long-term management also includes regular clinical review, adherence to prescribed medication, patient education, and participation in cardiac rehabilitation programmes. These interventions support recovery, promote self-management, reduce recurrent cardiovascular events, and improve overall health outcomes. Therefore, successful control of CHD requires an integrated strategy that combines preventive lifestyle measures with evidence-based medical and interventional therapies.

The Physical, Social and Economic Impact of Coronary Heart Disease: Across London, coronary heart disease (CHD) places a considerable burden on individuals and the wider community, with significant consequences for physical health, psychological wellbeing, social participation, and economic stability. As a major contributor to cardiovascular morbidity and mortality, the condition is associated with premature death, reduced functional capacity, and growing demand for both healthcare and social care provision. Those affected may experience persistent angina, breathlessness, fatigue, restricted mobility, anxiety, and depression. Collectively, these difficulties can compromise independence, limit participation in everyday activities, disrupt employment, and reduce overall quality of life. In more advanced cases, complications such as myocardial infarction and heart failure may occur, placing considerable pressure on families, carers, and healthcare resources. The burden of CHD is also unevenly distributed across London's diverse population. Socioeconomic disadvantage, disparities

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between population groups, barriers to preventive services, and greater exposure to modifiable risk factors can contribute to poorer cardiovascular outcomes in certain communities. Hypertension, smoking, obesity, diabetes, and unhealthy lifestyle patterns are particularly important determinants that may increase susceptibility to coronary disease. Consequently, areas experiencing greater deprivation may encounter additional demands on general practice, emergency departments, specialist cardiac services, and wider care provision. NHS England (2026) has highlighted that a substantial number of London residents are living with undiagnosed hypertension, an important contributor to cardiovascular complications. This demonstrates the importance of strengthening prevention through accessible screening, early identification, appropriate clinical assessment, and effective management of modifiable risk factors. Addressing these determinants through equitable and culturally responsive services could reduce avoidable cardiac events, narrow disparities in outcomes, and lessen the wider burden of cardiovascular disease across the capital.

Beyond its clinical implications, coronary heart disease imposes a substantial socioeconomic burden through rising healthcare expenditure, prolonged therapeutic requirements, diminished workforce participation, and reduced productivity. Mitigating these wider effects across London requires an integrated public health approach that prioritises equitable access to preventive and clinical provision, promotes healthier behaviours, facilitates timely identification of cardiovascular risk, and strengthens sustained management within local communities. Desai (2023) reported that cardiovascular disease is the leading global cause of death. Extreme heat increases cardiovascular risk, particularly among individuals with pre-existing heart disease, by causing dehydration, inflammation, electrolyte imbalance, and increased cardiac workload. Heat exposure is associated with ischaemic heart disease, stroke, heart failure, and arrhythmias, highlighting the need for improved prevention and clinical management.

Integrated Community Care and Support for Individuals Affected by Coronary Heart Disease: People diagnosed with coronary heart disease (CHD) benefit from an integrated approach to health and social care that seeks to minimise subsequent cardiac complications, preserve independence, and promote overall wellbeing. Care delivered within local settings should encompass more than pharmacological or clinical treatment, incorporating rehabilitation, lifestyle modification, emotional wellbeing, and practical assistance where required. A particularly important element of long-term care is cardiac rehabilitation, which provides a structured framework for recovery and secondary prevention. Such programmes

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may combine individually appropriate exercise, education, management of modifiable risk factors, and strategies designed to encourage sustained improvements in health-related behaviour. Dibben *et al.* (2023) state that exercise-based cardiac rehabilitation was associated with favourable outcomes for people with CHD, including reductions in cardiovascular mortality, recurrent cardiac events, hospital admissions and improvements in health-related quality of life. Consequently, accessible rehabilitation provision can contribute substantially to recovery, strengthen self-management capabilities, and facilitate better long-term outcomes for people affected by CHD. Cardiac rehabilitation delivered within local healthcare settings can enable people with CHD to regain physical confidence while strengthening the knowledge and practical skills required for effective self-management. Primary care practitioners and multidisciplinary professionals also play a pivotal role in assessing blood pressure, cholesterol, diabetes, and other modifiable factors associated with disease progression. Ongoing care may encompass regular medication reviews, strategies to promote treatment adherence, personalised nutritional guidance, smoking cessation support, and encouragement to engage in appropriate levels of physical activity. Soltani *et al.* (2021) state that locally delivered prevention programmes can produce favourable improvements in cardiovascular risk profiles, particularly by promoting effective blood pressure management and healthier lifestyle behaviours. Consequently, accessible and coordinated care is essential for strengthening long-term disease management, preventing avoidable complications, and promoting improved health outcomes for people affected by CHD.

Conclusion: To conclude, coronary heart disease (CHD) is a complex and progressive cardiovascular condition that can substantially affect an individual's physical health, psychological wellbeing, social functioning, and economic circumstances. Recognition of clinical manifestations, including angina, breathlessness, fatigue, and symptoms associated with myocardial infarction, is fundamental to facilitating timely intervention. Evidence-based assessment and ongoing monitoring, incorporating appropriate clinical investigations and cardiovascular risk evaluation, are essential for determining disease severity, identifying complications, and informing therapeutic decisions. Effective prevention and management require an integrated approach encompassing lifestyle modification, pharmacological therapy, cardiac rehabilitation, and coronary revascularisation where clinically indicated. Beyond its direct clinical consequences, CHD can restrict independence, reduce quality of life, disrupt employment, increase healthcare utilisation, and place additional responsibilities on families and carers. Consequently, coordinated community provision involving primary care professionals, specialist cardiac teams, rehabilitation services, pharmacists, allied health

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practitioners, and social care providers is crucial for addressing the diverse needs of those affected. Overall, combining early recognition, systematic monitoring, preventive strategies, evidence-based treatment, and person-centred multidisciplinary care provides a comprehensive framework for reducing complications, promoting independence, and improving long-term outcomes for people living with CHD.

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