

**mindray**

# CLIABook

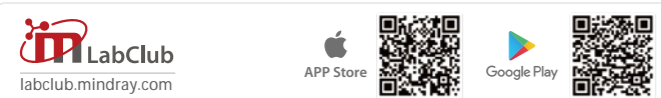
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P/N: ENG-CLIABook-210X18P-20231201  
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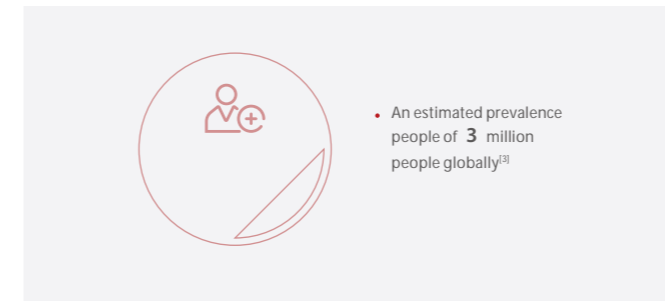
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# Preface

Cardiovascular diseases (CVDs) are the leading cause of death globally. An estimated 17.9 million people died from CVDs in 2019, representing 32% of all global deaths. Of these deaths, 85% were due to heart attack and stroke. Over three quarters of CVD deaths take place in low- and middle-income countries. Out of the 17 million premature deaths (under the age of 70) due to noncommunicable diseases in 2019, 38% were caused by CVDs. Most cardiovascular diseases can be prevented by addressing behavioral risk factors such as tobacco use, unhealthy diet and obesity, physical inactivity and harmful use of alcohol<sup>[1]</sup>. It is important to detect cardiovascular disease as early as possible so that management with counselling and medicines can begin<sup>[1]</sup>.

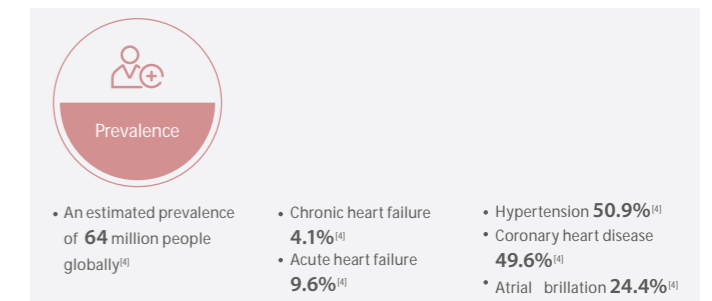
## Acute myocardial infarction

Acute myocardial infarction is myocardial necrosis resulting from acute obstruction of a coronary artery. Symptoms include chest discomfort with or without dyspnea, nausea, and/or diaphoresis. Diagnosis is by electrocardiography (ECG) and the presence or absence of serologic markers<sup>[2]</sup>.



## Heart failure

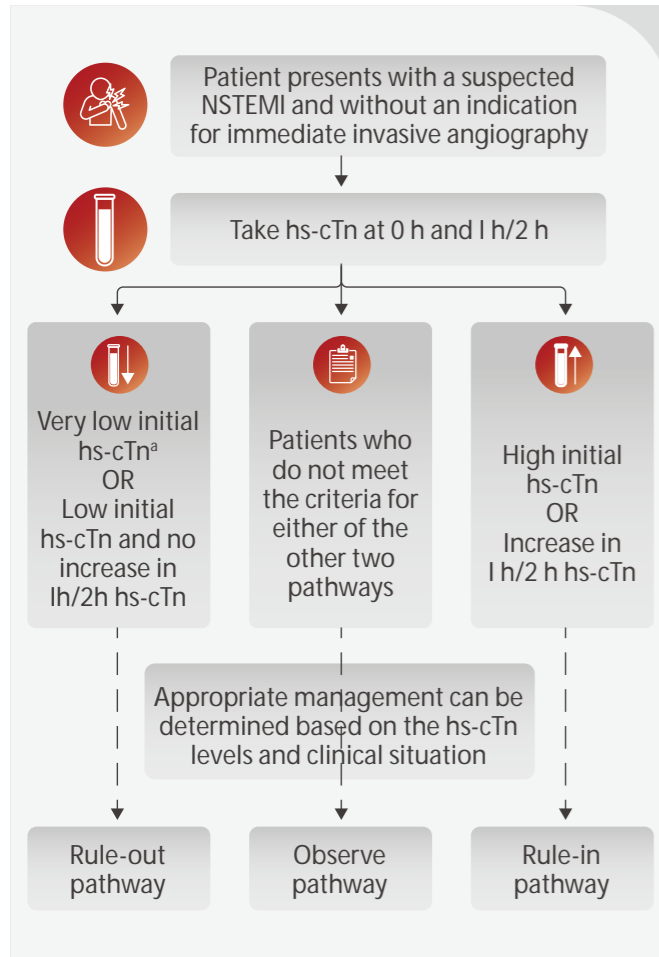
Heart failure, also known as congestive heart failure, is a condition characterized by the heart's difficulty in pumping sufficient blood to meet the body's blood and oxygen requirements. This can be attributed to problems with the heart itself or other organs that hinder its normal functionality.



This book describes the values and functions of cardiac biomarkers for different cardiovascular diseases and clinical applications. It provides a full picture of how these biomarkers play significant roles in the occurrence, development, treatment and prognosis of diseases.

# hs-cTnl: Empowering Heart Risk Assessment





ESC algorithms for 0 h/1 h or 0 h/2 h rule-out and rule-in <sup>[11]</sup>

### Differential diagnosis of myocardial injury

Elevated levels of hs-cTnI can also be detected in various other clinical conditions, including acute myocardial injury and chronic myocardial injury.

Similar to the diagnostic interpretation for AMI, acute myocardial injury may require at least one hs-cTnI concentration exceeding the 99th percentile URL, accompanied by a significant dynamic rise or fall pattern.<sup>[12]</sup> The critical clinical distinction between these two conditions is the absence of myocardial ischemia symptoms in acute myocardial injury.

### Risk stratification and prognosis of patients with ACS

In addition to its diagnostic value in cases of AMI and myocardial injury, serial measurement of hs-cTnI levels, when combined with existing risk score systems, proves helpful in risk stratification for patients with suspected ACS who are receiving in-hospital care. It also provides valuable prognosis information in terms of short- and long-term mortality. An individual may be considered at intermediate risk based solely on a risk score even if hs-cTnI concentrations are below the 99th percentile. In contrast, the low-risk group can be characterized by hs-cTnI levels that are close to or below the limit of detection (LOD).<sup>[13]</sup>

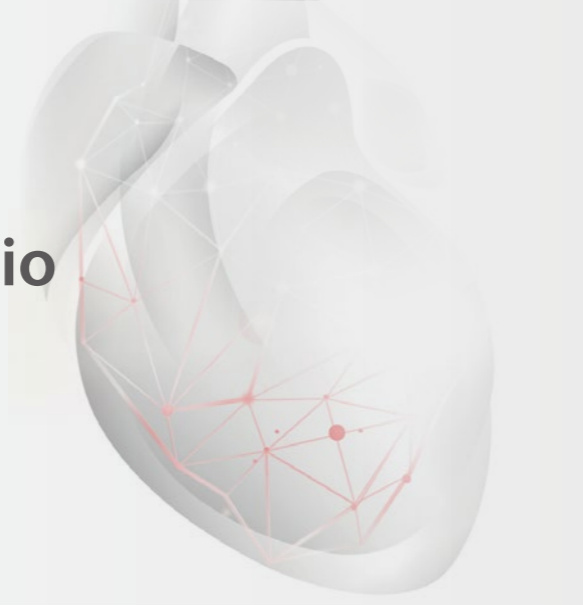
Combining HyTest's advancements in cardiac biomarker research with Mindray's robust R&D capabilities in IVD, we are poised to introduce more cutting-edge products that provide reliable test results for clinical diagnosis. Mindray remains committed to aligning our research with clinical needs and translating scientific breakthroughs into practical applications in the management of cardiac and other diseases.



The heart is known to be one of the most important organs in humans due to its vital role in maintaining human health. Despite being only slightly larger than a fist, the heart is a powerful, muscular pump responsible for circulating oxygenated blood throughout the entire body. During contraction, the heart expels blood and transports it to every part of the body. If you compare a human being to a machine,



## Mindray Expands Its Cardiac Biomarker Portfolio with Reliable hs-cTnI and NT-proBNP Assays



Cardiovascular diseases (CVDs) are the leading cause of death globally. An estimated 17.9 million people died from CVDs in 2019, representing 32% of all global deaths. Many guidelines recommend cTn and NT-proBNP as important biomarkers for suspected acute coronary syndrome (ACS) and heart failure

Mindray Cardiac

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