

## Increased Detection of Acute Myocardial Infarction in Women Using Sex-Specific Upper Reference Limits



Pictured: Dr. Barnali Das, Ms. Bhavya Darod, Ms. Poonam Mandavkar, Mr. Sachin Patil, Ms. Reshma Morajkar, Ms. Urja Parekh, Ms. Poornima Shetty, Ms. Snehal Raje, Ms. Rasika Shinde, Ms. Akanksha Desai

Cardiovascular disease is a leading cause of morbidity and mortality worldwide. Consequently, improving outcomes through integrated clinical care approaches are becoming more important and more common. At Kokilaben Dhirubhai Ambani Hospital and Medical Research Institute (KDAH) the Biochemistry and Immunology Department sought to implement sex-specific cut-offs for high-sensitivity troponin I (hs-cTnI) in order to help mitigate the fact that women are often underrecognized and under-diagnosed for acute myocardial infarction (AMI). Their goal was to not only mitigate the delay in diagnosis of AMI in women, but also to more appropriately treated men for AMI.

To accomplish this, laboratory medicine teamed up with Cardiology, Emergency Medicine and hospital leadership to move from overall upper reference limits (URLs) of high-sensitivity troponin I (hs-cTnI) towards sex-specific URLs.

Implementation of sex-specific upper reference limits identified an additional 14% of at-risk women with potential acute myocardial infarction (female patients with acute cardiac events using overall cut-off was 68% versus 82% using sex-specific cut-off). This in turn decreased the number of men being diagnosed by 3%. Success of this new chest pain pathway was in part due to strong cross-disciplinary collaboration and site-wide education leading to increased clinical adherence to the new protocol from 7% to 93%.

With such strong outcomes and important changes to patient care, this integrated clinical care team has received media recognition in two leading local newspapers recognizing this site's leadership in implementing a novel clinical pathway for patients with suspected acute coronary syndrome.

It takes many to achieve a measurable difference but a special congratulations goes to the program leaders for the recent recognition with the 2020 UNIVANTS of Healthcare Excellence award program, site of Achievement: Dr. Barnali Das, *Consultant, Laboratory Medicine; IFCC Scientific Division Executive Committee Member and Chair, AACC India Section*, Dr. Jamshed Dalal, *Director of Cardiology*, Dr. Sanjay Sm Mehta, *Director of Accident and Emergency*, Dr. Prashant Nair, *Consultant, Cardiology*, Dr. Santosh S Shetty, *Executive Director and Chief Executive Officer*.

### KEY TAKEAWAYS

1. High-sensitivity cardiac troponin (hs-cTn) assays enable accurate detection of low levels of circulating troponin, including the ability to distinguish differences between men and women.
2. Application of sex-specific upper reference limits based on the 99th percentile of seemingly healthy individuals can improve patient diagnosis and improved outcomes.
3. Education across disciplines is crucial for systemwide implementation of new clinical pathways.