Supplementary Online Content


eMethods. The manufacturer’s description if the i-STAT TnI-Nx point of care assay in the final stage of development.
eFigure 1. Analytical performance of assays on presentation to the ED
eFigure 2. Diagnostic performance of assays on presentation to the ED
eFigure 3. Receiver Operator Characteristic curves for diagnosis of AMI on presentation to the ED.

This supplementary material has been provided by the authors to give readers additional information about their work.
The i-STAT TnI-Nx test is a new immunoassay test for cardiac troponin I. The i-STAT TnI-Nx test uses an enzyme-linked immunosorbent assay (ELISA) method leveraging paramagnetic beads and electrochemical detection of the resulting enzyme signal. The test reports a quantitative measurement of the sample concentration of cTnI in units of ng/L based on factory calibration. The ELISA is initiated when the test cartridge is inserted into the instrument. The instrument makes electrical, mechanical and thermal contact with the cartridge and controls the sample movement in the conduit. The sample dissolves the on-board reagents which are mixed into the test sample at a controlled temperature. During this phase, the cTnI in the sample is captured and labelled by the reagents. The sample is then positioned across an on-board magnetic which allows the paramagnetic beads to be drawn to the surface of the sensor. At the point the sensor is washed with the on-board wash fluid and the electrochemical detection occurs at the sensor surface. The current generated is measured by the instrument and is proportional to the concentration of cTnI in the sample.”

Abbott, June 2018.
eFigure 1. Analytical performance of assays on presentation to the ED

Each sample was measured twice. The figures are plots of the coefficient of variation calculated from the standard deviation and mean of the two measurements verse the mean of the two measurements.

TnI-Nx coefficient of variation verse mean concentration. Each dot represents one sample from one patient. Dots have been jittered slightly to avoid overlap.
eFigure 2. Diagnostic performance of assays on presentation to the ED

Distribution of measured concentrations on presentation to ED. Boxes represent the inter-quartile range, solid line the median, and whiskers are 1.5 times the interquartile range from the upper and from the lower quartiles. Note, hs-cTnI truncates at <LoD and TnI-Nx at >1500 ng/L.
**eFigure 3:** Receiver Operator Characteristic curves for diagnosis of AMI on presentation to the ED.

Receiver Operator Characteristic curves for diagnosis of AMI on presentation to the ED. The golden colour is the TnI-Nx ROC curve with an AUC of 0.975 (95%CI: 0.958 to 0.993). The other curve is the hscTnI ROC curve with an AUC of 0.97 (95%CI: 0.949 to 0.99). The p-value (DeLong, DeLong, Clarke-Pearson method) for the difference between the two roc curves was 0.464.