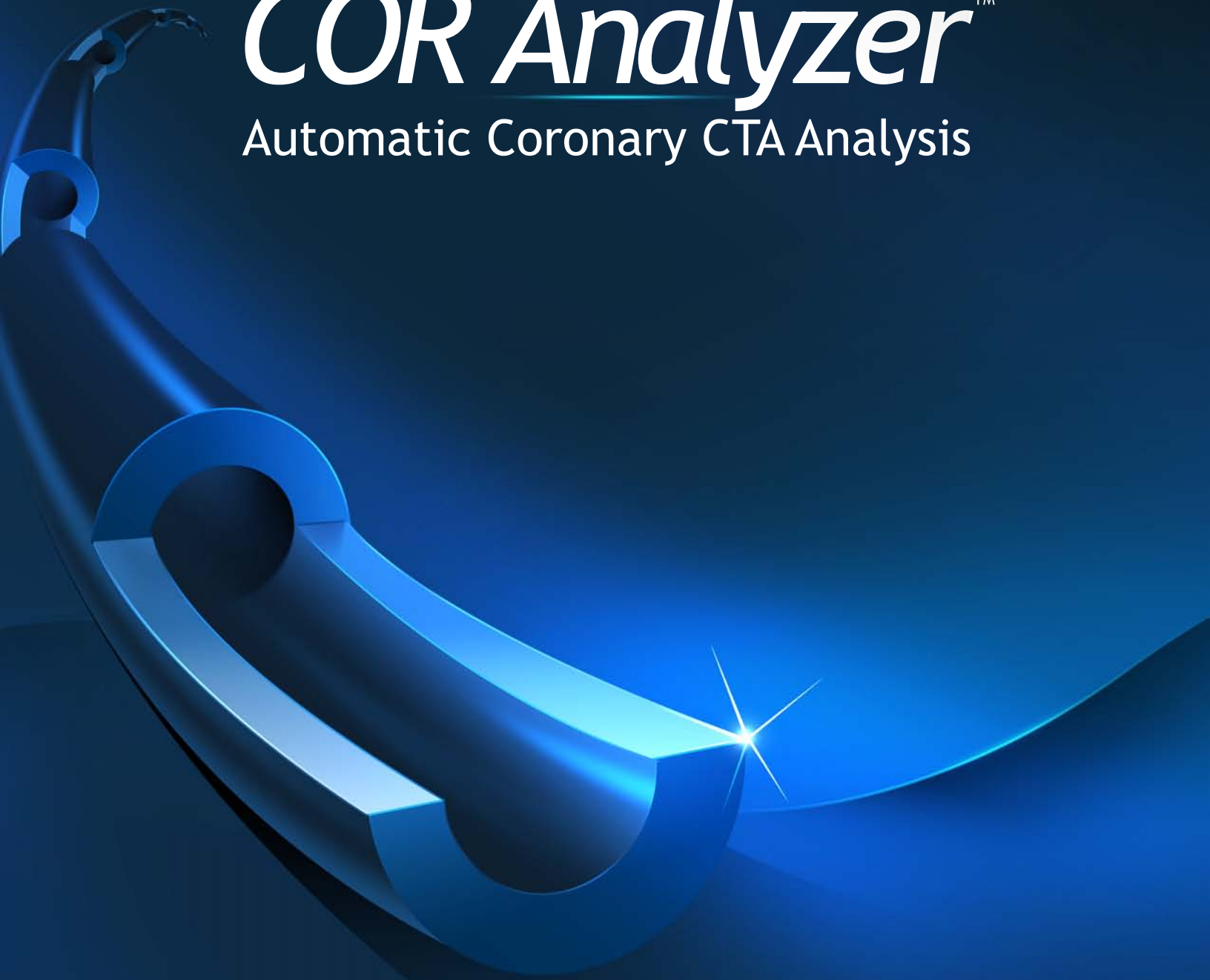
rcadia Life Saving Technology

COR Analyzer™

Automatic Coronary CTA Analysis



COR Analyzer™ - Fully Automated Coronary CTA Analysis

COR Analyzer is a software tool for fully automatic analysis of Coronary CTA studies.

It works with standard DICOM images acquired on any 64-slice (and over) CT machine. COR Analyzer™ performs automatic segmentation of the coronary artery tree, labeling of major coronary arteries and detection of stenotic lesions without any human interaction.

The system runs on a standard PC and receives Coronary CTA studies over the medical facility's network. When a new study arrives, the system starts its processing sequence automatically and after about 5 minutes yields the results by answering the pivotal question - are there any significant stenotic lesion (>50% stenosis)?

COR Analyzer™ provides basic visualization tools, allowing the clinician to validate the findings and to see the precise location of any detected lesions. It can also send the results to any PACS repository or workstation.

For multiphase studies, COR Analyzer™ automatically selects the best phase for each blood vessel and indicates which phase was utilized in the analysis.

COR Analyzer™ helps in triaging patients in the emergency department, improves workflow in the radiology and cardiology departments and serves as a second set of eyes to help prevent misreading of significant lesions in Coronary CTA studies.

- No human interaction required for detection of stenotic lesions in the major coronary arteries
- No human interaction required for segmentation and tracking of the coronary artery tree
- High negative predictive value
- Accepts standard DICOM data sets acquired by any 64-slice (or greater) CT scanner

Seamlessly and effortlessly, COR Analyzer™ processes Coronary CTA data sets and provides:

- Overlay tagging of the coronary arteries and lesions on axial slices
- 3D presentation of the coronary tree and location of the suspected lesions

  - color-coding of the four main coronary arteries - RCA, LAD, LM and LCX

  - fast and simple navigation to detected lesions
- Categorized display of results for enhanced triaging workflow
- Curved MPR views of analyzed arteries with lesion indications
- Automated push of results to PACS and/or workstations
- Pathologies report

Clinical Workflow Integration

COR Analyzer™ operates effortlessly in the background while CT scans proceed as usual. Patient image data is pushed automatically, or manually if desired, from the acquisition station to COR Analyzer™, as it is being sent to the primary CT processing and review workstation.

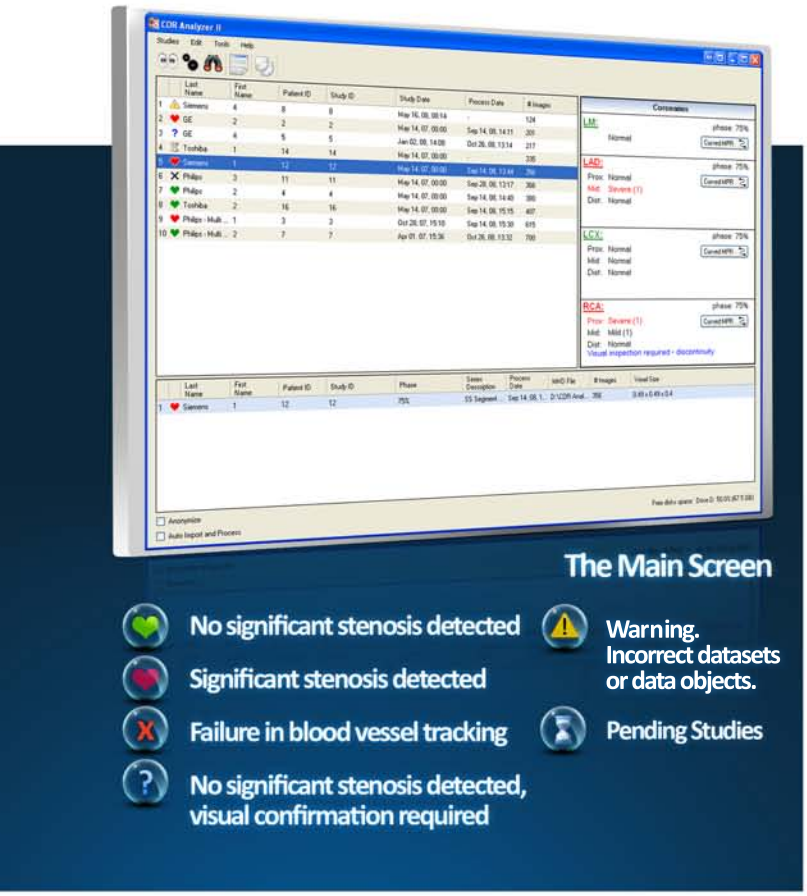
COR Analyzer™ automatically recognizes this data and launches a sophisticated analysis process, which provides both final patient results and a detailed visualization of the findings. Optionally, curved MPR images of major coronaries with marked lesions may be sent to a PACS or other DICOM workstation as a secondary capture series. COR Analyzer™ also provides automated referring physician reporting with all the findings in the form of curved MPR images and clinical summary.

The entire process requires no human intervention or deviation from the standard enterprise protocol – it's all done in a shadow mode, without disrupting workflow. The results are displayed individually for each patient with a simple icon appearing to indicate completion and available results.

The radiologist, cardiologist or emergency department physician can review the results on the COR Analyzer™ system or department workstations.

Data Flow Diagram

- **a** Patient is scanned on multi-slice CT and raw data is transferred to acquisition station
- **b** Acquisition station pre-processes raw data and sends it to primary processing workstation
- **c** Acquisition station sends CTA raw data to COR Analyzer™ for processing and analysis
- **d** Optional - Acquisition station sends data to central PACS repository for backup and review
- **e** Optional - COR Analyzer™ sends the derived images of coronaries with marked lesions to the central PACS repository
- **f** Optional - Primary workstation sends the derived images of coronaries with marked lesions to the central PACS repository
- **g** Study data is retrieved and viewed on the PACS workstation in the reading room or remote location
- **h** COR Analyzer sends derived images of coronaries with marked lesions to workstation(s)



The COR Analyzer™ Application

The Main Screen indicates patients who need further evaluation for severe coronary artery disease, and those who can be safely discharged. Studies can be sorted by any patient-related parameters, study acquisitions or processing time or result.

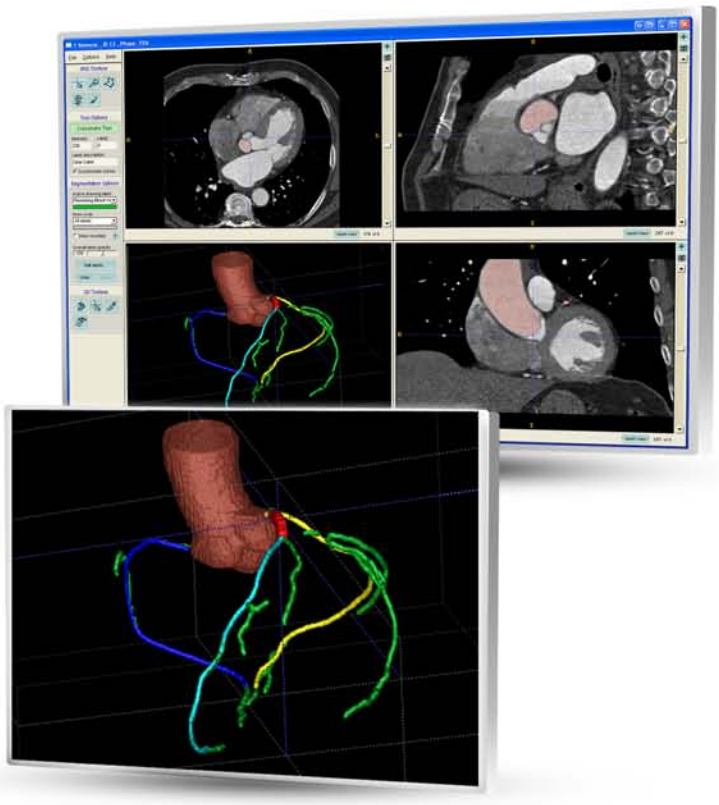
The main screen also provides summarized results for each vessel.

The status of every study and series is depicted using icons, as shown on the left.

The Study Viewer

Presents overlay tagging of coronary arteries and suspected lesions on four synchronized views - axial, coronal, sagittal - as well as 3D rendering of the coronary arteries tree.

The viewer also provides basic image manipulation tools, such as zoom, pan, 3D rotate and more to provide better validation of the findings and enhance the decision making.



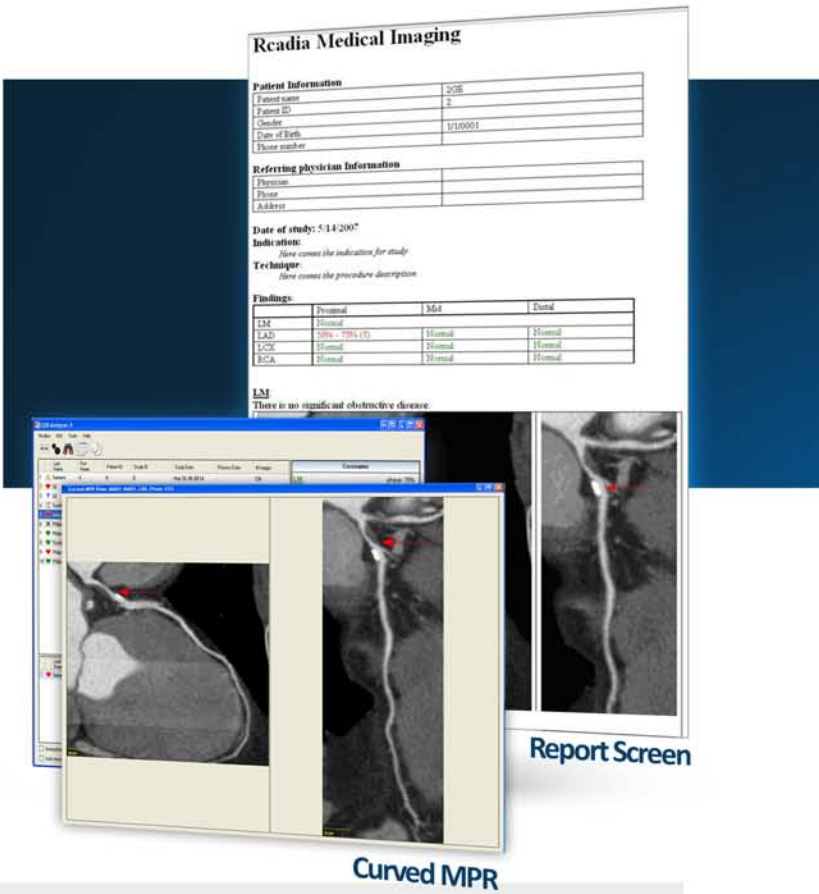
Automatically generated, with no human interaction

The Curved MPR and Report Screens

Graphically flag significant lesions in any of the major coronary arteries. The system also indicates potential failures in its automatic analysis:

- Discontinuity - tracking stopped due to image discontinuity
- Insufficient RCA/LCX coverage - the RCA/LCX pair does not cover the AV groove well
- Other potential tracking failures due to motion artifacts, blur, low contrast, vessel occlusion

The system also provides the ability to export the final report in HTML format for communication to referring physicians or clinical colleagues for final review and reporting.



COR Analyzer™ Advantages

Emergency Department

Improving patient triage for further diagnostic work-up and treatment

- Reducing time to treatment, improving mortality rate
- Reducing the need for unnecessary invasive diagnostic procedures, improving morbidity rate
- Reducing unnecessary hospital admissions, saving hospital budgets
- Reducing unnecessary emergency calls to expert readers, reducing staffing needs

Radiology and Cardiology Departments

- Prioritization - fast work-up of patients with high probability of coronary artery disease
- Second look - computerized second review of Coronary CTA studies
- Training - allows new residents to compare their reading prognosis with the system to enhance competence and sensitivity
- Remote Reading - assist remote readers in improving reading sensitivity and throughput

Computerized Decision Support Technology for Coronary CTA

Adds advanced rule-out diagnosis functionality to conventional processing and review Coronary CTA software tools and standard clinical workflow.

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