

**“CTA First” in the Diagnosis and
Treatment of Coronary Artery Disease:
A Real-World Success in the Quest for **High Value Care****

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Disclosure of Relevant Financial Relationships

I, Philip Green, DO NOT have any relevant financial relationships to disclose.

Background

- Unsustainable health care spending has led to a quest for **“High Value Care,”** *higher quality at lower cost.*
- The cost-effectiveness of a **“CTA first”** approach in the evaluation of coronary artery disease (CAD) has yet to be evaluated in **real-world clinical practice.**

Background

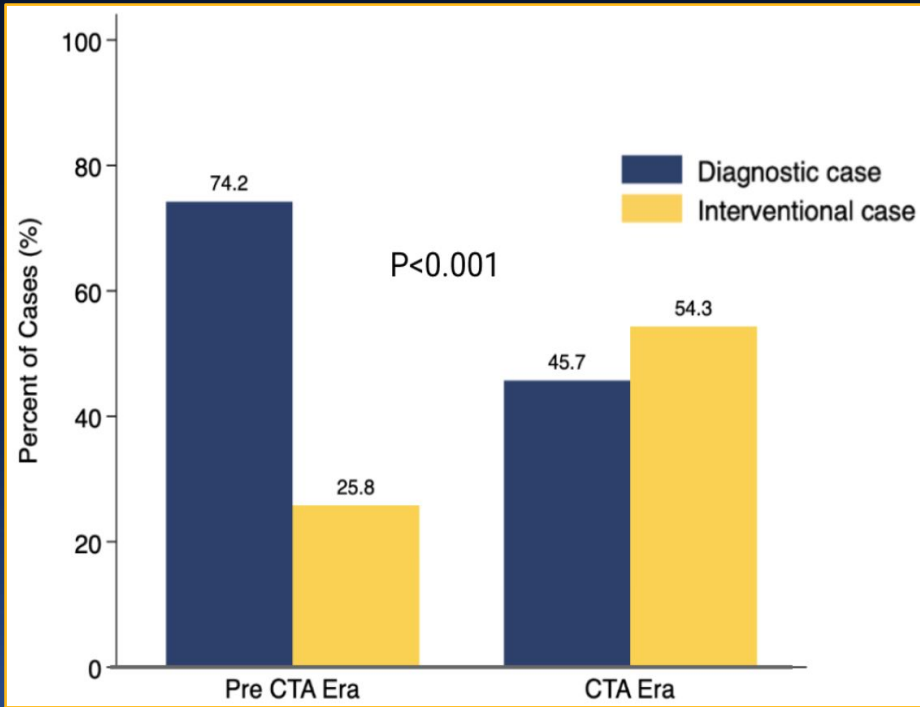
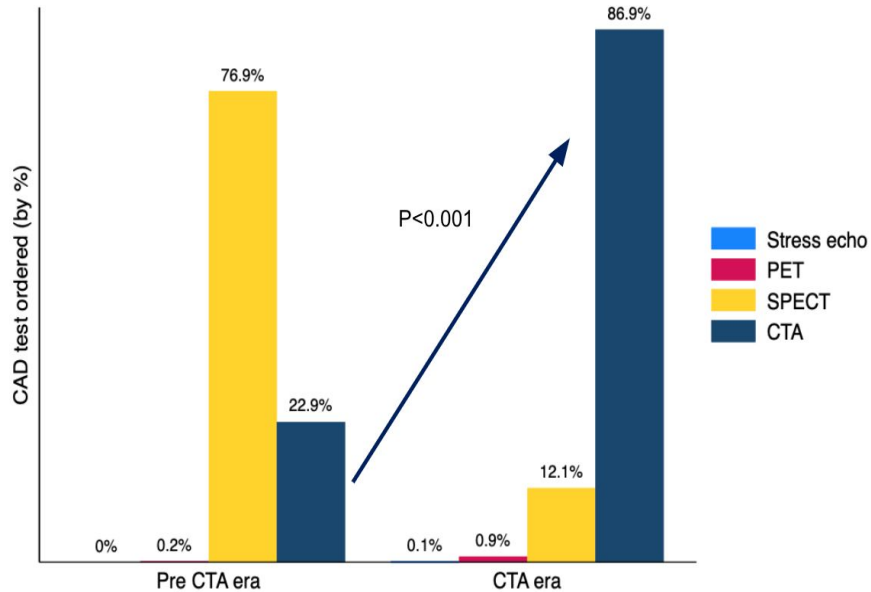
- **Stress testing in stable CAD** **\$212 million–\$2.1 billion**
- **Preoperative noninvasive testing** **\$102–\$238 million**

Strategies to Reduce Low-Value Cardiovascular Care: A Scientific Statement From the American Heart Association.

Vinay Kini, Khadijah Breathett, Peter W. Groeneveld, P. Michael Ho, Brahmajee K. Nallamothu, Pamela N. Peterson, Pam Rush, Tracy Y. Wang, Emily P. Zeitler, William B. Borden and on behalf of the American Heart Association Council on Quality of Care and Outcomes Research. *Cardiovascular Quality and Outcomes.* 2022;15:e000105

CTA first reduces “diagnostic only” cath

Non-Invasive CAD Testing



Objective

- To evaluate the cost difference of **“CTA first” approach** in the **evaluation** and **treatment** of coronary artery disease in real world clinical practice.

Methods

- Imaging orders and claims data in a large cardiovascular practice were evaluated from 2019 to 2023.
- Based on the implementation of coronary CTA as the initial modality for evaluation of CAD;
 - **“pre-CTA era”** (Jan 2019-April 2020)
 - **“CTA era”** (May 2020-May 2023)
- Ordering patterns of **stress testing versus coronary CTA** were analyzed by era, as were rates of **diagnostic only invasive coronary angiography**.
- Average cost for **non-invasive CAD testing and invasive coronary angiography** was estimated on a 100-patient basis using the online CMS fee schedule and appropriate current procedural terminology (**CPT®**) **codes**.

Results: Non-Invasive Testing Estimated Savings of \$83,433

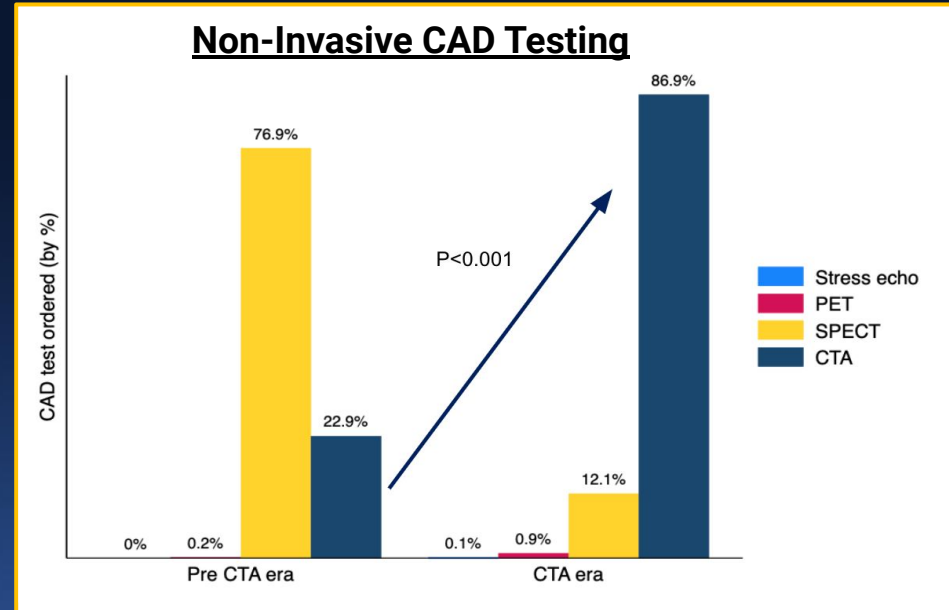
Cost per 100 patients evaluated (2019 vs CTA era)

	Stress echo	SPECT	PET	CTA	Total
Unit cost	\$689.86	\$1,661.64	\$3,285.99	\$341.34	-
Pre-CT era	\$ 0.00	\$127,794.07	\$627.10	\$7,816.95	\$136,238.11
CTA era	\$ 44.85	\$20,095.26	\$2,991.15	\$29,673.05	\$52,804.31

\$83,433

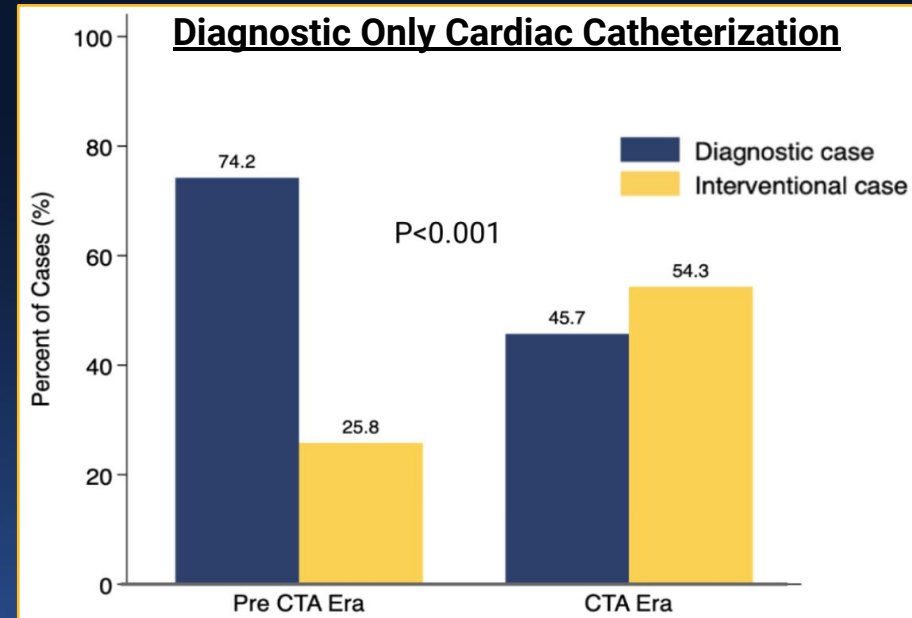
Results: Non-Invasive Testing

- A total of **2,062 patients** were evaluated for CAD using either stress testing or CTA
 - 524 in the **pre-CTA** era and
 - 1,538 in the **CTA era**.
- In the transition from pre-CTA to CTA eras:
 - **CTA increased** from 22.9% to 86.9%,
 - **Stress testing declined** from 77.1% to 13.0% ($p < 0.001$).
- The reduction in stress testing was associated with an **\$83,434 savings** in cost of testing per 100 patients evaluated ($p < 0.01$).



Results: Avoidable Invasive Angiography

- For patients undergoing invasive coronary angiography, rates of **“diagnostic only” procedures declined** significantly from the pre-CTA to CTA era
 - (74.2% vs. 45.7%; $p < 0.01$).
- The **28.5% reduction** in potentially avoidable diagnostic invasive coronary angiography was associated with an **\$94,511 savings** in cost per 100 patients ($p < 0.01$).



Conclusions

Potential Savings of \$177,945 per 100 patients

- Transitioning to a **CTA first approach** in evaluating CAD translated
 - **Reduced cost** in the diagnostic evaluation of CAD
 - Reduced cost by eliminating a many potentially **avoidable** diagnostic invasive coronary angiograms.

Thank You

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