

Vscan demonstrates  
its utility in augmenting  
cardiac auscultation,  
impacting course of  
treatment





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Can a visualization tool as compact as the pocket-sized Vscan\* add anything to a physical exam conducted by an experienced cardiologist?

Can it actually change that physician's clinical decision-making?

Users of the new Vscan system are answering these questions with an emphatic "Yes!" And researchers are already beginning to back up their contentions with solid statistics.

## A case in point

A cooperative study was recently conducted by researchers at the Cardiovascular Institute at the University Clinic San Carlos in Madrid, Spain, and in the Cardiology Department of Hospital da Luz in Lisbon, Portugal.

"It was our goal to evaluate the contribution that Vscan could make to physical examinations," said Jose L. Zamorano, M.D., Director of the Non-invasive Cardiovascular Imaging Laboratory at the University Clinic San Carlos. "Specifically, we wanted to assess and quantify its utility for performing bedside visual assessments during initial outpatient cardiology consultations."

## The parameters

The researchers prospectively studied 189 consecutive patients who had been referred for initial cardiology evaluation at an outpatient clinic.

In each case the physicians first performed cardiac auscultation (CA) on each patient and then scanned them with Vscan. "We recorded scanning time as well as the number of abnormal results revealed by CA and by Vscan," said Nuno Cardim, M.D., Ph.D., Director of the Echocardiography Laboratory at Hospital da Luz and corresponding author for a research report he and his colleagues have drafted on this study. "We also logged the information obtained by CA alone as well as by CA plus Vscan."

**This information, he said, was used to evaluate Vscan's utility for:**

- Reaching a more accurate diagnosis
- Determining the need, at bedside, for performing a conventional echocardiogram in the echo lab
- Deciding to discharge a patient from an outpatient clinic or hospital



## The results

Adding Vscan at initial consultation dramatically improved the sensitivity and specificity of the physical exam and changed the course of treatment for a significant number of these patients, Dr. Cardim said.

For example, in a total patient population of 189 patients, cardiac auscultation (CA) alone detected abnormal results in 54 of the patients studied. But when Vscan was added, abnormalities were found in 89 patients, which is a substantial increase in diagnostic accuracy.

Vscan also impacted the number of patients referred for echocardiography, Dr. Zamorano said. "When we added Vscan to our assessments, our management of patients changed. Vscan more than doubled the number of patients who could be sent home safely without the need for, and cost of, further evaluation."

Dr. Cardim said that CA and Vscan also agreed in a limited number of cases – for example, in roughly one-third of the decisions not to refer patients for echocardiography, and in just under one-fifth of the patients who were referred to the echo lab.

**"Vscan modified our clinical decisions in 45% of the cases," said Dr. Zamorano, "changing patient management. In fact, 61% of the patients who would have been referred for a full echo were able to go home, whereas 29% of those who were going to be sent home actually required a full echo examination."**

## The conclusions

The researchers concluded that adding Vscan to the physical exam can change patient management significantly, enabling earlier detection of disease and reducing unnecessary normal echocardiography exams.

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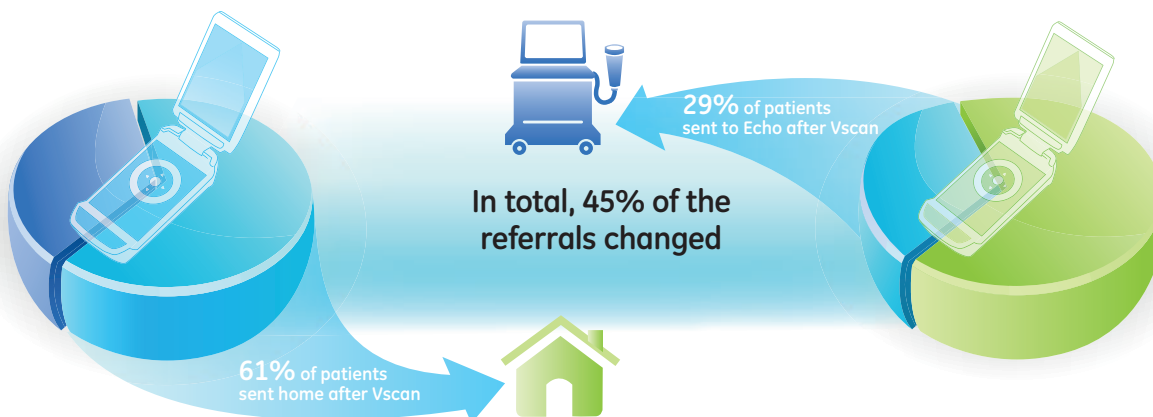
– Jose L. Zamorano, M.D.  
Director of the Non-invasive Cardiovascular Imaging Laboratory  
University Clinic San Carlos  
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"Vscan increased the duration of our consultations by only three minutes," Dr. Zamorano said, "while demonstrating significant additive clinical value over CA alone. It increased the number of diagnoses we were able to make at bedside. Just as important, it reduced the need for unnecessary conventional echocardiograms in our institutions, while increasing both the number of patients referred for needed echo exams and the number discharged after the initial consultation."

## Vscan can help facilitate early detection of cardiac disease and reduce unnecessary testing

### Patients normally sent to Echo

### Patients normally sent home



### Improved specificity

According to a recent multi-center study\*\* of 94 patients who would ordinarily have been referred for a full echo exam following physical exam, 61% were sent home instead because of what Vscan revealed.

### Improved sensitivity

The same study found that, of 95 patients who would ordinarily have been sent home following physical exam, almost 29% were instead sent on for a full echo exam because of Vscan findings.

\*\*Per data reported in "The visual stethoscope: usefulness of a new miniaturized echocardiographic system in outpatient cardiology consultations as an extension of physical examination," Cardim N, Zamorano J, et al, accepted JASE 2011.

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