SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 8-K

CURRENT REPORT

PURSUANT TO SECTION 13 OR 15(d) of the SECURITIES EXCHANGE ACT OF 1934

Date of Report (Date of earliest event reported): November 17, 2011

ATRICURE, INC.

(Exact name of registrant as specified in charter)

Delaware	**000-51470**	**34-1940305**
(State or other jurisdiction of incorporation)	**(Commission File Number)**	**(IRS Employer Identification No.)**

6217 Centre Park Drive **West Chester, OH** **(Address of principal executive offices)**	**45069** **(Zip Code)**

Registrant's telephone number, including area code: (513) 755-4100

Not Applicable
(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 8.01. Other Events.

On November 17, 2011, AtriCure, Inc. issued a press release announcing that it has closed enrollment in its DEEP AF feasibility trial. A copy of the press release is filed as Exhibit 99.1 to this Form 8-K and is incorporated herein by reference.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits.

No.	Description
99.1	Press Release dated November 17, 2011

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

ATRICURE, INC.

Dated: November 17, 2011

By: /s/ Julie A. Piton
Julie A. Piton
Vice President, Finance and Administration and
Chief Financial Officer

Exhibit 99.1

Contact:

AtriCure, Inc.
Julie A. Piton
Vice President and Chief Financial Officer
(513) 755-4561
jpiton@atricure.com

Update on AtriCure's DEEP AF Feasibility Trial

WEST CHESTER, Ohio – November 17, 2011 – AtriCure, Inc. (Nasdaq: ATRC), a medical device company and a leader in cardiac surgical ablation systems and systems for the exclusion of the left atrial appendage, today announced that it has closed enrollment in its DEEP AF feasibility trial. DEEP AF was designed to evaluate the safety and efficacy of combining AtriCure's minimally invasive products with catheter technologies to treat patients with persistent and long-standing persistent atrial fibrillation, or AF. The procedure, also known as hybrid ablation, combines epicardial and endocardial ablation and mapping as part of a single session procedure. To date, 24 of 30 patients have been enrolled in the trial.

At a recent meeting, study investigators reviewed the clinical results and discussed the logistics of performing the hybrid ablation procedure in a single session. As a result of the discussion, AtriCure determined that a staged approach, where the minimally invasive surgical ablation procedure is performed and the catheter optimization is scheduled separately, may be more applicable to a larger number of investigators as AtriCure plans for a pivotal trial and commercialization. Consequently, AtriCure decided to close enrollment in the DEEP AF trial.

"We reached the decision to close enrollment in this feasibility study because we accomplished our objective of gaining a better understanding of the procedure prior to proceeding to a pivotal trial," said David J. Drachman, President and Chief Executive Officer. "This feasibility study has demonstrated that the single session procedure is highly encouraging. However, it can present scheduling and logistical challenges as we look to widespread adoption. As a result, we are in the process of reviewing staged procedure alternatives and we plan to discuss these options with the FDA in the near term."

Seven patients in the DEEP AF trial have six month follow-up data, which was documented through 14-day continuous holter monitoring. None of the patients experienced episodes of AF or atrial flutter. One patient experienced episodes of atrial tachycardia. Antiarrhythmic drugs were discontinued prior to rhythm assessment in all 7 patients. Of the 24 patients treated, 7 experienced primary adverse events that were reported and independently adjudicated. None of the adverse events were attributed to the investigational device. At the suggestion of the study investigators, an independent physician adjudicator graded the adverse events as mild, moderate or severe. All of the events were categorized as mild or moderate, except for one event that was classified as severe. The severe event was a stroke that occurred 27 days post procedure and resulted in death on day 30. The cause of the stroke could not be determined, therefore it was attributed to the procedure.

Dr. Steven J. Hoff, Assistant Professor, Department of Cardiac Surgery, Vanderbilt University Medical Center, commented, “We are impressed with the results from this hybrid ablation procedure for the treatment of AF patients. In the DEEP AF trial, the acute procedure success and six month efficacy data, while limited, was very encouraging. The acute results demonstrated the confirmation of effective block in all attempted lesions. From our growing experience, we believe that this hybrid ablation procedure is highly impressive given this difficult to treat group of persistent and long-standing persistent AF patients.”

Dr. Paul J. Wang, a leading electrophysiologist and Professor of Medicine, Director of Stanford Arrhythmia Service, commented, “I am very encouraged by the ability of the hybrid surgical and catheter ablation approach to restore sinus rhythm in patients with persistent and long-standing persistent AF, even in the presence of significantly enlarged atria. We look forward to continuing the investigation of this promising procedure when the study is revised and restarted in the future.”

Conference Call

AtriCure will host a conference call at 9:00 a.m. Eastern Time on Thursday, November 17, 2011 to discuss the status of its DEEP AF feasibility trial. A live web cast of the conference call will be available online from the investor relations page of AtriCure’s corporate web site at www.atricure.com.

Pre-registration is available and recommended for this call at the following URL:

https://www.theconferencingservice.com/prereg/key.process?key=PVC3G4CMA

You may also access this call through an operator by calling (888) 680-0890 for domestic callers and (617) 213-4857 for international callers at least 15 minutes prior to the call start time using reservation code 95608369.

The webcast will be available on AtriCure’s web site and a telephonic replay of the call will also be available through December 17, 2011. The replay dial-in numbers are (888) 286-8010 for domestic callers and (617) 801-6888 for international callers. The reservation code is 38893540.

About AtriCure, Inc.

AtriCure, Inc. is a medical device company and a leader in developing, manufacturing and selling innovative cardiac surgical ablation systems designed to create precise lesions, or scars, in cardiac, or heart, tissue and systems for the exclusion of the left atrial appendage. The Company believes cardiothoracic surgeons are adopting its ablation products for the treatment of atrial fibrillation, or AF, during concomitant open-heart surgical procedures and sole-therapy minimally invasive procedures. AF affects more than 5.5 million people worldwide and predisposes them to a five-fold increased risk of stroke. AtriCure is conducting clinical trials in support of an AF indication. However, to date, the FDA has not cleared or approved AtriCure’s products for the treatment of AF or a reduction in the risk of stroke.

Forward-Looking Statements

This press release contains “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements include statements that address activities, events or developments that AtriCure expects, believes or anticipates will or may occur in the future, such as earnings estimates, other predictions of financial performance, launches by AtriCure of new products and market acceptance of AtriCure’s products. Forward-looking statements are based on AtriCure’s experience and perception of current conditions, trends, expected future developments and

other factors it believes are appropriate under the circumstances and are subject to numerous risks and uncertainties, many of which are beyond AtriCure's control. These risks and uncertainties include the rate and degree of market acceptance of AtriCure's products, AtriCure's ability to develop and market new and enhanced products, the timing of and ability to obtain and maintain regulatory clearances and approvals for its products, the timing of and ability to obtain reimbursement of procedures utilizing AtriCure's products, competition from existing and new products and procedures or AtriCure's ability to effectively react to other risks and uncertainties described from time to time in AtriCure's SEC filings, such as fluctuation of quarterly financial results, reliance on third party manufacturers and suppliers, litigation or other proceedings, government regulation and stock price volatility. AtriCure does not guarantee any forward-looking statement, and actual results may differ materially from those projected. AtriCure undertakes no obligation to publicly update any forward-looking statement, whether as a result of new information, future events or otherwise.

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