# A new mapping tool for catheter ablation of persistent atrial fibrillation: High density mapping using a grid shaped catheter

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## BACKGROUND

Catheter ablation (CA) of persistent atrial fibrillation (persAF) remains a challenge with respect to outcomes, and pulmonary vein isolation (PVI) is the cornerstone of interventional treatment. Thus far, mapping has mainly been performed using circular mapping catheters. We present the first registry data in patients undergoing CA for persAF using the novel grid shaped high density (HD) mapping catheter.

## METHODS

The novel Advisor™ HD Grid mapping catheter consists of four splines with four 1mm equidistant electrodes mounted on each spline. The splines are attached at the tip to also maintain a fixed distance between the splines. The Advisor™ HD Grid mapping catheter was used to (1) assess the geometry (2) acquire electrical substrate information and (3) to assess pulmonary vein isolation. The aim of the registry was to evaluate procedural parameters as well as outcome with respect to freedom from AF during th

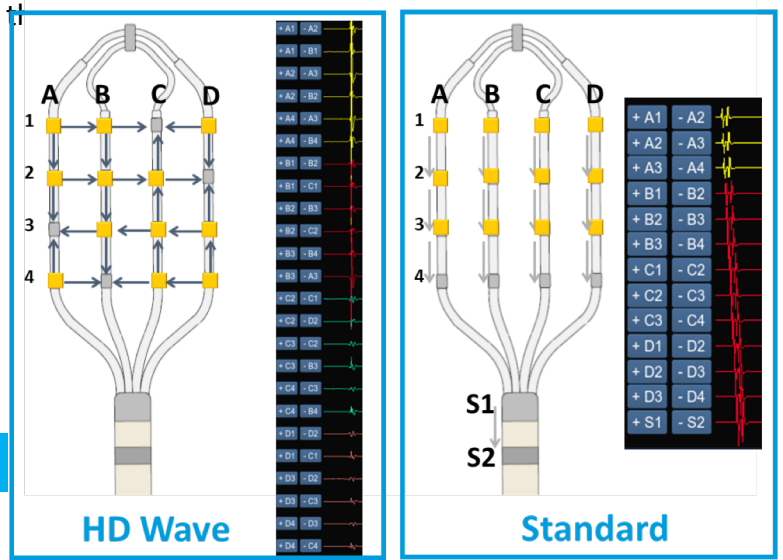


Figure 1. Illustration of HD Grid with simultaneous orthogonal bipole (HD Wave) and standard along-the-spline electrode configuration

## DISCLOSURES

A Miller is an employee of Abbott.

## RESULTS

The Advisor™ HD Grid mapping catheter was used in 333 PersAF ablation procedures (age: 64.1yr, 76.0% male, 25.2% with history of AF ablation). A PVI approach was used in 93.1% of all ablation procedures; ablation strategy was limited to only PVI in 197 (59.2%) subjects. Ablation of the left atrial roof was performed in 66 (19.8%) subjects, posterior wall isolation in 41 (12.3%) subjects, targeting of CFE in 24 (7.2%) subjects, and of isolation of fibrotic areas in 16 (4.8%) subjects.

The mean procedure duration was 134.4 ± 51.4 minutes with 14.5 ± 11.3 minutes of fluoroscopy use. An average of 9779.1 ± 8655.4 mapping points were collected in 12.5 ± 9.1 minutes per map. The procedure was considered successful in 98.8% of cases (329). Periprocedural adverse events were experienced in 4.4% of subjects, with only 1 event considered related to the Advisor™ HD Grid mapping catheter.

HD Wave Solution Configuration | Standard Configuration

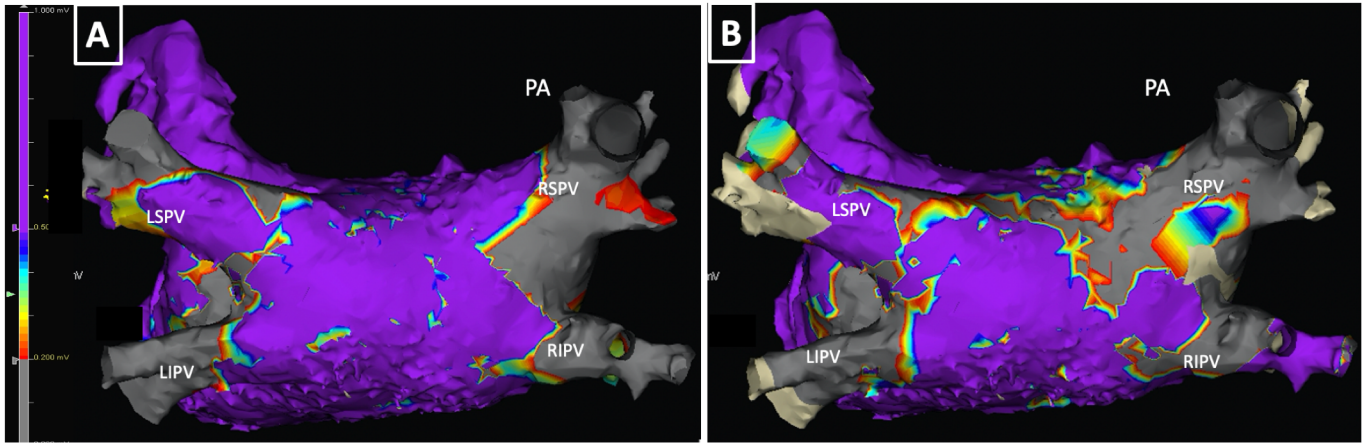


Figure2: A left atrial high density voltage map from posterior anterior view (PA) during sinus rythm in HD Wave Solution configuration. B Left atrial high density voltage map from posterior anterior view (PA) during sinus rythm in standard configuration, along the spline. Depicting Scar area < 0.2mV in gray and healthy mayocardium > 0.5mV in purple in both maps. 6789 Yellow dots depict recorded local atrial signal. LSPV left superior pulmonary vein; . LIPV left inferior pulmonary vein; . RSPV left posterior pulmonary vein; . RIPV left posterior pulmonary vein;

## CONCLUSIONS

CA procedures of persAF can safely be performed using the Advisor™ HD Grid mapping catheter. Left atrial substrate maps can be performed in relatively short time acquiring high resolution maps. Acute outcome results are comparable to other substrate-based approaches.