Introduction: Primary cardiac electrical disease is a group of diseases causing sudden cardiac death in apparently normal structural heart. This is the leading cause of sudden death in healthy adult. We report the baseline characteristic and prospective outcomes from our database.

Methods: Patients with primary cardiac electrical disease who had their follow up visit at Budhachinnarat hospital, and Siriraj Hospital, Thailand were enrolled to our study. Baseline characteristic as well as follow up data regarding to incidence of fatal cardiac arrhythmia and death were recorded in the database. Patients were contacted yearly to assess for vital status and clinical condition. For secondary ICD prevention patients, arrhythmia status was recorded from ICD interrogation.

Result: There were 160 patients enrolled from 2 cardiac centers. Most were male (70%). Mean age was 42.5 +/- 11.2 years old. Mean follow up period was 32.1 +/- 10.5 months. There was not death in this patient cohort. Brugada syndrome was the most common disease in this cohort as 65.6% of the patients were diagnosed with this condition. Less frequent diseases included premature ventricular contraction/ventricular tachycardia, and long QT syndrome for which 12.5% and 11.2% of the patients were diagnosed with respectively. Majority of patients experienced prior sudden death episode (61.2%). 71.8% of the patients underwent ICD implant. Among patients who had ICD implant for secondary prevention, recurrent fatal ventricular arrhythmia rate was 35.7%. None of the patient who had ICD implant for primary prophylaxis experienced fatal ventricular arrhythmia episode. There was not any parameter that could predict future fatal cardiac arrhythmia except history of sudden death.

Conclusion: Brugada syndrome is the most prevalence primary cardiac electrical disease from our study. ICD therapy is very effective and should be considered as standard therapy for patient who experienced prior sudden cardiac death. We could not identify any parameter that could predict future fatal arrhythmia in patients who had not experienced the episode before.