**USE AND LONG-TERM OUTCOMES OF IMPLANTABLE CARDIOVERTER DEFIBRILLATOR DEVICES IN A POPULATION STUDY**

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Objectives: Determine use and long-term outcomes of automated implantable cardioverter defibrillator (ICD) in an adult population.

Background: Implantation of an ICD has become standard therapy for patients at high risk for sudden cardiac death (SCD). Between 1988-2009 1,594 devices were implanted in patients in Western Australia.

Methods: A linked database of State-wide hospital admissions and discharges and deaths from 1980-2010 was used to identify incident cases of ICD implantation. Population rates were based on census data and Kaplan-Meier techniques used to describe cumulative survival and Cox regression models to determine the factors associated with survival. Results: The annual number of ICDs rose from two in 1988 to 245 in 2009; the population rate for adults over 22 years rose from 4.8/100,000 in 1995 to 172.9/100,000. The mean age rose from 52.6 (SD 11.6) to 64.1 (11.4) years. Ventricular tachycardia (24%), cardiomyopathy (20%) and heart failure (16%) were the most frequent principal diagnoses. Ischaemic heart disease (IHD) was the most frequent condition among the principal and additional 19 diagnostic fields (49%) followed by dysrhythmias, heart failure and cardiomyopathy. Cumulative survival to 10 years was 0.53 (SE 0.03), with poorer survival in the early half-decade (1990-94) than subsequently. Significant determinants of poorer survival were age, a history of heart failure, atrial fibrillation/flutter or IHD and implantation of an ICD before 1995.

Conclusions: ICD use in adults at risk for SCD has grown rapidly. Median survival after ICD implant was 11.3 years and, despite increasing patient age, has improved over time.