



# Sensitivity of Cardiac Arrest Reporting on the Centers for Medicare and Medicaid Services ESRD Death Notification Form

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## Introduction:

- Sudden Cardiac Death (SCD) is the leading cause of death among US maintenance hemodialysis patients based on cause of death reported on Death Notification (DN) forms mandated by Centers for Medicare & Medicaid services (CMS).
- Reliance on administrative data to determine cause of death may result in misclassification.
- Previous smaller studies have reported a sensitivity of the CMS DN form of 39% to 67% when compared to adjudicated accounts of SCD.
- We conducted this study to estimate the sensitivity of cardiac arrest reporting on the CMS DN form among a large, carefully adjudicated cohort of hemodialysis patients who suffered a witnessed SCD.

## Methods:

- ◆ **Patient Population:** 43,200 prevalent hemodialysis patients dialyzing in 565 clinics of DaVita Inc. (formerly Gambro) in the United States between 2002-2005.
- ◆ **Data Sources**
  - Clinical Event Reporting database (Electronic Record Management System: ERMS) was queried to obtain all serious in-clinic events.
  - Social security death index used to determine date of death.
  - Linkage to CMS death notification form used to compare reported cause of death.
- ◆ **Adjudication of witnessed SCD**
  - ERMS database queried for entries coded “cardiac arrest”, “cardiac arrhythmia”, “hypotension”
  - Narrative for each event was then reviewed independently by investigators to exclude non-cardiac arrest events.
  - Disputes were adjudicated by 3 physicians
  - Deaths within 24 hours of witnessed cardiac arrest were considered sudden cardiac deaths.

## Results

Figure 1: Adjudication of Witnessed Sudden Cardiac Death events

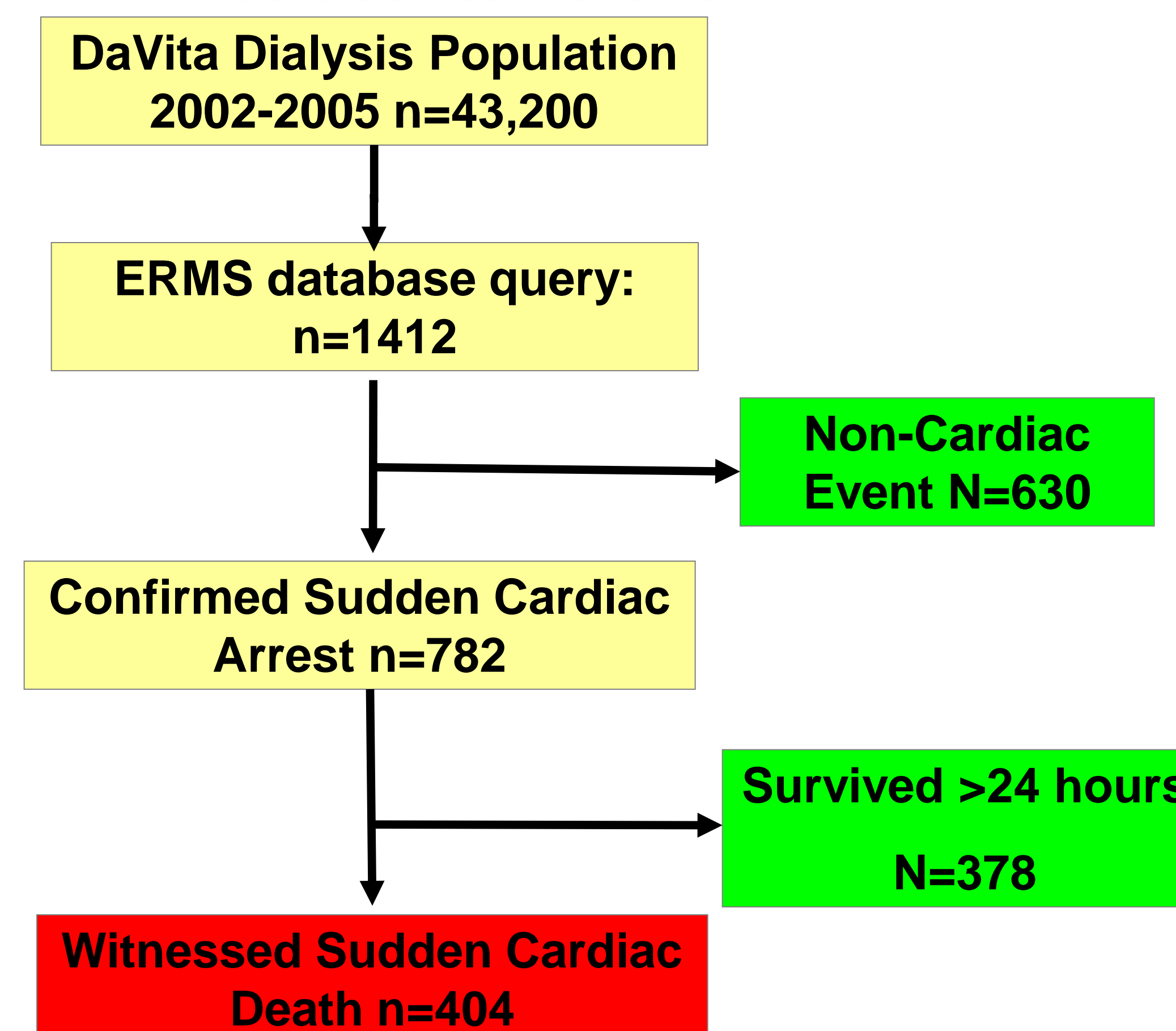
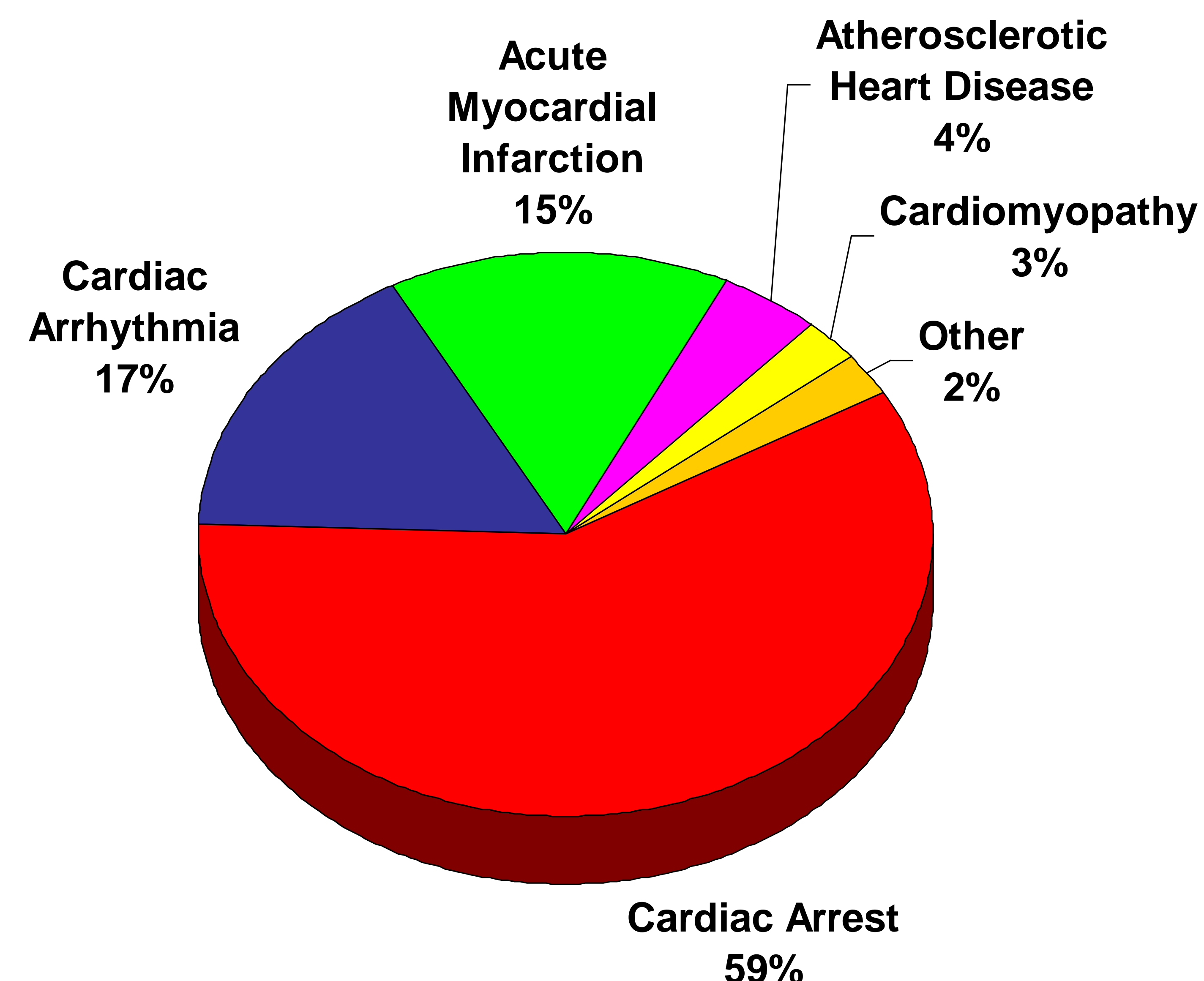


Figure 2: Reported Causes of Death on CMS DN Form for 404 Witnessed Sudden Cardiac Deaths



## Conclusion:

- ◆ Deaths coded as “cardiac arrest” and “Cardiac Arrhythmia on the CMS Death Notification Form underestimated the SCD incidence by 24%.
- ◆ Inclusion of events coded as “acute myocardial infarction” in combination with location of death as suggested by the USRDS CVSSC may substantially improve the sensitivity of SCD reporting on death notification forms.
- ◆ Studies of SCD relying solely on death classification from the CMS DN form should be interpreted with caution.

## References:

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