SUDEP
An important cause of premature mortality in epilepsy across the life spectrum

Sudden unexpected death in epilepsy (SUDEP) was originally defined as a sudden, unexpected death in an individual with epilepsy, witnessed or not, and not associated with drowning or status epilepticus, for which a cause cannot be identified upon autopsy examination. Cases can be divided into definite, probable, and possible based upon the level of diagnostic certainty, especially after postmortem examination. As research criteria have evolved, a more comprehensive set of diagnostic criteria has been derived, including the term plus to indicate that another cause could have resulted in death, e.g., SUDEP probable/plus. During the last 20 years, SUDEP has become recognized as an important cause of premature mortality in the epilepsy population and is second only to stroke as the most common neurologic disorder responsible for the most potential years of life lost due to its occurrence prior to late adulthood.

In this issue of Neurology, Sveinsson et al. report a nationwide (Sweden), population-based incidence study of all the deaths (at all ages) attributable to epilepsy occurring in 2008 from a cohort of individuals identified with a diagnosis of epilepsy based upon ICD-10 coding (i.e., G40.xx) during 1998–2005. All deaths occurring in 2008 were ascertained via the national death registry, those with clear nonepilepsy-related causes of death were excluded, and only 1 death certificate, with seizures in 18 and epilepsy in 8. Thus, SUDEP, seizure, and epilepsy were considered the likely cause of death in 27 of 99 (27%) death certificate diagnoses.

The first major take-home message from the epidemiology regards the pediatric population. The results indicate that the risk of premature mortality due to SUDEP is as great in the young as in the young adult population, which in previous work had a greater risk. Furthermore, SUDEP accounted for more than one-third of all causes of mortality in the pediatric age group. These findings should stress the importance of SUDEP disclosure in the counseling of parents for the purpose of encouraging aggressive therapy for seizure elimination, as reflected in the recent American Academy of Neurology SUDEP guideline. The suggestion that the child will grow out of the seizure disorder after intractability has been established is no longer acceptable. Why all of the deaths in the pediatric population occurred in boys awaits further explanation, but cannot be ignored as a risk factor.

The second implication of the results regards identification of individuals (particularly women) with a psychiatric comorbidity at particularly high risk for SUDEP. Thus, these patients are at additional risk compared to the already increased risk due to suicide...
in the epilepsy population. Screening for psychiatric comorbidities is feasible (and essential) in this population. Identification of a psychiatric comorbidity should alert the provider to the necessity of seizure control in this high-risk population.

Finally, the need to collaborate with medical examiner/coroner colleagues to ensure that SUDEP is listed as a likely or possible cause of death on death certificates is clearly indicated. This must occur if researchers wish to use these documents to ascertain deaths related to epilepsy as these cases are currently underreported.

The epidemiologic research of Sveinsson et al. has made a substantial contribution to our understanding of the age distribution and risk factors for SUDEP, thereby providing potential interventions and research directions for this most tragic of all outcomes for individuals coping with epilepsy and their loved ones. A multipronged, coordinated effort involving public and provider education, laboratory and clinical research, and trials of potentially preventive measures is required in the immediate future.

STUDY FUNDING
No targeted funding reported.

DISCLOSURE
J.B. reports no disclosures. G.C. receives a stipend in his capacity as an Associate Editor for Neurology. Go to Neurology.org for full disclosures.

REFERENCES