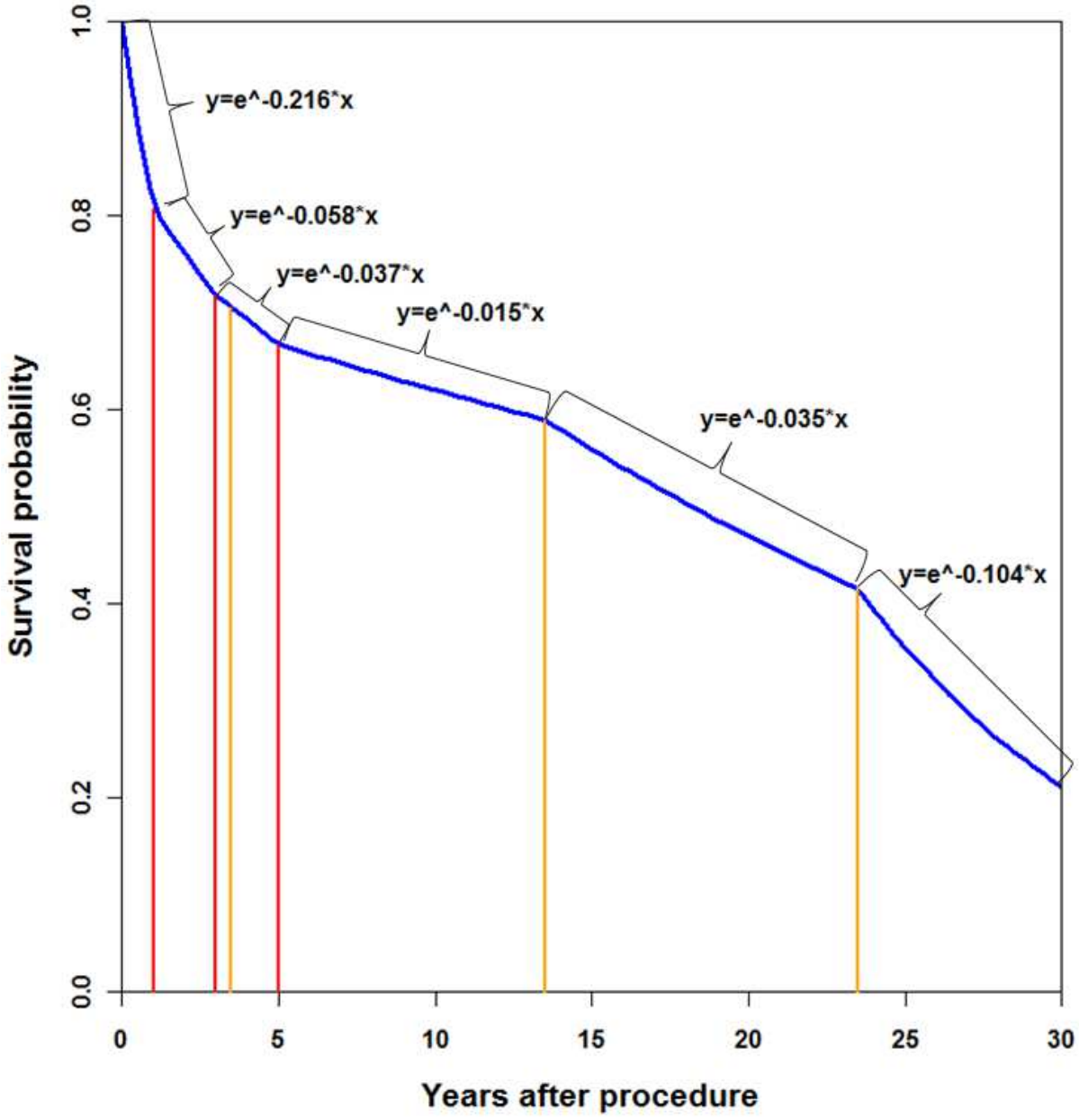
Supplemental Figure 1. Sample estimated survival curve for a patient for 0-30 years after an intracranial procedure (ICP). The overall survival curve (blue) is constructed from several exponential decay curves (sample slope equations listed). Decay curves for the first five years after an ICP (first three equations from top left) are based on mortality data for patients undergoing the same type of ICP for the first year, 3 years, and 5 years after the procedure (demarcations shown by red drop-down lines). Subsequent survival is determined from age specific mortality rates (orange drop-down lines reflect the patient shifting into the next 10-year age group). Probability of survival to a given time is determined by the height of the curve at that time. The person-years contributed by the patient for a given year is calculated by taking the integral of the survival curve for the appropriate time period.



Supplemental Figure 2. The expected number of non-iatrogenic CJD cases in 2013 among US residents with a history of intracranial procedure (ICP) in the previous 10 (a), 20 (b), and 30 (c) years. (a) We calculated estimated mortality-adjusted person-years ($P_{t,n}$ for year t and age group n) for the year 2007 among US residents with a history of ICP from 1998 through 2007 (roughly anytime in the previous 10 years). We divided these person-years into 10-year age groups (where n=1 represents ages 0-9 and n=9 represents 80+). Multiplying these person-years by age-specific CJD rates (R_n) gives the estimated number of CJD cases for the year 2007 among US residents with a history of ICP in the previous 10 years. Multiplying the summed total by the estimated six-year exponential rise in ICP procedures (I) corrects this result for the year 2013. (b) A similar procedure yielded, for the year 2017, CJD cases among US residents with a history of intracranial procedure from 11-20 years prior; this was corrected for 2013 and added to the previous total to estimate CJD cases among US residents with a history of ICP in the previous 20 years. (c) The equivalent calculation for 2027 was added in order to estimate CJD cases among US residents with a history of ICP in the previous 30 years.

a) $$E_{10} = \left[\sum_{n=1}^{9}(P_{2007,n})(R_n)\right](I^6)$$

b) $$E_{20} = \left[\sum_{n=1}^{9}(P_{2007,n})(R_n)\right](I^6) + \left[\sum_{n=1}^{9}(P_{2017,n})(R_n)\right](I^{-4})$$

c) $$E_{30} = \left[\sum_{n=1}^{9}(P_{2007,n})(R_n)\right](I^6) + \left[\sum_{n=1}^{9}(P_{2017,n})(R_n)\right](I^{-4}) + \left[\sum_{n=1}^{9}(P_{2027,n})(R_n)\right](I^{-14})$$