

## Appendix

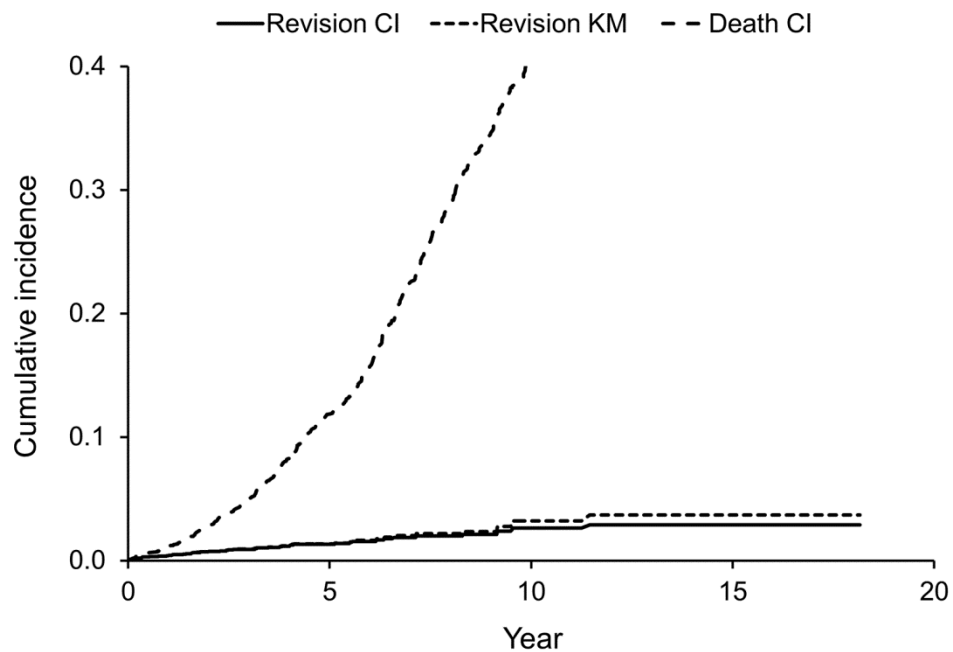
### Results

The mean patient age (and standard deviation) across tibial implant groups differed significantly ( $p = 0.0001$ ) at  $72.1 \pm 9.0$  years in the all-polyethylene group,  $67.0 \pm 10.2$  years in the metal modular group,  $70.1 \pm 9.3$  years in the metal nonmodular group, and  $62.9 \pm 9.7$  years in the monoblock group. Consequently, the cumulative incidence of death was highest in the all-polyethylene group (Fig. E-1A), where half of the patients had died by 11.7 years following the surgical procedure compared with 15.7 years in the metal modular group (Fig. E-1B). In the all-polyethylene group, the risk of death exceeded the risk of revision by a factor of 9 at five years (12% for the risk of death compared with 1.3% for the risk of revision) and a factor of 15 at ten years (41% for the risk of death compared with 3% for the risk of revision) following the surgical procedure (Fig. E-1A).

In the metal modular group (Fig. E-1B), the difference between the risk of death and the risk of revision was less than that in the all-polyethylene group (as shown by the distance between the death and revision lines in Figure E-1B). The risk of death in the metal modular group exceeded the risk of revision by a factor of 2.3 at five years (9% for the risk of death compared with 4% for the risk of revision) and a factor of 3.5 at ten years (25% for the risk of death compared with 7% for the risk of revision). The Kaplan-Meier method overestimated the risk of revision by 3% at five years, 11% at ten years, and as much as 32% at fifteen years. In other words, overestimation remained  $<10\%$  until about ten years but then reached 32% at fifteen years. Although the hazard of death among patients with all-polyethylene tibiae was significantly higher ( $p = 0.0001$ ) than that among patients with the metal modular tibial designs (hazard ratio, 1.51), this difference was no longer significant ( $p = 0.27$ ) after adjusting for age (hazard ratio, 1.05). After accounting for the higher competing risk of death in the all-polyethylene group, the cumulative incidence of revision in the metal modular group was about 2.5-fold to threefold higher than the all-polyethylene group. The pattern in the metal nonmodular group (Fig. E-1C) was similar to that in the metal modular group, but follow-up was relatively short in the monoblock group (Fig. E-1D). As shown in Figures 2-B and 2-C, the Kaplan-Meier and cumulative incidence estimates in the metal modular and the metal nonmodular groups started to diverge noticeably beyond ten years when the cumulative incidence of death reached about 25%.

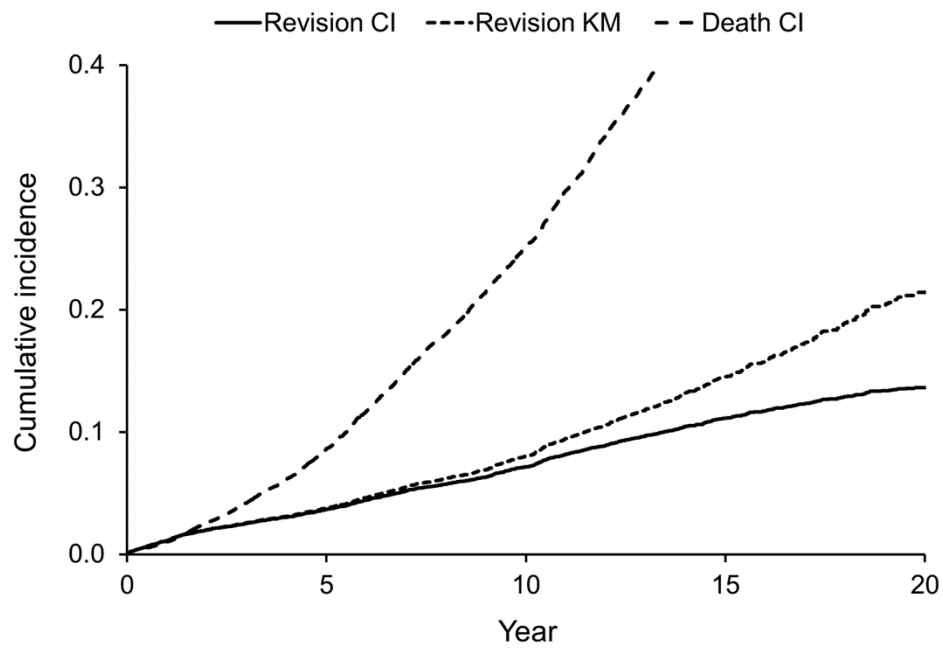
**Figs. E-1A through E-1D** Line graphs showing the cumulative incidence of death (Death CI) and revision probabilities derived using the Kaplan-Meier method (Revision KM) and the cumulative incidence function (Revision CI) in four different tibial component groups.

Fig. E-1A



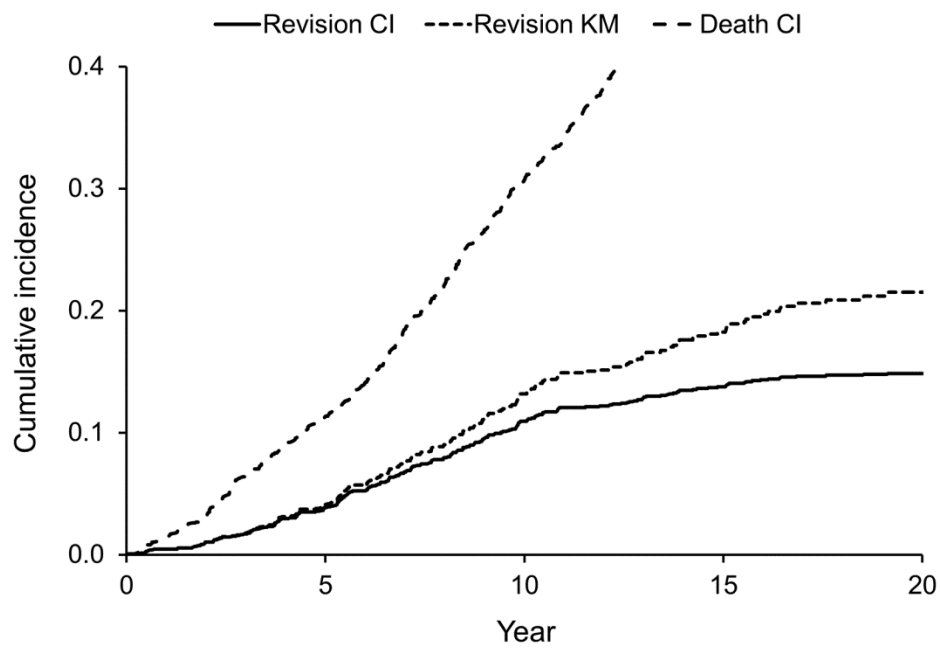
All-polyethylene group.

Fig. E-1B



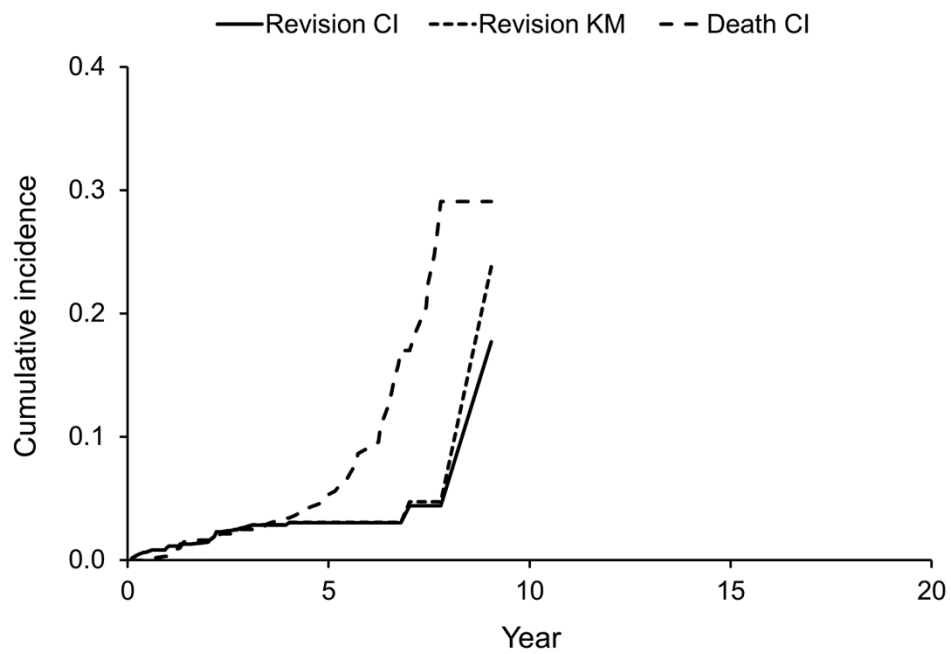
Metal modular group.

Fig. E-1C



Metal nonmodular group.

Fig. E-1D



Monoblock group.