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In Response to Letter to the Editor regarding "Mortality associated with tracheostomy complications in the United States: 2007-2016"

Letter in reply to lscope-19-0325

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No competing financial interests

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We are grateful for the comments from Drs. Klemm and Norwak, who have made important contributions to our understanding of the epidemiology of tracheostomy-related death. In their letter, Drs. Klemm and Norwak present data on incidence of death in tracheostomy from several countries and compare these data to our findings.

We would like to clarify that while our study and the referenced systematic review both examine mortality related to tracheostomy devices, they do so from very different perspectives. Our study identified deaths related to a tracheostomy complication among all death certificates in the United States.[1] Specifically, the 0.0022% tracheostomy-mortality rate suggested by Drs. Klemm and Norwak for our study, was calculated by dividing the number of tracheostomy-related deaths by all deaths in the United States general population.

This low percentage primarily reflects that relatively few people in the United States undergo tracheostomy. This statistic does not shed light on the percent of patients with a tracheostomy that die of a tracheostomy complication. Klemm and Norwak reference a well-performed systematic review of tracheostomy-related deaths in patients with a tracheostomy device.[2] The 1.4% statistic presented in this study was calculated by dividing 352 cases of tracheostomy-related death by a total of 25,056 tracheostomies performed. Unfortunately, the denominator of tracheostomies performed is not available from death certificates used for our study. Thus, while the numerators of both studies

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examine deaths related to a tracheostomy, the difference in denominators precludes meaningful comparison of death rates.

Their letter also raises the important issue of errors in reporting of deaths due to tracheostomy complications. Multiple factors may contribute to underreporting of deaths related to a tracheostomy complication, including documentation errors and lack of knowledge by providers to correctly identify if a death was related to a tracheostomy complication. There is ample evidence that reporting error is pervasive. For example, in the United Kingdom's widely publicized National Confidential Enquiry into Patient Outcome and Death, the most common organizational reasons for suboptimal care was documentation.[3]

We agree with Drs. Klemm and Norwak regarding the overall low quality of available evidence in this area and the need for further study. The limitations of retrospective studies highlight the urgent need for prospective data capture. Multidisciplinary collaboratives such as the Global Tracheostomy Collaborative allow prospective data collection, tracking of adverse events, and benchmarking of outcomes.[4] Such collaboratives offer the promise of improving reporting of adverse events and avoiding tracheostomy-related deaths.

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