Editor—We welcome the recent article by Habre and Petak1 highlighting the importance of the balance between risk and benefit for perioperative oxygen administration. The authors propose the hypothesis that the risk–benefit profile of inspired oxygen is age dependent, with higher concentrations of inspired oxygen being more harmful to the very young and very old when compared with middle-aged individuals. They go on to propose some detailed age-dependent guidance on inspired oxygen levels, including the suggestion that while caution should be used for the young and old, middle-aged patients can safely be administered high inspired oxygen concentrations intraoperatively. The authors suggest (in Fig. 2 of their article) that the benefits of a high inspired oxygen concentration (80%) outweigh the potential risks in middle-aged (undefined) patients in both the intraoperative and recovery periods and for all patients in the recovery period.

We feel that this advice is difficult to substantiate given the limited amount and inconsistency of evidence for benefit and the omission of key evidence of harm. Recent systematic reviews and meta-analyses evaluating the benefits of perioperative high inspired oxygen concentrations on reducing surgical site infection (SSI) and postoperative nausea and vomiting (PONV) have not consistently suggested benefit from this approach1−4 and the methodological and statistical quality of some frequently quoted studies has been questioned.5 Most importantly, the long-term follow-up results of the PROXI trial are not mentioned. In this large randomised controlled trial (1386 patients) comparing the effect of 30% vs 80% oxygen during and after abdominal surgery, there was no difference in SSI between groups, and the 80% inspired oxygen group had an increased long-term mortality, specifically in those patients with cancer, and a shorter cancer-free survival.6 7 This harm signal, if substantiated in further studies, would clearly invalidate Habre and Petak’s recommendations.

The evidence regarding oxygen use perioperatively is limited and the overall picture unclear. There are insufficient data to suggest that a high FiO2 is the safest approach in any particular group of patients or to provide specific recommendations that differentiate between ‘middle-aged’ and other patients. Further research is needed, in particular high-quality randomised studies, to resolve the known unknowns before such recommendations are contemplated.

Conflict of interest
None declared.

References