The intraoperative risks associated with anaesthesia care have significantly decreased over time. However, an increasing number of complications and adverse outcomes are identified during the postoperative period. A recent study using specific trigger tools identified an adverse event rate of 38.1% per 100 discharges from hospital between 2007 and 2011. A significant proportion (40.5%) of these events was associated with surgery and related procedures. These complications increase the likelihood of premature death, up to several years after surgery. Identifying patients at risk, and prevention and appropriate treatment of these complications during the perioperative period, are, therefore, crucial.

The most common complications after surgery are postoperative bleeding, sepsis and cardiac and pulmonary complications. The last of these complications is particularly relevant to the anaesthetic community because ventilation is under the control of the anaesthetist during the intraoperative period. The large cross-sectional LAS VEGAS study, partially funded by the European Society of Anaesthesiology and published in this issue of the European Journal of Anaesthesiology, highlights a number of important aspects in this area: the incidence of postoperative pulmonary complications is high (19%); patients at increased risk of postoperative pulmonary complication have a longer duration of hospital stay (4 versus 1 day for low-risk patients); these patients have a higher mortality rate at 28 days (1.7 versus 0.2%); and modifying the intraoperative ventilation regimen, beyond modification of the intraoperative peak pressure, seems to be of limited benefit for these patients.

Some aspects of the LAS VEGAS study deserve further comments. One is its large size. In all, 146 centres in and outside Europe participated in the study. Thus, our ability to generalise the study results is high. Another is the use of a validated risk score for assessment of the risk of pulmonary complications, the Assess Respiratory Risk in Surgical Patients in Catalonia score. It has a high predictive value (area under the curve 0.88). It includes straightforward and easily identifiable predictors such as age, preoperative peripheral oxygen saturation, respiratory infection in the last month, preoperative anaemia, site of surgical incision, duration of surgery and urgency of procedure. Thus, the study’s findings have a high level of validity. Another aspect to be highlighted is that the LAS VEGAS study assessed outcomes that are important for perioperative healthcare management. The finding that 28% of all patients were at risk of postoperative pulmonary complications has consequences for the management of postoperative care. As 1.6% of patients are likely to develop postoperative respiratory failure, monitored and noninvasive ventilation should be planned before surgery in patients at highest risk to avoid unavailability of beds in intermediate or ICUs.

Although highly valid and generally applicable, the results of the LAS VEGAS study should be interpreted with some caution. The secondary postoperative outcome of the LAS VEGAS study is a composite endpoint. It
Further studies investigating intensive care utilization and prospective external validation of a Eur J Anaesthesiol High levels of 2011; JAMA 2014; 330 Definitive conclusions on the optimal ventilation regimen for high-risk patients should not be drawn from this study. Nevertheless, the study’s authors, contributors and the European Society of Anaesthesiology should all be congratulated for this significant scientific contribution to the understanding of the true incidence and risk factors of postoperative pulmonary complications. It contributes to opening the research agenda in this area and hopefully further large observational or randomised studies will emerge that should improve our knowledge on this critical topic.

Acknowledgements relating to this article
Assistance with the commentary: none.

Financial support and sponsorship: none.

Conflicts of interest: none.

Comment from the Editor: this Invited Commentary was checked and accepted by the editors but was not sent for external peer review. BW is a Deputy Editor-in-Chief of the European Journal of Anaesthesiology.

References
6 The LAS VEGAS study, Investigators for the PROVE Network, the Clinical Trial Network of the European Society of Anaesthesiology. Epidemiology, practice of ventilation and outcome for patients at increased risk of postoperative pulmonary complications: an observational study in 29 countries. Eur J Anaesthesiol 2017; 34:492–507.


16 Siontis GC, Ioannidis JP. Risk factors and interventions with statistically significant tiny effects. *Int J Epidemiol* 2011; **40**:1292–1307.