REFERENCES

1. **Gemenetzidis E,** Bose A, Riaz AM, *et al*. FOXM1 upregulation is an early event in human squamous cell carcinoma and it is enhanced by nicotine during malignant transformation. *PLoS One* 2009;**4**:e4849.
2. **Murray RP,** Connett JE, Zapawa LM. Does nicotine replacement therapy cause cancer? Evidence from the Lung Health Study. *Nicotine Tob Res* 2009;**11**:1076–82.
3. **Mooney ME,** Leventhal AM, Hatsukami DK. Attitudes and knowledge about nicotine and nicotine replacement therapy. *Nicotine Tob Res* 2006;**8**:435–46.
4. **Vogt F,** Hall S, Marteau TM. Understanding why smokers do not want to use nicotine dependence medications to stop smoking: qualitative and quantitative studies. *Nicotine Tob Res* 2008;**10**:1405–13.
5. **Wilson N,** Thomson G, Weerasekera D, *et al*. Smoker misperceptions around tobacco: national survey data of particular relevance to protecting Maori health. *N Z Med J* 2009;**122**(1306):123–7.

Quality assurance in endobronchial ultrasound

In their study of endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA), Kemp and colleagues report variation in the learning curves for five operators, studied by using the cumulative sum (cusum) technique,[1] with which we have some experience.[2] The authors speculate on whether variations in lymph node size, prevalence of underlying diagnoses or rate of accrual of cases may explain these differences. We believe there may be other important influences. Successful EBUS-TBNA is a multidisciplinary process: help is invaluable from colleagues in radiology for identification of suitable target nodes, in bronchoscopy nursing for adequate specimen preparation and in cellular pathology for confident diagnosis based on cytopathological specimens alone. In our experience, each of these aspects is subject to variation between centres. In addition, it is likely that access to prior positron emission tomography (PET) scanning, or different immunocytochemical stains, may have varied. In our view the results should be regarded as being those of the centres in question, and not those of the operators alone.

Kemp and others appear to have misinterpreted the cusum plots shown in their figure 1. The authors use the graphical representation of the cusum favoured by Kestin.[3] In this representation, if the plot crosses two boundaries in succession from below, without crossing a boundary from above in between, unsatisfactory performance is confirmed for the procedure interval between the two upward crossings.[4] Competence is confirmed by analogous downward crossing of two boundaries. Thus operator 4 demonstrates unacceptable performance between procedures 50 and 70 (these procedure numbers are approximate because the graphs reproduced are too small to permit their exact estimation), and to say that he has 'attained competence almost immediately' is not the whole story. Similarly the cusum of operator 2 demonstrates unacceptable performance during the following procedure intervals: 32–43, 43–80 and 80–96. It never demonstrates satisfactory performance. Indeed, the only procedure intervals for which competence is confirmed in figure 1 or figure 2 are procedures 75–95 for operator 1 and 7–47 for operator 4. Therefore, only operator/centre1 demonstrates competence by the end of the first 100 procedures. Indeed this is the only operator/centre with evidence of any learning—the others perform no better after 100 procedures than before. An alternative interpretation of the results, therefore, is that for some, and possibly most, operators or centres, no learning curve is expected in EBUS-TBNA at all, provided that standards substantially lower than those in the published literature are accepted.

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REFERENCES

1. **Kemp SV,** El Batrawy SH, Harrison RN, *et al*. Learning curves for endobronchial ultrasound using cusum analysis. *Thorax* 2010;**65**:534–8.
2. **Slade MG,** Pengelly GC. Cusum analysis to assess competence at transbronchial needle aspiration (TBNA): how many are enough? *Thorax* 2004; **59**:ii66.
3. **Kestin IG.** A statistical approach to measuring the competence of anaesthetic trainees at practical procedures. *Br J Anaesth* 1995;**75**:805–9.
4. **Bolsin S,** Colson M. The use of the Cusum technique in the assessment of trainee competence in new procedures. *Int J Qual Health Care* 2000;**12**: 433–8.

Authors' response

We agree with Drs Slade and Slade that success in endobronchial ultrasound-guided transbronchial needle aspiration relies on many factors other than the skill of the actual bronchoscopist and, as such, the term 'operator' may have been misleading. Nevertheless, the operator is going to have the greatest bearing on the results obtained. The article[1] was intended to highlight the need for more accurate methods of assessment of competency in any given task or procedure, using endobronchial ultrasound-guided transbronchial needle aspiration only as an example.

I am sure Drs Slade and Slade recognise that, as in medicine, there are valid alternative interpretations for data. In the referenced paper by Bolsin and Colson,[2] the discussion of Kestin's Cusum plots states that 'acceptable performance will be denoted on this format by a Cusum line which is roughly horizontal or down-sloping'—that is, a line crossing multiple decision intervals from above is not required to say that performance is acceptable. While a horizontal line does not indicate learning per se, this may not necessarily be an appropriate objective in more experienced practitioners/centres where the focus is on monitoring ongoing competence.

The interpretation of statistical methods is always open to differences, but there is little doubt that Cusum analysis allows the effective monitoring of practices and procedures and, when a change in outcomes is observed (whatever predetermined criteria are used), we as clinicians should reflect on our practice in order to determine which aspects of that practice require attention.

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REFERENCES

1. **Kemp SV,** El Batrawy SH, Harrison RN, *et al*. Learning curves for endobronchial ultrasound using cusum analysis. *Thorax* 2010;**65**:534–8.
2. **Bolsin S,** Colson M. The use of the Cusum technique in the assessment of trainee competence in new procedures. *Int J Qual Health Care* 2000;**12**:433–8.

Effect of statins on cancer in chronic obstructive pulmonary disease

We read with interest the article by van Gestel *et al*[1] reporting a protective effect of statins on cancer mortality in chronic obstructive pulmonary disease (COPD) patients and suggest here a plausible explanation.

Consistent with the literature, the study shows that COPD is associated with an elevated risk of lung cancer. Recently, we reported that COPD is pre-existing in 70% of lung cancer cases compared with 15% in unselected matched smokers.[2] We agree with van Gestel *et al*[1] that this link is likely to be secondary to a pro-inflammatory disposition resulting from both smoking and genetic susceptibility. In this regard serum interleukin (IL)-6, which is elevated by genetic and