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Adverse Drug Events Link to Severity of the Event Data Needed

To the Editor:

Although thought provoking and likely to lead to significant research in the future, the data presented by Nanji *et al.*[1] are not sufficient to support a conclusion that medication errors (MEs) occurring during the course of anesthesia lead to *meaningful* harm. A primary concern is the tenuous link between MEs and adverse drug events (ADEs). Forty of 91 actual ADEs were not related to MEs and were considered "nonpreventable." No tabulation of the harm caused by these events is given, and it is possible that most of the significant and life-threatening outcomes fell into this category. Of the remaining 51 ADEs, the Naranjo algorithm determined that only about half were "probably" related to the ME, and the other half were considered "possibly" or "doubtfully" due to the error. Thus, MEs may have caused or contributed to less than a third of the ADEs. The overall rate of 28 of 3,671 (0.8%) is considerably smaller than the undifferentiated error rate of 193 of 3,671 (5.3%) and ADE rate of 91 of 3,671 (2.5%) offered by the authors.

A more critical look at the data is necessary to avoid the impression that MEs during anesthesia are a source of significant patient harm and to provide a proper baseline rate for future studies that attempt to lower the rate of ADE during anesthesia by behavioral or technical means. (One can imagine the results of this study being used to promote new barcode/syringe labeling systems, for example.)

What is needed for clarity is a table that gives counts (not percentages) of ADE distributed across the categories of severity. Then the reader can see if the data support the implied conclusion that preventable MEs actually caused significant harm. The authors may wish also to explain why the severity scale starts at "serious," rather than some lesser degree of harm. In table 1, we present a suggested format for a table to be published as part of the authors' response.

Table 1. Occurrence of Adverse Drug Events *versus* the Severity of the Event

	Preventable ADE (Yes ME)		
Severity	ADE Probably Related to ME	ADE Possibly or Doubtfully Related to ME	Nonpreventable ADE (No ME)
Life threatening			
Significant			
Serious			

ADE = adverse drug event; ME = medication error.

Competing Interests

The authors declare no competing interests.

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Counting Errors: Medication or Medical?

To the Editor:

We congratulate Nanji *et al.*[1] for their recent prospective, observational study defining the frequency of medication errors (MEs) and potential adverse drug events (ADEs) in the operating rooms of the Massachusetts General Hospital, Boston, Massachusetts. We read this article with great interest, considering the sensational headlines it has generated in the mainstream media because the incidence of MEs was much higher than previously described. We must take this information seriously and identify methods for reducing MEs and ADEs; however, because of the effort and resources required to address such issues, we must also question the validity and consistency of these data and the conclusions they have generated.

To examine the accuracy of the measured ME rate, we must begin by examining the definition of ME used by Nanji *et al.* While adopting the definition to the perioperative setting, the author combined a commonly used definition for ME with one that is taken from an article on *medical* errors not MEs.[2]