the difference would be that $\bar{t} = 1/\lambda$ while $t_{1/2} = 0.693/\lambda$, where λ is the initial slope of the exponential. The 15-sec difference would then correspond to an average value of 48.3 sec for $\bar{t}$ and 33 sec for $t_{1/2}$, corresponding grossly to the values plotted in their Fig. 6.

MICHAEL L. GORIS
Stanford University School of Medicine
Stanford, California

REFERENCE

1. ALPERT NM, MCKUSICK KA, CORREIA JA, et al.: Initial assessment of a simple functional image of ventilation. *J Nucl Med* 17: 88–92, 1976

Reply

As we stated in our paper, the $t_{1/2}$ index assumed a single-exponential model, while $\bar{t}$ is essentially model-independent. The paper does not state, nor should the reader infer, that one index is superior to the other. In fact, each uses a single parameter to characterize the complex data of tracer clearance. These indices appear sufficient to quantitate regional ventilation relevant to the diagnosis of pulmonary embolism, but they may not be satisfactory for analyzing more subtle ventilation abnormalities. Very long washout times are difficult to measure accurately with either method unless data are collected for extended periods.

Figure 6 of the text indicates that $\bar{t}$ was, on the average, about 15 sec greater than $t_{1/2}$. This trend could be predicted from first principles. Since the overall washout curve is not single-exponential, the first half-time emphasizes the early, more rapidly falling data. The second half-time would be greater than the first, and so on. Because the mean transit time uses all of the data and includes the effect of the more slowly clearing tracer, the fact that $\bar{t} > t_{1/2}$ is not surprising, but to be expected.

That the average values of $\bar{t}$ and $t_{1/2}$ computed for the single-exponential model agree with the data of Fig. 6 is interesting but fortuitous, since the data are clearly not well represented by a single-exponential curve over their entire range.

NATHANIEL ALPERT
JOHN CORREIA
Massachusetts General Hospital
Boston, Massachusetts