Surgical Demand Time Variance: A Possible Explanation for Lunar
Effects and Some Other Mysterious Cycles

To the Editor:—In response to Moore et al. “Observations on Surgical
Demand Time Series: Detection and Resolution of Holiday Variance,” September 2008, it is worthwhile to speculate on the origin of some of the highly significant nontrivial cycles of surgical de-
mand time that were detected in the authors’ frequency analysis and
that were not attributable to statutory holidays or other “trivial ex-
planations.”

I would propose the possibility that at least two of the highly
significant nonlinear variances are readily attributable to the cycle of Jewish holidays not accounted for in the authors’ United States
statutory holiday variance model. The 28.09-day cycle which the
authors may rightly ascribe to possible “lunar effects” perhaps
reflects the Jewish lunar calendar during which the three major festivals of Sukkoth, Passover, and Shavuot each occur at the full
moon of their respective lunar months, and during which observant
Jews refrain from most forms of non-life-saving work. Moreover,
the 8.08-day cycle may reflect the power of a single 8-day cycle
occurring during the Jewish high holidays between the second day
of Rosh Hashanah and Yom Kippur. Again, observant Jews would
refrain from work, including nonemergent surgeries, during these
days.

Lending credence to this theory is the subjectively notable bump
in variance in figure 7 that occurs after Labor Day and before
Columbus Day during the period of the Jewish high holidays. Al-
though the authors do not specify which major academic institu-
tion was the source of their data, the possibility of its coming from the University of Pennsylvania, home to one of the study authors as
well as a large population of observant Jews, may lend further
credence to my suggestion.

It would be interesting to see how accounting for some widely
observed nonstatutory United States holidays such as the Jewish holi-
days mentioned above may have affected the authors’ analysis. Of
course, the data itself will ultimately determine the importance such
holidays might have held in the analysis of the authors. If the above
explanation were validated, it might perhaps lead to improved models
for predicting surgical demand.

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Reference
demand series: Detection and resolution of holiday variance. ANESTHESIOLOGY 2008;
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In Reply:—The authors are grateful to Dr. Schonberger for his
thoughtful comments with respect to our recent manuscript entitled
“Observations on Surgical Demand Time Series: Detection and Resolution
of Holiday Variance.”

Dr. Schonberger’s speculations regarding the Jewish lunar calen-
dar are astute, and we believe they may have merit. We are inves-
tigating these nontrivial cycles of surgical demand further and hope
to determine a definitive answer in the near future.