A Suggested Method for Converting NBME Subject Examination Scores to Percentage Grades for Inclusion in a Course Grade

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This suggested method for converting NBME Subject Examination Scores to Percentage Grades is based on using the standardized scores (mean and standard deviation) obtained from the NBME; this standardized score has a mean of 70 and a standard deviation of 8 normed on a national sample of medical students. This method also uses the mean grade in the course (without including the NBME examination score) and the variation (standard deviation) in course grades.

Assume we have a mean score on the NBME Subject Examination of 71.7 for the approximately 60 students who have just taken the examination at our medical school and that the mean percentage grade in the course (not including the NBME examination score) is 85.7 percent. Also assume that the standard deviation value for the NBME subject examination scores reported on the score report is 8.2 while the standard deviation for the cumulative course grades is 7.7 percent.

The first step in the process is to convert each individual’s NBME score into a z-score (the number of standard deviations that score is above or below the mean). The second step is to convert that z-score into a percentage score using the mean and standard deviation for the cumulative course grades. If the student is .354 standard deviations above the mean on the NBME examination, he/she will end up being .354 standard deviations above the mean for the converted percentage grade.

Assume the student has obtained a score of 74 on the NBME Subject Examination.

**EXAMPLE:**  
\[
\begin{align*}
z &= \frac{74 - 71.1}{8.2} = 2.9 = +0.354 \\
\text{(This student’s score is .354 standard deviations above the mean.)}
\end{align*}
\]

Converted Grade = 85.7% + (+0.354)(7.7%) = 85.7% + 2.7% = 88.4%

Assume the student has obtained a score of 65 on the NBME Subject Examination.

**EXAMPLE:**  
If an NBME score is below the class mean, e.g., 65, the z-score is:

\[
\begin{align*}
z &= \frac{65 - 71.1}{8.2} = -6.1 = -0.744 \\
\text{Converted Grade} &= 85.7% + (-0.744)(7.7%) = 85.7% - 5.7% = 80.0%
\end{align*}
\]

For clerkships, it is suggested that the mean and standard deviation from cumulative clerkship percentage grades be taken for all students from the previous year (approximately 60) as the basis for the conversion rather than using the mean and standard deviation from each current rotation group of eight to twelve students.