Hundreds of relevant studies of new or existing therapies are published each year. Interpreting the results in a way that is useful to both you and your patients is an important skill.

Consider the recently published Heart Protection Study, which assessed the effect of simvastatin on specific cardiovascular outcomes and mortality by comparing it with placebo among 20,536 adults with pre-existing cardiovascular disease. Table 1 summarizes the effect of simvastatin, 40 mg once daily, on all-cause mortality after 5 years.

The proportion of patients in the simvastatin group who died was 1328/10,269 or 0.129 (12.9%); the proportion of the placebo group who died was 1507/10,267 or 0.147 (14.7%). The evidence suggests simvastatin is superior in reducing mortality. But how significant is the difference?

One way to translate these results into a more useful form is to determine the number needed to treat (NNT). The NNT in this case refers to the number of people one would need to treat with simvastatin to prevent 1 death. The first step is to determine the absolute risk reduction (ARR), which is simply the difference in the proportion of outcomes in the two treatment groups. In this case: 

\[
ARR = 0.147 - 0.129 = 0.018.
\]

The NNT is simply the inverse of the ARR. In this case NNT = 1/0.018 = 56. Therefore, 56 people with cardiovascular disease need to be treated with simvastatin to prevent 1 death in 5 years.

Is this reasonable? There is no absolutely correct answer. An appropriate NNT depends on the risks and benefits of treatment. A higher NNT is tolerable even with significant adverse effects if the treatment prevents a serious outcome such as heart disease or death. Migraine, by contrast, is not life-threatening. Treating 56 migraine sufferers to cure a single headache is unreasonable. The NNT for treatment of migraine with subcutaneous sumatriptan vs placebo is about 2.

### Table 1

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Patients</th>
<th>Deaths in 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simvastatin 40 mg</td>
<td>10,269</td>
<td>1328</td>
</tr>
<tr>
<td>Placebo</td>
<td>10,267</td>
<td>1507</td>
</tr>
</tbody>
</table>

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**REFERENCES**


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