



The Savvy Practitioner

A bulletin for practitioners and teachers of evidence-based practice.

Target audience this issue:

- ✓ *Classroom faculty*
- ✓ *Clinicians*
- ✓ *Teaching material for EIP core instructors*

Mark your calendars!

2017 PIE conference (EIP workshop)

This conference targets both faculty training and workshops for curricular planners. It is sponsored by CEIPE and Northwestern University of Health Sciences (NUHS). It will be held at the NUHS campus in Minneapolis, Minnesota.

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Numbers Needed to Treat (NNT)

You are reading about the benefits of taking a zinc supplement for combating colds and see that the NNT is 5 for symptom reduction in seven days. *But what does this actually mean?*

When comparing two different interventions (e.g., a zinc supplement and a placebo), researchers found that some patients improved no matter what they took. And maybe some didn't respond to either intervention. But more patients who took zinc had their symptoms resolve within 7 days compared to those who took the placebo.

The number needed to treat (NNT) offers a measurement of the impact of a medicine or therapy by estimating the number of patients that need to be treated in order to get one additional patient better.

For example, an NNT of 5 means that for every 5 patients who took zinc, one patient will get better within a week *who otherwise would not have*.

Let's look at some other examples:

- *The NNT is 1.8 for HVLA adjustments compared to mobilization in a patient with neck pain. (Dunning 2012)*
- *The NNT is 125 for blood pressure medication taken for 5 years to prevent death. (Wright 2009)*

The NNT itself refers to the number of treated patients who responded, not how much better they got. Therefore, NNT's should be expressed with as much context as possible. An NNT of 5 could represent a 5% reduction, 30% reduction, or 100% reduction of symptoms. It is important to define what treatment success is when looking at an NNT.

You should also see what the therapy was compared to, what the difference of treatment outcome measures was, and whether the difference was clinically significant.

The NNT is just one more way to communicate the effectiveness of a treatment. It is growing in popularity and is now often reported in RCTs and systematic reviews on therapy.

Help your students understand how to read and understand the research literature.

**Want to know more?
Want handouts for
your students?**

**Consult the Educator's
Exchange!**

Click through the following webpages: [EIP Resources](#) > [Reading Research Results](#) > [NNT/NNH](#) and download more materials on number needed to treat.

**Lost your link to the
Educator's Exchange?**

Try <http://bit.ly/CEIPE>.

You will need your password and user name.

**Don't have access to the
Educator's Exchange?**

To sign up for this closed website, just contact rlefevre@uws.edu and you will be sent an invitation to set a username and password.

Another Useful Website?

<http://www.thennt.com> is a good website for obtaining NNT and NNH values (but is limited for musculoskeletal conditions).

What is considered to be a "good" NNT?

As a general rule of thumb, an NNT of 5 or under for treating a symptomatic condition is usually considered to be acceptable, and in some cases even under 10; however, in prevention studies the NNT will be much higher. Consider the following examples:

- *The NNT is 61 for the Mediterranean Diet for preventing heart attack, stroke, or death (Estruch 2013)*
- *The NNT is 36 for Vitamin D supplementation in the elderly for preventing hip fractures (Sanders 2010)*

But what qualifies as a "good enough NNT" is really a judgment call based not only on the NNT itself, but also considering the following:

- How robust was the treatment outcome?
- The cost of the treatment? (is it expensive?)
- The risk of treatment? (side effects?)
- Is a better treatment available?

Calculating an NNT

Sometimes an NNT is not reported. But it is easily calculated if you know the Absolute Risk Reduction (ARR). The ARR = CER (Control Event Rate—e.g., the percentage of patients not taking vitamin D who got a hip fracture) – EER (Experimental Event Rate-- e.g., the percentage of patients taking vitamin D who suffered a hip fracture).

The NNT is the inverse of the ARR: **NNT = 1/ARR**. NNTs are usually rounded up to the nearest whole number.

Example

The ARR is the amount by which a therapy changes the risk of a particular outcome. For example, if a drug reduces the risk of a particular infection from 50 per cent to 30 per cent, the ARR is

$$\text{ARR} = \text{CER} - \text{EER} = 0.5 - 0.3 = 0.2 \text{ (20 per cent)}$$

Therefore:

$$\text{NNT} = 1/\text{ARR} = 1/0.2 = 5$$

The same concepts regarding NNT reviewed above can be used to assess harm and calculate *number needed to harm* (NNH). NNH is the number of patients who, if they received the experimental treatment, would lead to 1 additional patient being harmed, compared with patients who received the comparison treatment.

References

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- Estruch R, Ros E, Salas-Salvadó J, et al; PREDIMED Study Investigators. Primary prevention of cardiovascular disease with a Mediterranean diet. *N Engl J Med*. 2013 Apr 4;368(14):1279-90.
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