Therapy

In the past, "conventional wisdom" had dictated that if a child had an ear infection, a physician would prescribe a course of antibiotics. Sounds logical, but did antibiotics really help? When the evidence was examined, it became clear that antibiotics were NOT necessarily the first line of treatment in otitis media. How many other treatments occur because "it seems like the best way to do it" or, probably more commonly, "that's always the way it has always been done"?

Knowing the evidence behind a therapy prior to recommending it is a vital skill that you will (and should) use again and again as a clinician. Understanding concepts such as **absolute risk**, **absolute risk reduction**, **relative risk** and **number needed to treat** are the tools you will use to understand good evidence in therapeutics.

Absolute Risk = the probability of a person having a disease, or, the probability of demonstrating a certain outcome in an RCT.

Absolute Risk Reduction = the outcome of an RCT, in percent, of an intervention group **minus** a control group.

Relative Risk = Number of times, more or less than one, that an event will occur in one group versus another.

Number Needed to Treat = the number of patients that need to be treated in order to achieve **one** favorable outcome.

Applying "the numbers"

Each of the above terms will be displayed in the Evidence-Based literature *numerically*. Often times, not all of the numbers will be present. So, understanding how the numbers relate to one another and how to make some simple calculations will save you time and effort in understanding an outcome. Here's how it works:

You read a randomized controlled trial about a new drug therapy for prevention of stroke. The paper indicates that during a three-year trial, 8% of those in the *intervention* group had a stroke while 17% in the *control/placebo* group had a stroke. You want to know the **number needed to treat (NNT)**, a figure that can have much more relevance, understanding and impact in a conversation with your patient than a discussion of "percentage of risk". Knowing these two numbers, it's easy to figure out the NNT.

Absolute Risk – Intervention Group (ARi) = 8%
Absolute Risk – Placebo/Control Group (ARp)   =17%

Subtract the ARp from the ARi.

8 minus 17 = -9 / *Absolute Risk Reduction* (ARR) =9% (or .09)
          (converted to positive number)

Divide the ARR as a percentage into 100 to determine the NNT

NNT = 100 ÷ 9 = **11.1**
     (*Or* 1 ÷ .09 = 11.1) *Round down to the nearest whole*
                    number, 11

This means that you need to treat **11** patients for **3** years with the new drug to prevent **1** stroke. Armed with this number (and hopefully a **Number Needed to Harm** as well), you can discuss the benefits and risks of a recommended therapy with your patient with confidence. And, the great part is, it's all statistical math *that you can often do in your head!*