STATISTICAL TERMS- made simple

Consider: Antibiotics in children with Otitis Media

                          2 groups   Treatment group: with antibiotics
                                          Control group: NO antibiotics

                          Study to measure symptom of pain at 7 days

Results as follows:

Results	Treatment Arm	Control Arm
Still had pain	20	29
No pain	91	85
Total number	111	114

Let's look at some terms and relate them to these results:

RISK   20/111 = 0.18   29/114 = 0.25
                          Risk of having pain is 18% Risk of having pain is 25%

ODDS   20/91 = 0.22   29/85 = 0.34

ODDS is a similar way of looking at the risk.
Odds are used in metanalyses where several studies are used

RELATIVE RISK   RR = 0.18/0.25 = 0.72 (72%)
(OR RISK RATIO, RR)   If:
                          RR=1 This implies that there is no difference in pain
                          RR<1 This implies that there is less risk of having pain with
                                                antibiotics

ODDS RATIO (OR)   OR = 0.22/0.34 = 0.6

RELATIVE RISK REDUCTION   RR = 0.72 ie less pain with antibiotics, but by how much?
(RRR)   I - 0.72 = 0.28 (28%) ie antibiotics reduce pain by 28% = RRR

                          Another way of doing it is:
                            (Control - Treatment)/Control = 0.25-0.18/0.25 = 0.28 = 28%

ABSOLUTE RISK   = control risk - treatment risk
REDUCTION(ARR)   = 0.25-0.18 = 0.07 (7%)
   (aka risk difference) i.e. 7% of Children would have benefited from antibiotics with
                          respect to pain symptoms

NUMBER NEEDED TO TREAT   Defined as 1/ARR
(NNT)   = 100/7 = 14
                          i.e. need to treat 14 children for 1 to benefit from antibiotics
                          with respect to pain
                          CLINICALLY, NNT IS THE MOST USEFUL OF THE INDICES