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Dr Josie Higson has performed some data analysis for us using data collected from 57 cases with **no** OME history obtained from a Belfast school as part of our Speech-in-Noise study.

The raw statistics are presented below and are followed by some descriptive analysis.

Dr Higson recommends the speech in noise test be performed twice to improve reliability, but presents data for the 57 children who performed the test at least once, and the subset of 31 whom performed the test twice.

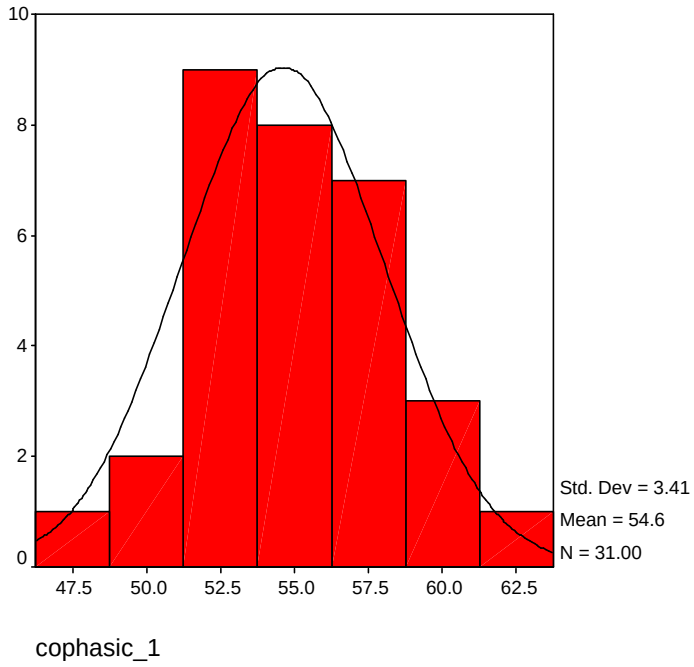
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
cophasic 1st test	57	47	69	55.14	3.456
cophasic 2nd test	31	45	59	52.77	3.074
Valid N (listwise)	31				

To see whether the children furnishing a repeat measurement are less, or more, seriously affected cases, the next table shows only the 31 who performed the test twice.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
cophasic 1st test	31	47	63	54.61	3.413
cophasic 2nd test	31	45	59	52.77	3.074
cophasic av of 2 tests	31	48.00	61.00	53.6935	2.71931
Valid N (listwise)	31				



The mean of the **first** cophasic measure for the 31 cases, of which the distribution is shown in the figure, is only about 0.5dB better than for the full set. The distribution is only slightly skewed. The difference between the means for the first and second test lies largely in a practice effect of nearly 2dB. As this is approaching two thirds of a standard deviation, hence of comparable (moderate) size with most worthwhile treatment effects that one might expect to find, it will be crucial to consider practice effects in general, particularly for the first-ever such test. They are not absent from absolute thresholds in quiet, either, although often overlooked. More specifically, it will be important to apply the norms respectively appropriate to a single or a dual determination.

Thus, there are two options for considering norms:

1) Where the test is performed only once (not recommended):

The mean +1SD is 54.61 + 3.413 = 58.0 dB (for the 31 cases) and 55.14 + 3.413 = 58.6 dB (for the 57 cases), corresponding to normal cases scoring below these values. Taking a normative cut-off of 58 dB corresponds well with the value of 58.3 dB, above which the ability for treated cases in TARGET to show speech-in-noise benefit compared to controls increased almost 2-fold, i.e. cases above 58.3 dB show most ability to benefit from surgery. (MRC Multicentre Otitis Media Study Group, to appear in Clinical Otolaryngology in October 2004).

2) Where the test is performed twice as (recommended):
The value for the **average** is 0.9 dB (53.6935 – 52.77) lower than for the single test (table 2) because the value for the second is nearly 2dB lower. Therefore the normative value could be adjusted by up to this amount. However we must caution that our repeat cophasic measure was performed as the fourth test in the ABBA series so the practice effect for the second of only two determinations might actually be less than this.

Interpretation of the SNR scale

Clients may need reminding that in disability terms dB SNR does not equate to dB HL, although the relationship seems to be linear in several datasets including ours. On our complete sample (over 200 cases) we found:

SNR = 50.94 + 0.247*HL (averaged over two visits)

In other words, 1dBSNR corresponds in disability terms to 4 dBHL for children ranging from normal to severe OME conductive loss. **This conversion should not be applied to children with permanent sensorineural hearing loss.** If we take a more restricted clinical population, cutting off at 15dBHL at visit 1 and 20dBHL at visit 2, three months later, then the conversion becomes:

SNR = 48.28 + 0.336* HL (averaged over 2 visits)

Or, in other words, within the clinical group the conversion expressing disability changes to 1dBSNR for 3 dBHL. Obviously, the initial constant, roughly reflecting the average, must be worse in a wholly clinical group, here by over 2 dB (ie only about 2dB of HL's worth, given the large majority of clinically affected children in common between the two samples differing only in presence/absence of a normal tail).