The purpose of this experiment was to measure temporal acuity and spectral resolution of hearing in new hearing-aid users over a period of time post-fitting, and to demonstrate the extent to which performance might change over time. For one-octave wide maskers with and without spectral and temporal gaps, masking was measured repeatedly over 3 months post-fitting. GRM was characterized as the release from masking under the gap conditions. The cognitive skills of the participants were assessed with two tests for measuring working memory capacity and lexical vigilance. The results showed that while the masking by one-octave wide noise maskers without any gaps was constant over time, GRM increased over time for maskers involving a temporal gap. Moreover, at low frequencies where the subjects had normal hearing-threshold levels, they performed as hearing-impaired for the spectral-gap condition. For the temporal-gap condition, they performed as normally hearing at both low and high frequencies. These results suggest that patients with precipitous hearing loss do not maintain normal spectral resolution through the low-frequency region, in which the hearing threshold levels are otherwise normal. Surprisingly, the results also showed moderate though highly significant correlation between lexical vigilance and GRM. [Work supported by the William Demant Foundation.] a)Currently at CNBH, Dept. Physiol., University of Cambridge, CB2 3EG Cambridge, UK.