The Graphic User Interface for *in vivo* XRF bone lead analysis.

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Over the past decade widespread reduction in population exposure to lead has called for increasing improvements of both the apparatus and the spectral processing techniques of X-ray fluorescent analysis to assess *in vivo* lead concentration in human bones.
The authors have substantially corrected earlier formalism (Gordon et al., 1994) for the calculation of lead concentration and concentration uncertainties (Kondrashov and Rothenberg, 2001) .

To make spectral analysis easy to use for the regular staff of toxicology laboratories the authors have developed a graphic user interface (GUI) for XRF bone lead analysis. The GUI has been developed on Visual Basic 6.0 platform and includes the following main features: a) reading spectral data transformed into text format from Canberra DSA-2000 analyzer, b) constructing the calibration dependencies from the set of phantom spectra, c) calculation of the lead concentration for *in vivo* analysis.

A typical GUI view is shown below. The authors provided comparison between results obtained with earlier formalism (Gordon et al., 1994) and their own, implemented into GUI.
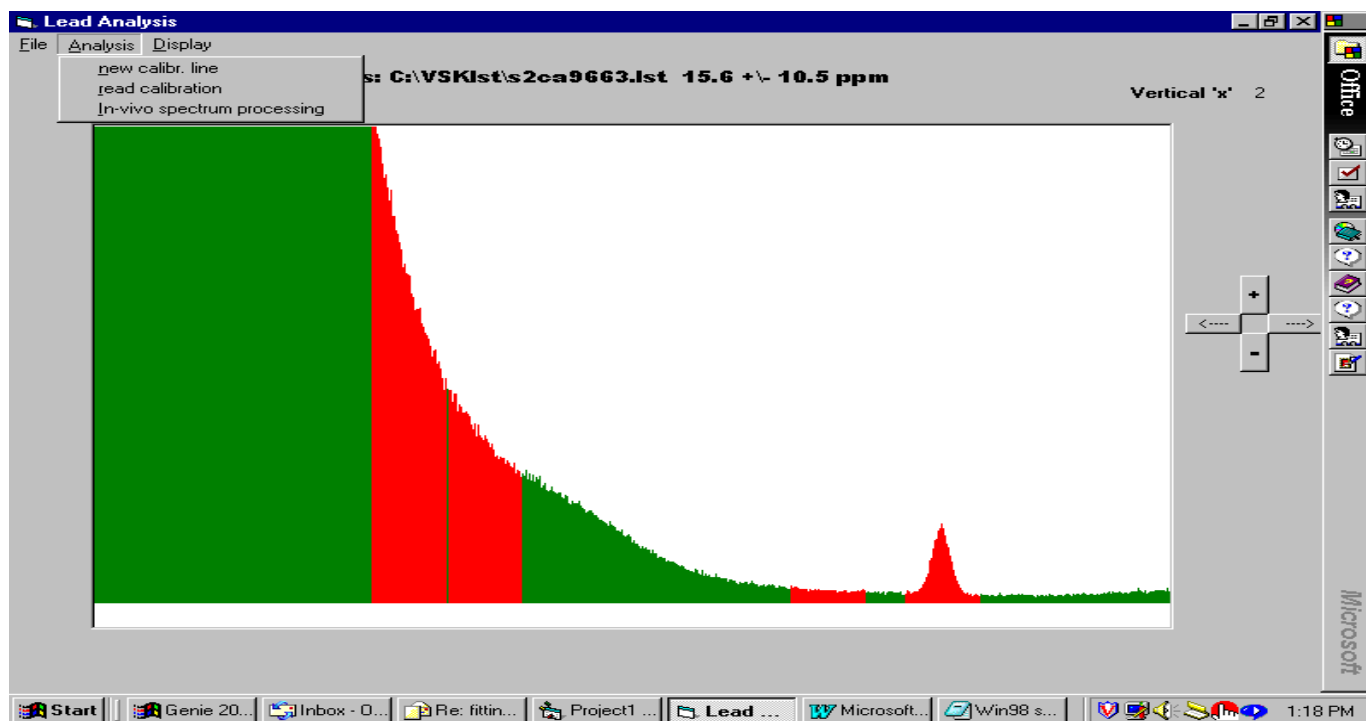
Literature:

Gordon C.L., Webber C.E., Chettle D.R., 1994, The reproducibility of ^{109}Cd-based X-ray   Fluorescence Measurements of Bone Lead. Environ. Health Perspect, 102, 690-694

V.S. Kondrashov and S.J. Rothenberg, 2001, "How to Calculate Lead Concentration and Concentration Uncertainty in XRF in-vivo Bone Lead Analysis", accepted for publication, Applied Radiation and Isotopes.

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