
Brief Research Report

THE COSTS OF ACCREDITATION FOR SMALL ANALYTICAL CHEMICAL LABORATORIES ***George Peplow[†] and Leila Valenzia***Department of Chemistry, University of Malta, Msida, Malta.*

Quality assurance programmes for laboratory accreditation must be fairly judged (benefits derived vs costs involved), especially for small laboratories with their limited market potential. Costs are tangible and not too difficult to assess, but most of the benefits are intangible, and evaluating their importance involves subjective judgements [1,2].

Large analytical laboratories perform a comparatively small range of test parameters compared to the number of samples. The frequency of testing is regular by virtue of their capacity. Small laboratories typically handle a small number of samples for a wide variety of test parameters. The submission of samples is intermittent, and the laboratory must continuously strive to retain the availability of clients within a limited market, especially in small states or regions. The relationship between the number of samples, number of test parameters and the cost of pro-rata man-hours handled by a laboratory are considered in this presentation. The influence of in/frequent samples on the laboratory costs determines the feasibility for a laboratory to render its services competitively in the market.

The analysis time taken to carry out test measurements (expressed in man-hours) affects the operational costs, and for multifarious measurements in a small laboratory the analysis time is longer. Small laboratories face higher costs for the mean pro-rata man-hours than larger laboratories.

In order to succeed in the market, laboratories have to produce more results in a shorter time at a lower cost. At the same time they must provide results of an adequate quality as required by accreditation, which involves additional effort.

The public image of a service laboratory, the need for service improvement, the effect of government laws and regulations, and the complaints from customers are examples of items that cannot be ignored. A laboratory quality assurance programme must consider such matters as part of the overall plan.

However, there are three major cost areas related to quality; prevention costs, appraisal costs and correction costs [2]. The cost of accreditation is an important issue for the laboratories since they have to compete in the measurement, testing and analytical market of today. The initial costs of accreditation and the running costs of regular re-assessments are a matter of concern for small laboratories, especially because of the limitation they have due to the market availability and competition. Accreditation costs are an important economic factor since the costs are about 10-15% of the overall costs for a laboratory preparing for accreditation [3]. It is also possible, that small analytical laboratories may encounter high relative costs of accreditation as a result of being situated in regions or states where the market volume is constrained [4].

Although accreditation provides a formal guarantee that a laboratory is able to produce reliable results it does not provide a real competitive advantage [5]. Small laboratories must strike a balance between the costs that accreditation entails, including initial costs to set up the quality system, running costs of the routine requirements of accreditation, and the regular costs for external re-assessments. It is the laboratory management that must evaluate the advantages, costs and benefits and decide about feasibility of accreditation.

* Paper presented at the Second National Chemistry Symposium, Malta, March 2004.

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References:

- [1] H. Gunzler, '*Accreditation and Quality Assurance in Analytical Chemistry*', (1996), Springer-Verlag, Berlin Heidelberg, p. 74.
- [2] F.M. Garfield, '*Quality Assurance Principles for Analytical Laboratories*', (1996), AOAC International, p. 4-5.
- [3] EUROLAB aisbl; European Federation of National Associations of Measurement, Testing and Analytical Laboratories; *Cost of accreditation*; EL/11-01/00/363; Technical Report No. 1/2000; May 2000.
- [4] EUROLAB aisbl; European Federation of National Associations of Measurements, Testing and Analytical Laboratories; *Satisfaction of customers with European accreditation bodies*; EL/11-01/02/968; Technical Report No. 2/2002; December 2002.