6 INTERLABORATORY QUALITY ASSURANCE PROGRAM FOR DETERMINATION OF GLUCOSE-6-PHOSPHATE DEHYDROGENASE ACTIVITY IN TAIWAN

Hsiao KJ[1,2], Chiang SH[2], Wu HY[2], Huang TM[3], Liew DG[3], Chao Yu YM[3], Chen MC[2].
Institute of Genetics[1], National Yang-Ming Medical College; Dept of Medical Research[2], Veterans General Hospital - Taipei; and Bureau of Health Promotions and Protections[3], Dept of Health, Taipei, Taiwan, Republic of China.

The incidence of Glucose-6-phosphate dehydrogenase (G6PD) deficiency is relatively high (about 2%) in Taiwan. The nationwide neonatal screening of G6PD deficiency was started on July 1, 1987, and a follow-up system comprising of seventeen referral hospitals, including outlying islands, were organized for confirmatory tests, medical care and genetic counselling. To assess the reliability of the confirmatory test, an interlaboratory quality assurance (QA) program for G6PD assay was developed. Workshops of G6PD assay were held for the referral hospitals to standardize the G6PD quantitative assay procedure and methods for calibration of spectrophotometer and micropipette. The lyophilized quality control materials of different activities of G6PD were prepared from red blood cells. Periodically (1-2 month), five specimens kept in dry ice were sent to each of the referral hospitals by speed post delivery. The external quality assurance results were evaluated and compared to the reference values determined by our laboratory. For the participants with system errors, troubleshooting proceeded either by phoning or visiting the laboratories. There are 19 laboratories participating in the quality assurance program at the present time. From January 1988 to June 1991, 33 quality assurance services were performed. 71 (12.1%) abnormal QA results were found, which were attributed to clerk (10/71, 14.1%), experimental (27/71, 38.0%), and instrumental errors (34.71, 47.9%). Most of the experimental and instrumental errors were found in laboratories without restrictively executed internal QA. The inter-laboratory quality assurance program had provided a good system for monitoring the performance of the referral hospitals and might be a guidance for the referral hospitals to correct the errors.

7 THE USE OF QUALITY ASSURANCE PROGRAMMES IN MAINTAINING QUALITY IN A LARGE NEONATAL SCREENING PROGRAMME IN THE UNITED KINGDOM.

Kennedy R,
Scottish Neonatal Screening Laboratory Stobhill hospital Glasgow.

The Scottish neonatal screening laboratory has participated in the UK EQAS for PKU since the scheme started in 1980 and the UK TSH EQAS since its start in 1981, both schemes are organised from Birmingham. Six samples for testing (either liquid blood in a capillary tube or dried blood on the participants own card) for each analyte are sent to participants on a two monthly basis. Detailed analysis of the results from all participating laboratories are made available on a regular basis and are discussed by a self regulatory body set up by the directors of UK screening laboratories. This laboratory also participates in the French and German EQAS for PKU and TSH. A review of present procedures covering all aspects of QA in neonatal screening in the UK has been carried out by a committee set up by the directors of UK screening labs and their recommendations are expected to form the basis for any laboratory accreditation scheme introduced in the UK. QC dried blood spots for the Scottish Neonatal HIV1 antibody screening programme are made available to this laboratory on a regular basis by CDC Atlanta.