

## Analytical Services External Quality Assurance Assessment

***Lerato Manamela***<sup>1</sup>, ***Sesitjie Moremi***<sup>1</sup>, ***Angela Mawela***<sup>1</sup>, ***Avhadipfi Mulaudzi***<sup>1</sup>, ***Frans Sethosa***<sup>1</sup>, ***P Poongavanum***<sup>1</sup>, ***Boitumelo Kgarebe***<sup>1</sup>

<sup>1</sup>National Institute for Occupational Health

Email address: leratoMo@nioh.ac.za

### **Introduction**

Analytical Services (AS) Laboratory participates in the Wadsworth Proficiency Testing Scheme. This demonstrates to the public, customers, accreditation bodies, quality assurance and management, that procedures are under control and gives confidence in the service provided. Internal Quality Control and External Quality Assurance speaks to precision, accuracy, reliability etc. of the results reported. AS has the following tests registered, trace-elements in blood, urine and serum with three events annually.

### **Objective**

To assess the performance of the laboratory through EQA perspective.

### **Method**

EQA results from 2019-2020 were assessed for recoveries on an Excel spreadsheet. Graphs were used to assess trends and to identify bias.

### **Results**

All trace-elements in blood and urine achieved an 80-100% pass rate per event except for Blood Lead and Mercury, Urine Lead and Mercury and Serum Aluminium.

### **Discussion**

According to the scheme, a satisfactory event is defined as achieving  $\geq 80\%$  pass while a successful overall performance as passing two out of three annual events. Blood Lead and Mercury, Urine Lead and Serum Aluminium failed Event 1 2020 due to interferences from dust and vibrations generated from drilling for the installation of Aluminium doors during renovations, where Blood Mercury and Serum Aluminium failed with high levels and Urine Lead and Blood Lead failed with low levels.

Blood Mercury also failed Event 1 and 2 in 2019; failure of Event 1 2019 was due to instrument blockage due to dust generated from adjacent laboratory renovations; Event 1 failing low and Event 2 2019, failed due to transcription error, giving completely wrong results.

Urine mercury failed Event 2 2019 with low levels due to compromised sample integrity during transportation. Serum Aluminium failed Event 1 of 2019 with high levels because of instrument malfunction. From this assessment, we conclude that the AS Laboratory has an overall satisfactory performance and continues to maintain accreditation under ISO 15189:2012.