ORIGINAL RESEARCH PAPER

Volume-8 | Issue-8 | August - 2019 | PRINT ISSN No. 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

THE EXTERNAL QUALITY ASSESSMENT PROGRAMME IN HAEMATOLOGY – GCRI EXPERIENCE

Oncopathology

Dr Shalibhadra Shah — Fellow in Oncopathology, The Gujarat Cancer Research Institute, Ahmedabad

Dr Biren Parikh* — Associate Professor of Oncopathology, The Gujarat Cancer Research Institute, Ahmedabad *Corresponding Author

Dr Ronnak kumari Jain — Senior Resident in Oncopathology, The Gujarat Cancer Research Institute, Ahmedabad

Rachana Shah — Quality Manager in Oncopathology, The Gujarat Cancer Research Institute, Ahmedabad

ABSTRACT

Background: The attainment of quality services in a laboratory requires a comprehensive quality assurance program which includes both internal and external quality control material. External quality assessment scheme programs are accepted around the world as an invaluable tool by laboratories to assess the performance of their testing systems. Results are objectively compared to other laboratories, using the same methodologies for every parameter.

Aims: The goal of this study was to review EQAS result from time to time in an effort to improve the performance of the laboratory.

Material and Methods: Study done at Gujarat Cancer Research Institute and Hospital, Ahmedabad from March 2010 to August 2018. In the current study, our EQAS test results have been evaluated for the past 9 years. One EDTA whole blood sample for blood cell counts and 2 slides for peripheral smear examination and reticulocyte count were received quarterly in a year from AIIMS, New Delhi. The test results of all indices of blood samples and peripheral smears for cell morphology and reticulocyte count were analyzed and documented.

Results: Out of 350 total parameters including peripheral smear examination and reticulocyte count, our laboratory got the satisfactory results in 345 parameters which means overall satisfactory results was 98.58%. Our outlier was only in five parameters which means unsatisfactory results was only 1.42%.Root cause analysis was performed and necessary action was taken.

Conclusion: Participation in External Quality Assessment Schemes is extremely beneficial for the improvement of laboratory performance and quality of care. Evaluation of the survey results on a regular basis serves as a useful guide to assess overall performance of the laboratory. Standardization of analytical procedures, equipments and reagents, continuous monitoring of personnel competency and thorough investigation of discordant results significantly contributes to the delivery of quality diagnostic services.

KEYWORDS

External Quality Assessment Scheme; Quality Control; Quality Assurance,Hematology

INTRODUCTION:

External quality assessment (EQA) and proficiency testing (PT) are valuable tools in the quality improvement process. They provide objective evidence of laboratory competence for customers, accrediting bodies and regulatory agencies. It is also important to consider that every EQA/PT scheme has some limitations, and it is not appropriate to use EQA/PT as the sole mean for evaluating laboratory performance [1, 2]. Therefore, there is a need to underline internal quality control (IQC). EQA/PT and other tools have to be implemented to monitor and improve the quality in laboratory diagnostics. Programs like this, offer valuable benefits to the participating laboratory, in terms of performance evaluation, improvement in patient care, and the overall quality of laboratory practices [3,4]. The organizing laboratory, that conducts such an EQAS periodically, assesses the registered practicing laboratory. Such a registration is not mandatory, but is desirable. To review and assess the quality of laboratory practices, our hematology laboratory services were registered in 2010, under the ISHTM-AIIMS External quality assurance programme (EQAP), hematology department, AIIMS New Delhi. Since 2010, we are participating, and have been receiving samples four times in a year. Here we share our experience of 9 years.

MATERIALS AND METHODS

Blood samples:

EQAS blood samples from All India Institute of Medical Sciences (AIIMS), New Delhi were received and processed at Central Diagnostic Laboratories,Dept of Pathology,GCRI ,Ahmedabad ,Gujarat. For each year, every three months, samples were received at our centre for specific tests recommended by the organizing laboratory. All the samples were handled as a part of routine work samples, and recommended tests were performed by the concerned laboratory technician on duty. The tests were performed on the same day of receipt of the samples, and results mailed to the organizing laboratory within speculated time.

Test performed on blood samples:

During each cycle, one whole blood EDTA sample for blood cell counts and 2 slides- one for peripheral smear examination, stained by Giemsa stain and one for reticulocyte count, stained by methylene blue were received. We also received a brief clinical summary along with the peripheral smear slide. In our laboratory, the blood samples were run on a Beckman Coulter LH 750 automated cell counter. The stained slides were examined for red blood cell morphology and reticulocyte count respectively.

RESULTS:

The following test parameters were tested and documented- WBC count, RBC count, Haemoglobin, HCT, MCV, MCH, MCHC, Platelet. The peripheral smear slide was examined for the red blood cell morphology and Retic slide for reticulocyte count. All the findings were documented.

Table 1: EQAS performance:

Year	Results	Outlier parameters
2010	Unsatisfactory in one cycle (partially correct)	Peripheral smear
2011	Unsatisfactory in one cycle (partially correct)	Peripheral smear
2012	Satisfactory	Nil
2013	Satisfactory	Nil
2014	Satisfactory	Nil
2015	Satisfactory	Nil
2016	Unsatisfactory in two cycle (partially correct)	Peripheral smear & WBC
2017	Unsatisfactory in one cycle.	Platelets
2018	satisfactory	Nil

Table 2: Total Parameters year wise:

Parameters/Years	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total (%)
Satisfactory	49	39	40	40	40	40	38	29	30	345(98.58%)
Unsatisfactory	1	1	0	0	0	0	2	1	0	5(1.42%)

Total (parameters)	50	40	40	40	40	40	40	30	30	350(100 %)

Out of 350 total parameters including peripheral smear examination and reticulocyte count, our laboratory got the satisfactory results in 345 parameters which means overall satisfactory results was 98.58%.(table no 2)

Our outlier was only in five parameters which means unsatisfactory results was only 1.42%.These outliers are Peripheral smears (partially correct, three times) ,WBC (One time),and Platelets (one time), in different years and in different cycles. All the times, root cause analysis was done to find the cause of discordance and random error was found to be the issue. In these instances, the EQAS results were labeled 'Unsatisfactory'.

DISCUSSION:

The EQAS program is a valuable management tool devised to improve the efficiency and service of a laboratory, in particular, and a hospital in general [5]. The program provides an opportunity to the participating organizations to compare activities, and modify their own practices, based on what they learn [6,7]. In a clinical laboratory service, EQAS evaluates the performance of procedures, equipment, materials and personnel and suggests areas of improvement.

As a participant of EQAS, we performed all the prescribed tests by strictly following the departmental SOPs and manufacturer's instruction, considering each lot as routine working samples. The reticulocyte count results were satisfactory in all the instances. Discordance arose five times in different parameters and root cause analysis was performed.

CONCLUSION

An EQAS program plays an important role in improving the efficiency of a laboratory service, and thereby optimizes the overall quality of a health care system. In the last nine years, we could significantly improve our laboratory services in terms of performance evaluation, patient care by giving accurate result of investigation, follow up and overall quality of laboratory practices.[8,9]. We believe that global participation in such an EQAS program will definitely improve the quality of a hospital service, because no health care facility can be totally self-sufficient, and there is always a scope for improvement and development in a system. Training of technician and their evaluation also play major role to achieve this result and consistency. So by these study, we finally conclude that our hematology laboratory has excellent performance.

Funding
Non

REFERENCES

1. Clinical and Laboratory Standards Institute (CLSI). Using proficiency testing to improve the clinical laboratory; Approved guideline-Second Edition. CLSI document GP27-A2. Clinical and Laboratory standards Institute, Pennsylvania 19087-1898 USA, 2007.
2. Hoeltge GA, Duckworth JK. Review of proficiency testing performance of laboratory accredited by the college of american pathologists. Arch path lab Med 1987;111:1011-4.
3. Miller WG. The role of proficiency testing in achieving standardisation and harmonisation between laboratories. Clin Biochem 2008;42:232-8.
4. Miller WG. Specimen materials, target values and commutability for external quality assessment (proficiency testing) schemes. Clin chim Acta 2004;327:25-37.
5. Sciacovelli I, Zardo I, Secchiero S, Plebani M. Quality specifications in EQA schemes; from theory to practice. Clin Chim Acta 2004;346:87-97.
6. Sciacovelli L, Secchiero , Zardo I, Zaninotto M, Plbani M, External quality assessment : an effective oil for clinical governance in laboratory medicine. Clin Chem Lab Med 2006;44:740-9.
7. Thienpont LM, Stocckl D, Friedecky B, Kratochvilla J, Budina M. Trueness verification in european external quality assessment schemes: time to care about the quality of the samples. J clin Lab Invest 2003;63:195- 202.
8. Uldall A. Origin of EQA programmes and multidisciplinary cooperation between EQA programme organisers within laboratory medicine. EQA News 1997;8:1-27.
9. Westgard JO. Internal quality control, planning and implementation strategies. Ann Clin Biochem 2003;40:593-611.