



WFH

WORLD FEDERATION OF HEMOPHILIA
FÉDÉRATION MONDIALE DE L'HÉMOPHILIE
FEDERACIÓN MUNDIAL DE HEMOFILIA

WFH INTERNATIONAL EXTERNAL QUALITY ASSESSMENT SCHEME (IEQAS) PROGRAM

PARTICIPANTS' MANUAL & GENERAL INFORMATION 2020 – 2021

Revised: March 2020

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BACKGROUND

The World Federation of Hemophilia (WFH) improves and sustains care for people with inherited bleeding disorders around the world. The WFH has been supporting people with inherited bleeding disorders and treatment for over 50 years.

The WFH International External Quality Assessment Scheme (IEQAS) was launched in 2004 to monitor and improve laboratory performance in Hemophilia Treatment Centres (HTCs) worldwide. Laboratories can participate in this scheme to assess their quality assurance systems and the reliability of their test results.

IEQAS improves and standardizes laboratory diagnosis by auditing the effectiveness of the internal quality assurance systems in place and giving a measure of the laboratory's competence.

The scheme is operated by the United Kingdom's National External Quality Assessment Scheme (UK NEQAS) for Blood Coagulation, based in Sheffield, which has been inspected by the United Kingdom Accreditation Service Ltd (UKAS) and which has been granted full accreditation to ISO 17043 for all listed tests.

The mandate of the WFH IEQAS is to provide an external quality assessment (EQA) for tests of blood coagulation and to promote high standards of performance and practice. EQA, together with internal quality control (IQC) procedures, are vital components of overall laboratory quality assurance. In addition, the WFH IEQAS provides an advisory service to participants through exchanges on lab diagnosis, including a participants' meeting during the biennial WFH World Congress and/or on site visits to provide training

The WFH IEQAS Steering Committee is comprised of an independent chair appointed by the WFH, at present Dr. Sukesh Nair (Christian Medical College Vellore India), the Scheme program director, senior IEQAS program staff in the Sheffield Teaching Hospitals (host institution), and WFH staff and volunteers. The IEQAS Steering Committee is responsible for overseeing the International External Quality Assessment Scheme (IEQAS) program and reports to the WFH Education Advisory Committee. The IEQAS Steering Committee oversees all operational aspects of the program, reviews participation in the scheme, analyses results, monitors global laboratory performance, and provides advisory support for centres registered on the scheme.

REGISTRATION

A review process ensures that WFH evaluates IEQAS applications. Laboratories are chosen based on their involvement in the diagnosis of hemophilia and other related bleeding disorders. Generally, there is one main reference laboratory that is enrolled in IEQAS from each country. In some countries, several laboratories may be enrolled in the scheme. The WFH is prepared to sponsor the enrolment fee of certain centres in emerging countries which are involved in key WFH programs. Centre twins, IHTCs, GAP, Cornerstone, and Country Program centres are eligible for a subsidy if requested.

Enrolment runs from February to the following February, and centres cannot join mid-year.

IEQAS participation forms must be received at the WFH Headquarters by January in order to be reviewed and included in the scheme for a year. Centres new to the scheme must submit a completed laboratory questionnaire and participation form by the deadline set by the WFH.

PARTICIPATION

Samples for blood coagulation tests are distributed to participating laboratories around the world. The WFH IEQAS ensures the protection of participants' confidential information but does share information with the WFH for laboratories whose participation is sponsored.

WFH IEQAS participants can select which tests they will complete and provide results for. It is recommended that participants register for all tests that their laboratory offers. The www.ukneqasbc.org website can be used for online result submission and to view survey reports. Participants are provided with a password in order to access the result entry pages of the website.

As of 2020, there are 140 centres from 82 countries registered with the program, though not all centres are registered for all tests

PERSONNEL

Members of the IEQAS team include:

Dr. S Kitchen	Program Director (steve.kitchen@sth.nhs.uk)
Dr. I Jennings	Program Manager
Mrs. D P Kitchen	Programme Biomedical Scientist
Mrs A Lowe	Scientific Lead for Haemophilia programmes
Mrs K Stott	Clerical officer
Mrs S Burdett	Sample despatch manager
Ms. A Loney	WFH IEQAS Program Coordinator

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TESTS COVERED BY THE WFH IEQAS PROGRAM:

The WFH IEQAS surveys are distributed three times per year, typically in March, July, and November.

All surveys usually include:

- Prothrombin Time (PT)
- Activated Partial Thromboplastin Time (APTT)
- FVIII assay
- FIX assay

Two of the three surveys include:

- von Willebrand factor antigen assay
- VWF:Ristocetin cofactor/VWF activity assays

One out of the three surveys include:

Two other factor assays so that FII, FV, FVII, FX and FXI assays are all assessed at some stage, along with fibrinogen.

EQA for genetic testing, in relation to inheritable bleeding disorders, is available through an international EQA program. For details, contact neqas@coageqa.org.uk.

SUPPLEMENTARY EXERCISES

Supplementary exercises are carried out to address other issues in haemostasis testing. Past exercises have included an exercise measuring the Fibrinogen and FVIII content of Cryoprecipitate. A diagnostic challenge exercise was performed in 2019 using donor material from a Factor FVII deficient patient. For the year 2020-2021 we plan to circulate a FVIII inhibitor exercise. Reports are circulated to participating centres and data is presented back to participants at the biennial participants meeting.

REPORTS

Individual reports for each survey are sent approximately two weeks after the closing date for the respective survey. Reports are made available as online PDF documents

PERFORMANCE ANALYSIS

Performance is determined by the comparison of individual laboratory results with the target value for each test. Target values and median used for this test are typically determined prior to the survey when the same samples were tested by participants in the UK NEQAS Blood Coagulation Programme. The UK NEQAS BC Programme has over 1000 participants, which means that the peer groups are large and the data are therefore robust enough for assessment of individual centre results. In general, the median results obtained by the WFH IEQAS participants are very similar to the median determined from the UK NEQAS BC group. As the number of participants in the WFH IEQAS program is relatively small, analysis of the minor reagent groups is only made meaningful by the use of the UK NEQAS BC values to define the target ranges. Use of the median avoids the effect of outlying results which can significantly impact on mean values in some cases. Where consistent reagent or method-related differences have been identified, participants' results are assessed against their 'peer-groups' within UK NEQAS BC Programme. However, this only occurs if the number in that group is sufficient to be statistically valid.

For PT and APTT

For PT and APTT the percentage deviation of each individual laboratory's results from the reagent and overall medians are calculated, with the following criteria for performance applied:

Performance is considered "*within consensus*" if the deviation is <15% from:

- ✓ the **reagent median** if the number of users of that reagent is equal to or greater than 10 *or*
- ✓ the **overall median** if the number of users of the reagent is less than 10.

Results >15% deviation from the median are considered "*outwith consensus*."

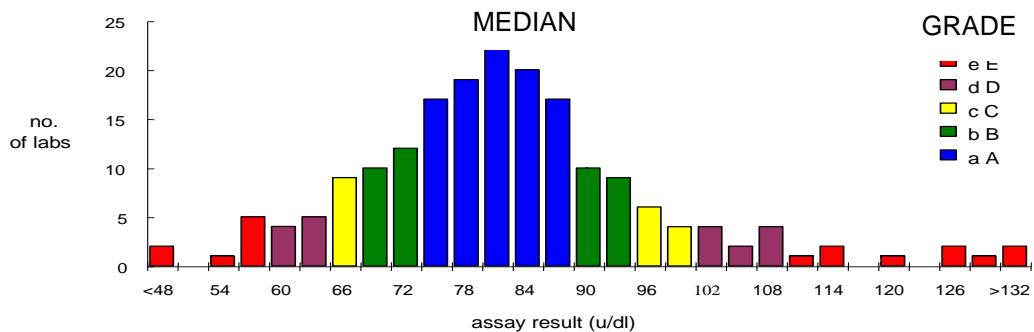
Factor Assays

For Fibrinogen assay, Clauss method results are assessed against the overall Clauss method median, with results >15% from this median considered outwith consensus. Multifibrin U users are assessed separately.

For other factor assays, WFH IEQAS distributes samples with factor concentrations covering the wide range encountered in clinical practice. A ranked grading analysis to evaluate performance was devised by Professor S. Thomson, Department of Public Health and Primary Care, University of Cambridge and is used in the UK NEQAS BC Programme as well as WFH IEQAS.

The overall consensus median is taken as the central reference point or “target value”. Individual results are ranked into five unequal quantiles above and below the median, each quantile being designated by a letter depending on ranked distance from the median:

- Group A:** The nearest 25% of results above (A) and below (a) the median (i.e. 50% of results);
- Group B:** The next 10% of results above (B) and below (b) the median (i.e. 20% of results);
- Group C:** The next 5% of results above (C) and below (c) the median (i.e. 10% of results);
- Group D:** The next 5% of results above (D) and below (d) the median (i.e. 10% of results);
- Group E:** The 5% of results furthest from the median, above (E) and below (e) (i.e. 10% of results).



Grades below the median are shown in lower case, and above the median in upper case, to aid in assessment of bias.

Performance is based on grades obtained in two consecutive exercises for any particular test. *Performance "outwith consensus"* is defined as a combination of a C (or 'c') grade together with an E (or 'e') grade, or any combination of D (or 'd') and E (or 'e') grades (e.g. cE, ec, Dd, de, ED and EE in consecutive distributions of that particular assay).

Persistent "outwith consensus" performance is defined as two consecutive "outwith consensus" performances. This will arise from three consecutive performances with the following combinations of grades (upper case only shown for example purposes):

DDD, DED, ECE, EEC, DDE, DEE, EDD, EED, CEE, EDE, EEE

A non-return for a registered test will be graded as 'F' and taken as equivalent to an E grading. Thus, designations which include 'F' grades are based on performance over two or three exercises, respectively.

In some cases, significant differences have been noted between different methodologies. Where this occurs on a consistent basis, separate analysis of the groups is carried out, using medians specific to each method group. However, the system is only effective if the number of participants is greater than 20; consequently, grading analysis is not applied to groups of results from fewer than 20 centres.

At present, the following groups are analysed separately (groupings are regularly reviewed):

- Factor VIII:C
- One stage and chromogenic
- VWF Ristocetin Cofactor/VWF activity assay
- ELISA, Aggregometry, individual Latex assays

If results of screening tests are outwith consensus on three consecutive occasions (including failure to return results), or results from factor assays are persistently outwith consensus, a letter of concern with an offer of assistance is sent by the Scheme Director to the head of the sponsored laboratory. For WFH sponsored centres, these concerns can also be communicated with the chairs of the WFH Laboratory Science and IEQAS committees.

NON-RETURN OF RESULTS

The aim of the program is to help centres which need support and guidance; therefore, there should be a sense of responsibility for sponsored laboratories to maintain good communication with the WFH. A follow-up letter is sent after 2 consecutive samples that have no results returned. After a third non-returned set of results, the sponsored centre maybe suspended from the IEQAS program unless they provide valid explanations for their non-response.

COMPLAINTS AND APPEALS

Any complaint about the WFH IEQAS program will be treated as serious, and will be dealt with as soon as possible by the director or manager. If a centre wishes to appeal the scoring they have received they can contact IEQAS as below.

Address for complaints:

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Or

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EDUCATIONAL ACTIVITIES

In addition to an advisory role for individual laboratories WFH IEQAS/ UK NEQAS BC also publishes and presents data through a variety of leading journals and meetings.

An IEQAS participants meeting is held biennially as part of the WFH World Congress. The WFH Laboratory Manual (2nd ed) is free to download online, and is available in English, French, Spanish, Arabic, Russian, and Simplified Chinese:

<http://elearning.wfh.org/resource/diagnosis-of-hemophilia-and-other-bleeding-disorders-a-laboratory-manual/>

PUBLICATIONS

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The IEQAS Program is supported by funding from the Novo Nordisk Haemophilia Foundation

