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Programme

Registration from 09:15

FIRST PLENARY SESSION

Chair: Dr Ned Barrett, IEQAS Chairman / Mid Western Regional Hospital, Limerick

09:45 Opening Address

Ms Mary Harney TD, Minister for Health and Children

10:05 IEQAS Annual Review

Ms Patricia Howley, IEQAS Operations Manager

10:15 Effective Management of Quality Specifications in the Delivery of Laboratory Services:

Prof Mario Plebani, *University Hospital of Padova, Italy* /
President Italian Society of Clinical Biochemistry &
Molecular Clinical Biology (SIBioC)

10:45 – 11:00 Tea/Coffee POSTER PRESENTATIONS

SECOND PLENARY SESSION

Chair: Mr Ivan Shirley, IEQAS Vice-Chairman / St Vincent's University Hospital

11:45 The Role of HIQA in Setting Standards for Health Information

Prof Jane Grimson, Director of Health Information, Health Information and Quality Authority

12:30 Process Quality and Analytical Quality – Two Sides of the Quality Management Coin

Dr Jonathan Middle, Deputy Director, UK NEQAS, Birmingham, UK

13:15 – 14:30 LUNCH POSTER PRESENTATIONS

14:30 – 16:00* AFTERNOON WORKSHOPS (parallel)

CLINICAL CHEMISTRY WORKSHOP

Co-ordinator: Mr Frank Clarke, IEQAS/DIT

What to do with poor EQA results? Interactive workshop

HAEMATOLOGY WORKSHOP

Chair: Ms Dympna Murphy, IEQAS/AMNCH Tallaght

BCM review

Dr Kanthi Perera, Midland Regional Hospital, Tullamore

Fresh Blood Survey 2008

Mr Ivan Shirley, IEQAS Vice-Chairman/St Vincent's University Hospital

Haemolytic-uraemic syndrome (HUS) and thrombotic thrombocytopenic purpura (TTP)

Dr Niamh O'Connell, AMNCH, Tallaght

BLOOD TRANSFUSION WORKSHOP (* to 16.30)

Chair: Ms Patricia Howley, IEQAS Operations Manager

Highs and Lows of preparing for an IMB/INAB Inspection for Hospital Blood Banks

Overview & Findings from IEQAS Survey

Ms Patricia Donnelly

Quality Manual

Ms Deirdre Murphy, Rotunda Hospital

Laboratory Information Systems

Ms Leslie Hopkins, St Vincent's University Hospital

Audits

Ms Janet Butler, Mayo General Hospital

Reporting Non-conformances

Mr Gabriel Hyland, Children's University Hospital

Training & Competency

Ms Maeve Andrews, Children's University Hospital

Evaluation of Suppliers

Ms Anne Geaney, St James' Hospital

Temperature Mapping

Mr Paul O'Brien, St Vincent's University Hospital

*Blood Transfusion workshop ends 16:30

Acknowledgements

We would like to thank the following for their generous support towards the running of the Conference today:

Major Sponsors:

Abbott Laboratories
Claymon Laboratories
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Roche Diagnostics

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Introduction

Now in our 27th year, IEQAS offers External Quality Assessment (EQA) schemes to Irish laboratory medicine, with the aim of achieving and maintaining the best possible quality through a continuous process of monitoring, education, training and support.

Steering Committee

Barrett, Ned ²	<u>Chairman</u> Consultant Clinical Biochemist, Mid-Western Regional Hospital, Limerick.
Shirley, Ivan ¹	<u>Vice-Chairman</u> Chief Medical Scientist, St Vincent's University Hospital.
Boran, Gerard ³	Consultant Chemical Pathologist, AMNCH, Tallaght. Dean, Faculty of Pathology, Royal College of Physicians of Ireland.
Brady, John ¹	Chief Medical Scientist, Our Lady's Children's Hospital, Dublin.
Carr, Alan ¹	Senior Medical Scientist, Peamount Hospital, Dublin.
Graham, Hazel	IEQAS Quality Manager.
Howley, Patricia	IEQAS Operations Manager.
O'Sullivan, Niamh ³	Consultant Microbiologist, Our Lady's Children's Hospital / Coombe Women's Hospital, Dublin.
Smith, Tom ²	Principal Biochemist, St Vincent's University Hospital.

Associated Professional Bodies

¹ Academy of Medical Laboratory Science

² Association of Clinical Biochemists in Ireland

³ Royal College of Physicians of Ireland, Faculty of Pathology

Additional Sub-Committee members

Blake, Ophelia	Principal Biochemist, St James's Hospital, Dublin.
Clarke, Frank	Lecturer, School of Biological Sciences, Dublin Institute of Technology.
Driscoll, Therese	Senior Medical Scientist, AMNCH, Tallaght.
Judge, Gerry	Chief Medical Scientist, AMNCH, Tallaght.
Murphy, Dymrna	Chief Medical Scientist, AMNCH, Tallaght.
Nolan, John	Consultant Endocrinologist, St James's Hospital, Dublin.
Perera, Kanthi	Consultant Haematologist, Midland Regional Hospital, Tullamore.
Quirke, William	Medical Scientist, Mid-Western Regional Hospital, Limerick.
Reece, Rowland	Principal Biochemist, St Vincent's University Hospital, Dublin.
2 vacancies	Haematology Review Group

Operations Management

Graham, Hazel, Quality Manager
Howley, Patricia, Operations Manager
Cooke, Anne, Scheme Administrator

Annual Review IEQAS 2008

Ms Patricia Howley, Operations Manager; Ms Hazel Graham, Quality Manager, IEQAS

Committee members: changes

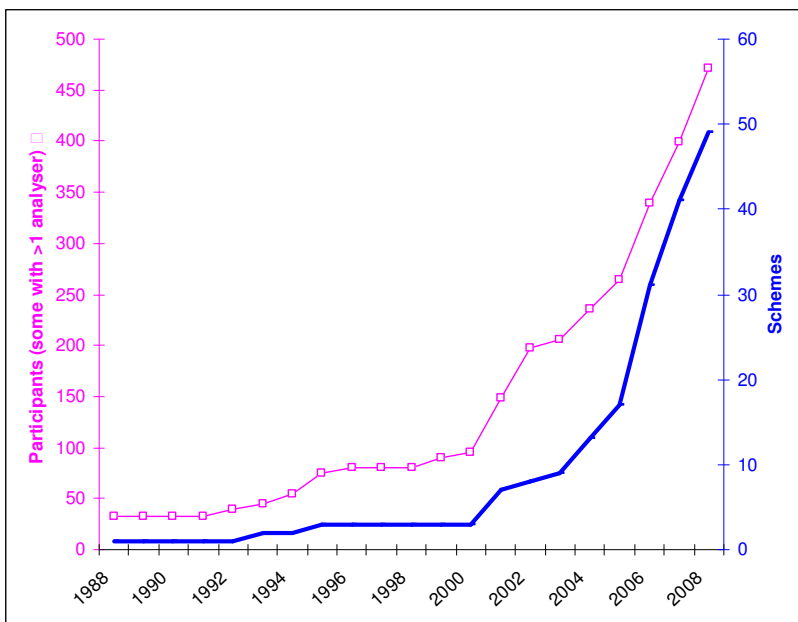
It was with regret that Nora Kinsella and Mary Byrne, both of St James's Hospital, Dublin, resigned from the Haematology Review Group this year due to work pressure. We have been very grateful for their input, hard work and perseverance over the years.

We were also sorry to lose Prof John O'Leary, Coombe Women's Hospital, from the Steering Committee.

We would like to welcome Ophelia Blake, of St James's Hospital, Dublin, who has joined our HbA_{1c} sub-committee.

Schemes

The number of participants in all schemes registered with IEQAS has again increased (~18%). We now have 471 participants (579 different analysers) in 49 schemes:



The current schemes are:

- General Clinical Chemistry
- Full Blood Count
- Blood Cell Morphology
- HbA_{1c}
- ABO & Rh grouping
- Alcohol in serum
- Antibody screening/compatibility testing
- Antiglobulin test, direct
- Antistreptolysin titre
- APTT, fibrinogen
- Blood Gas
- Bordetella pertussis, antibodies
- C Reactive Protein
- C. difficile, culture & toxin detection
- Chlamydia pneumoniae, antibodies
- Coeliac disease
- D-dimer
- Drug abuse screening & confirmation in urine
- Drug monitoring (therapeutic drugs)
- ESR
- H. pylori antibodies
- H. pylori antigen detection
- Haemoxymeter
- HbA_{1c} Haemoglobin variants
- Herpes simplex 1 & 2 antibodies
- Hormones/Haematinics
- Infectious mononucleosis
- Influenza virus A+B, antigen detection
- Lipids and Lipoproteins
- LMW-Heparin/antiFXa
- Mycoplasma pneumoniae, antibodies
- Myocardial Markers
- Natriuretic peptides, B-type
- Parathyroid hormones
- PSA
- PT (INR)
- Rheumatoid factor & citrullin antibodies
- Rotavirus & adenovirus, antibody detection
- RS virus, antigen detection
- Thyroid gland antibodies
- Urine, quantitative chemistry

New 2008

Ammonium Ion
ESR for Alifax users
Faecal Blood
Histology PAP stain
Parasites in Faeces
Pregnancy Test
Tumour Markers
Pilot scheme - Angiotensin Converting Enzyme

Seven new schemes were introduced in 2008 following requests from participants. Angiotensin Converting Enzyme, run as a pilot scheme this year, will be offered routinely for 2009. There has been increased interest particularly in the Direct Antiglobulin Test scheme.

Achievements and Plans

Haematology Special Survey: A survey using fresh material was run in January 2008 and a summary will be presented at the Haematology Workshop.

Masterclass in Paraproteinaemias: This masterclass was held on 10th June 2008 and conducted by Dr Joanna Sheldon, Director of the Supraregional Protein Reference Unit at St. George's Hospital, London. Thirty four participants attended this very successful and educational workshop, which was intended for hospital laboratory scientific staff working for at least 1 year specifically in the area of serum and urine protein electrophoresis and immunofixation. Dr Sheldon provided a very lively, entertaining and interactive class.

Clinical Chemistry Special Survey: We had planned to run a Clinical Chemistry survey using fresh material before the Conference but due to logistical problems this has been postponed.

Coagulation Special Survey: Our fourth special survey was run in June 2008 and reports have been sent to participants.

Participant Satisfaction Survey: The first of these was sent to all participants in October 2007. 97% of respondents were happy with the service provided by IEQAS. A report is included in this booklet. Participant recommendations already implemented include:

- Participant Handbook
- Transfusion Workshop

Poster Competition, IEQAS Des Kenny Memorial Prize: introduced this year in memory of our former Chairman.

Quality Manual (ISO9001:2000): This project had been delayed due to lack of resources. We are ready for a Stage 1 audit, resources permitting.

Digital BCM Special Survey: We are planning another trial with Slidepath. Dr Kanthi Perera has reviewed the images and clinical details.

Web-submission of results: Over 90% of participants now submit their results over the web, thus significantly reducing the data input time by IEQAS Operations Staff; this also has the advantage of reducing the potential for input errors.

We wish to thank all members of the Steering Committee and other sub-committees, for giving their time to IEQAS.

Biographies

Hazel Graham has worked with IEQAS since 1992, as Operations Manager until 2007, when she took over the newly created role of Quality Manager. Previous work experience included 15 years in various laboratory/management related roles in Warner Lambert, Dun Laoghaire, Co Dublin (now Pfizer), manufacturer of sterile pharmaceuticals and diagnostic reagents. Hazel is a member of Council for the Irish Society for Quality and Safety in Healthcare. She has an honours degree in Biochemistry and a post graduate Diploma in Quality Control, both from Trinity College Dublin.

Patricia Howley joined IEQAS in 1999, initially as Scheme Administrator, then as Scheme Manager, taking over as Operations Manager in 2007. Before a career break to bring up her children, she worked in Warner Lambert, Dun Laoghaire, in various roles as QC Chemist, Development Chemist, and Analyst in both QC laboratory Confectionary Plant and Microbiology laboratory in Pharmaceutical/Diagnostic plant. She has a degree in Chemistry from the National University of Ireland, Galway. She is currently on 2nd year of MSc programme in Quality and Safety in Healthcare with Royal College of Surgeons in Ireland.

Effective Management of Quality Specifications in the Delivery of Laboratory Services

Prof Mario Plebani, Department of Laboratory Medicine, University Hospital of Padova, Italy

Abstract

Laboratory services play an increasingly important role in screening, diagnosis, and management of patients and the use of laboratory services have increased substantially in recent years. Timely and accurate laboratory test results are a cornerstone of effective diagnosis and treatment of patients; on the other hand, even a low incidence of laboratory testing errors among the billions of tests performed every day worldwide might have important public health and patient safety implications.

Laboratory medicine is a very dynamic sector of health care. With the constant development of more complex tests, remarkable advances in instrument technology, fully integrated laboratory information systems, the frequency and type of errors in laboratory medicine have been changed and are expected to change over time. Data collected in the last ten years have demonstrated that pre- and post-analytical phases of the total testing process (TTP) are, currently, more vulnerable to errors than the analytical step. This should have been easily predicted taking into account the remarkable improvement in assay standardization and in quality control activities developed and introduced in clinical laboratories. In addition, while activities within clinical laboratories are precisely defined and controllable, some steps in the pre- and post-analytical phases require cooperation and communication with other health care professionals. The dictum "the evil is in the boundaries" well describes the problems related to some pre-and post-analytical steps at the interconnection between laboratory and clinical practices. The foundation of a patient-centred strategy in the delivery of laboratory services recognizes the importance of the total testing process as the right framework for improving quality and patient safety. As the testing process "begins and ends with the patient", in addition to analytical quality specifications, other extra-analytical quality indicators and specifications have to be identified and monitored for assuring the control of each and every steps of the TTP.

In the last few years, some extra-analytical quality indicators have been identified and, at least in part, evaluated in clinical practice.

The aim of the lecture is to present and discuss the state-of-the-art of errors in laboratory medicine and current opinions on intra- and extra-analytical quality specifications.

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Clin Chem Lab Med. 2006;44(2):150-60.

Biography

Mario Plebani obtained his medical degree summa cum laude from the Medical School of the University of Padova in 1975. He completed residency training and specialization in Laboratory Medicine (1978), and subsequently in Gastroenterology (1983), at the same University. In 1991 he was appointed Head of the Clinical Laboratory of the University Hospital in Padova and in 2001 Chair of the Department of Laboratory Medicine at the same University-Hospital, a position that he still covers. In 1993 he was appointed

Chair of the Centre of Biomedical Research, a specialized centre for quality in laboratory medicine of the Veneto Region. In 2003 he was appointed Full Professor of Clinical Biochemistry and Clinical Molecular Biology (BIO/12) at the Medical School of the University of Padova, maintaining the direction of the Department of Laboratory Medicine in the same University-Hospital, and in 2007 he was appointed Director of the Post-Graduate School in Clinical Biochemistry at the same Medical School of the University of Padova. President (2004-2008) of the International Society of Enzymology (ISE) and President of the Italian Society of Clinical Biochemistry and Molecular Clinical Biology (SIBioC) for the years 2006-2009, and he was President of the same Scientific Society in 2003.

The Role of HIQA in Setting Standards for Health Information

Prof Jane Grimson, Director of Health Information, Health Information and Quality Authority

Abstract

The availability of accurate, timely and standardised information is a critical factor in the delivery of high quality, evidence-based, safe healthcare services. Currently health information in Ireland is very fragmented and the lack of standardisation presents a major impediment to information sharing and re-use. The Health Information and Quality Authority (HIQA) has the statutory authority to set and monitor compliance with standards for health information from data definitions, coding and classification systems, terminology, messaging and ultimately to the electronic health record. This paper will present an overview of the approach which HIQA will follow for the setting of these standards. Broadly speaking, this will be consensus-based involving all the key stakeholders, and will include an impact assessment phase prior to adoption. Wherever possible international standards will be adopted which have been fully tested and implemented.

Biography

Professor Jane Grimson is Director of Health Information in the Health Information and Quality Authority and Professor and Director of the Centre of Health Informatics at Trinity College Dublin. Her principal research interests are in the areas of electronic health records, decision support systems and biomedical informatics.

Process Quality and Analytical Quality - Two Sides of the Quality Management Coin

Dr Jonathan Middle, Deputy Director UK NEQAS, Birmingham, UK

Abstract

Clinical laboratories today are more and more focussed on the development and operation of their quality management systems as a major part of achieving accreditation. Document control, vertical, horizontal and witness audit and preparation of the laboratory for accreditation body assessment visits occupy a large part of the Quality Manager's time. In parallel with these developments, large scale automation, together with reduction in and de-skilling of the workforce, has meant decreased emphasis on the analytical aspects of quality. With the exception of mass spectrometry methods, gone are the days when skilled scientists and technicians developed their own assay systems and critically assessed their calibration, analytical sensitivity and specificity, linearity and recovery. Too much, in my opinion, has to be left to the instrument and reagent manufacturers, who operate under intense competitive pressure in a global market. All too often we hear of 're-calibrations' and introduction of 'compensation factors' when 'adjustments' to assay systems have to be made. Between-method differences are unacceptably large still in many routine analytical areas, and the uncertainty envelope around assays used to stratify patients against established clinical guidelines, greatly reduces their effectiveness. The profession must re-focus its attention on its core activity - producing correct results which have optimal trueness and comparability. Laboratories must come to grips with traceability and uncertainty and insist that suppliers of assay systems disclose full details of their traceability chain. Use of unprocessed, single donation, authentic clinical material with reference method assigned values, must become universal in allowing assay system calibration and specificity to be objectively assessed and compared.

Biography

Jonathan Middle was educated at Weston super Mare Grammar School for Boys and Fitzwilliam College Cambridge University, where he read Natural Sciences with Biochemistry at Part II. He gained a PhD at the Cancer Research Campaign Laboratories at the RVI, Newcastle upon Tyne, on the antigenicity of malignantly transformed hamster cells, and then undertook an NIH-NCI research project on the immunogenicity of naturally arising tumours in the WAB-Not rat strain at the Cancer Research

Campaign Laboratories, University of Nottingham. In 1980 Jonathan transferred to the NHS and re-trained as a clinical biochemist at the Royal Liverpool Hospital, moving to the University Hospital of Wales in 1987 to take up the post of Organiser of the UK NEQAS for Steroid Hormones. In 1996, Jonathan merged his UK NEQAS service with the main UK NEQAS centre for Clinical Chemistry at the Queen Elizabeth Hospital, Birmingham, where he became Deputy Director and later Organiser of the UK NEQAS for Glycated Haemoglobins. Jonathan is married with two grown up daughters and occupies all of his spare time playing guitar, saxophone and keyboard.

Clinical Chemistry Workshop

What to do with Poor EQA Results

Interactive workshop, with real example case studies.

Co-ordinator: Mr Frank Clarke, School of Biological Sciences, DIT.

Abstract

External quality assessment (EQA) schemes in clinical chemistry form a key part of laboratory quality management by objectively checking the laboratory's results by means of an external agency. The result of participating in an EQA scheme often generates a great deal of questions such as:

- What corrective action should be taken when I receive a poor EQA result?
- My UK NEQAS is good but IEQAS is poor, what should I do?
- How can I be sure that the EQA/IQC material behaves like patient material?
- Am I in the right method group?
- Are there sufficient numbers to be meaningful?
- What happens if there is no EQA scheme for a particular analyte?
- Should EQA schemes be applied to pre- and post-analytical processes?

The workshop will address some these issue and others that may arise on the day.

Biography

Frank Clarke MSc, FAMLS, FIBMS is a lecturer in Clinical Chemistry in the School of Biological Sciences, DIT. He previously worked in clinical hospital laboratories for more than 20 years both here and abroad.

Haematology Workshop

Blood Cell Morphology Review 2008

Dr Kanthi Perera, Consultant Haematologist, Midland Regional Hospital, Tullamore

Abstract

During the last year IEQAS circulated 6 morphology cases. Although the availability of slides is limited, we managed to send very informative slides to cover red cell, white cell and platelet abnormalities.

The presentation will review some of the morphological abnormalities in each case with a brief review of the diagnosis, to include how you could arrive at the diagnosis.

Biography

Dr Kanthi Perera graduated from the Faculty of Medicine, University of Colombo, Sri Lanka, initiated her post-graduate training in Sri Lanka and completed at The Royal London Hospital in England. She was appointed as the first Consultant Haematologist in the National Cancer Hospital in Colombo and gave the leadership for the establishment of the first stem cell transplant unit in the country at the National Cancer Hospital. Dr Perera was hugely involved with both undergraduate and postgraduate teaching in the country. She moved to Ireland in 2001 and held a temporary consultant post in Mid-Western Regional Hospital, Limerick for 3 years and in UCH Galway for 9 months.

Dr Perera carries out regular morphology teaching for SpRs and is a member of IEQAS Haematology Review Group.

Fresh Blood Survey 2008

Mr Ivan Shirley, St Vincent's University Hospital, Dublin

Abstract

It is a well acknowledged fact that quality control materials react differently in all makes and models of present day analysers; therefore there can be difficulties in comparing results between them. The aim of this survey was to investigate as to whether all analysers gave comparable results on fresh blood. This is the third time for IEQAS to provide fresh blood samples for Full Blood Count Analysis (2002, 2004 and 2008).

The emphasis of this survey was to compare Full blood count, automated differential, ESR, RDW and Reticulocyte count.

The findings of this survey will be discussed.

Biography

Ivan Shirley FAMS is Chief Medical Scientist in the Haematology Department in St Vincent's University Hospital, Dublin 4. He has served on the Haematology Review group of IEQAS for 10 years and the Steering Committee for 7 years. In 2007 he was appointed Vice Chairman of the Steering Committee.

Haemolytic-uraemic syndrome (HUS) and thrombotic thrombocytopenic purpura (TTP)

Dr Niamh O'Connell, AMNCH, Tallaght

Abstract

Thrombotic thrombocytopenic purpura (TTP) and Haemolytic uraemic syndrome (HUS) are characterised by thrombosis in the microvasculature and a consequent microangiopathic haemolytic anaemia. However, the clinical symptoms and laboratory findings are poorly specific. The differential diagnosis includes a number of other thrombotic microangiopathies. The discovery of the ADAMTS13 gene and its translated protein, which cleaves ultra-large Von Willebrand factor multimers, was pivotal in the understanding of the pathogenesis of TTP. Tests for ADAMTS13 activity and the presence of inhibitors to the protein have been developed. Severe ADAMTS13 deficiency and the presence of an anti-ADAMTS13 antibody at diagnosis or in first remission is associated with TTP in two thirds of patients and predicts for disease relapse. However, one third of patients with a clinical diagnosis of TTP have normal or only moderately low ADAMTS13 levels, most often in the setting of secondary TTP. A number of different assays for ADAMTS13 have been described and the optimal method is still unclear. ADAMTS13 levels or inhibitors do not appear to have a pathological role in HUS. Verotoxin producing E.Coli and other bacteria appear to be the commonest cause of this condition.

Biography

Dr. Niamh O'Connell graduated from University College Cork in 1994. On completion of clinical training in Ireland as a Specialist Registrar in Haematology, she spent three years in the Katharine Dormandy Haemophilia Centre and Haemostasis Unit at the Royal

Free Hospital London as a Clinical Research Fellow. During her time there, Dr. O'Connell undertook a study of the molecular and haemostatic factors that influence the variability of the bleeding tendency in Factor XI deficiency. She investigated the use of recombinant factor VIIa to prevent bleeding after surgery in patients with factor XI deficiency and in the setting of massive haemorrhage. Since returning to Ireland in 2004, as Consultant Haematologist in The Adelaide and Meath Hospital, her research interests are in the area of Thrombosis and Haemostasis including Thrombin Activatable Fibrinolysis Inhibitor, polymorphisms influencing the response to anticoagulant therapy and mutations causing Macrothrombocytopenia

Transfusion Workshop

Highs and Lows of Preparing for an IMB/INAB Inspection for Hospital Blood Banks.

Abstract

Due to the EU Blood Directive 2002/98/EC (Setting Standards of Quality and Safety for the Collection, Testing, Processing, Storage and Distribution of Human Blood and Blood Components), all Hospital Blood Banks must be ISO 15189 accredited by November 2008.

The purpose of this workshop is to help laboratories through the accreditation process and to explore the possibility of standardising some elements of the process.

The workshop will open with a summary of the IEQAS survey (recently circulated to all Hospital Blood Banks), presenting an overview of the experiences of those preparing for IMB/INAB Inspections.

There will then be short presentations on some areas where difficulties were experienced. Delegates (divided into groups, each with a spokesperson) will have a 5-minute group discussion to highlight aspects not included in the talk; findings will be reported by each group spokesperson.

The final session will summarise all group findings before considering areas where a standardised approach could be developed to assist laboratories.

Biographies

Patricia Donnelly worked as a Chief Medical Scientist for many years in Our Lady's Hospital, Crumlin. She is now working independently providing advice in all areas of the EU Directive 2002/98/EC related to the Hospital Blood Bank and EU Directives 2004/23/EC, 2006/27/EC and 2006/86/EC related to Tissue Establishments.

Paul O'Brien is the Chief Medical Scientist in the Hospital Blood Bank at St Vincent's University Hospital. He has overseen the implementation of the Quality Management System that achieved CPA Accreditation in 2004 and ISO 15189 in April 2008.

Leslie Hopkins is a Senior Medical Scientist in the Hospital Blood Bank at St Vincent's University Hospital. One of her responsibilities is co-ordinating the efficient running of the Laboratory Information

System in the Hospital Blood Bank; this includes error logging, implementation and validation of upgrades.

Anne Geaney is a Senior Medical Scientist in the Hospital Blood Bank at St James's Hospital. Her main role is involved in the Laboratory Information System and she has been responsible for the successful implementation of the Blood Track system in St. James's Hospital. She is a member of the Academy Blood Transfusion Advisory Body.

Janet Butler is the Quality Manager in the Blood Transfusion and Haematology Department at the General Hospital, Castlebar. She has experience of CPA, INAB and IMB inspections and is interested in all areas of the Quality Management System.

Gabriel Hyland is the Chief Medical Scientist in the Hospital Blood Bank at the Children's Hospital, Temple Street. He has focused on Method Validation, Audits and Non-Conformance Reporting in the run up to the final INAB inspection.

Maeve Andrews is a Senior Medical Scientist in the Hospital Blood Bank at the Children's Hospital, Temple Street. Maeve is responsible for all aspects of the Training and Competency Programmes in the Hospital Blood Bank.

Deirdre Murphy is the Chief Medical Scientist in the Hospital Blood Bank at the Rotunda Hospital. She has been involved in CPA, IMB and INAB inspections. She is also the deputy Quality Co-ordinator for the Pathology Department in the Rotunda Hospital.

Posters

Inaugural IEQAS Des Kenny Memorial Prize

Poster A: IEQAS \div (IQC)ⁿ \equiv $\sqrt{\text{UQ}}$

Marie Crummy, Brendan Fitzpatrick, Haematology Department, Bon Secours Hospital, Glasnevin, Dublin 9.

Abstract

You would be forgiven for assuming that the above is a mathematical formula that provides the solution to a complex problem, indeed quality might be perceived as a problem by some. No, the above is a cryptic notation for "all (n) our Internal Quality Control (IQC) as interpreted by IEQAS, hopefully equates (\equiv) with the root ($\sqrt{\quad}$) cause for Ultimate Quality (UQ).

The quest for quality is not achieved by 'running controls' incessantly, 'eyeballing' their position between ± 2 SD of a mean value and then hoping that on the day the QA samples arrive that you will get the right result. There has to be a well thought out plan, that addresses issues of: what controls are used, their limits i.e. medically important values, how often they are run, how you interpret them, allowing you decide what results will be accepted and what will be rejected.

The aim of this presentation is to highlight how concepts of statistical process control (SPC), quality loss function (QLF), operations improvement, and failure prevention and recovery as used in industry, along with information on total allowable error (TE_a) and undetected lost medical utility (ULMU), all contribute to improving the quality of service provided by our laboratories, and that participation in external quality assessment / assurance schemes should compliment any Total Quality Management (TQM) program, by providing useful data for the quality manager in the clinical laboratory workplace.

References

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Westgard Website (www.westgard.com)

Poster B: Evaluation of rate and timed end point Biuret Method in the estimation of serum/plasma Total Protein in Beckman Synchron Analysers

Anne Doupe, Deirdre King, Biochemistry Dept., Mid Western Regional Hospital, Limerick

Abstract

The Biochemistry Department in Limerick have been estimating serum/plasma Total Protein on Beckman Synchron LX /DXC analysers since 2000 using the Total Protein Modular (TPm) method provided by Beckman Coulter. Throughout this time there has been a persistent negative bias associated with this chemistry. This has been observed in Quality Control schemes such as IEQAS and WEQAS and also in the serial data of patient results.

Several procedures have been put in place in order to alleviate this problem such as increased frequency of maintenance on the protein cup module, cleaning and replacing of reagent lines, frequent lamp calibrations and increased calibration of the method. To date none of these procedures have improved the method. This problem has been communicated to Beckman Coulter and they have acknowledged that the bias does exist and are still working on a solution.

Comparative studies and validation tests have been performed with the two Beckman Coulter Total Protein methods i.e. TPm and the cartridge Total Protein (Tp). Both methods use calibrators that are traceable to NIST. Both use Biuret Reagent. The assay time on the TP method is longer and the sample volume is smaller, it is also the cheaper of the two.

The results indicate that the Cartridge Total Protein Method (Tp) shows a higher recovery than the Modular Total Method in use. The vast majority of Beckman users avail of the TPm method. It should also be noted that users of both methods are grouped together under the Beckman user group in all the EQC schemes.

In order to maintain Quality performance the Tp method was implemented in the laboratory in September 2008.

Poster C: The stability of common biochemistry analytes in plasma stored in PSTII tubes overnight at room temperature and at 4°C

Lucille Kavanagh, Dr. Sinead Kelly & Dr. Sean Cunningham, Department of Clinical Biochemistry, St. Vincent's University Hospital, Elm Park, Dublin 4

Abstract

The gel barrier in the Becton Dickinson PST II (lithium heparin) gel tubes not only facilitates the separation of plasma from blood cells by centrifugation, but is itself a physical barrier between the two compartments during storage. Though one might intuitively store non-urgent specimens at 4°C, all stability studies by Becton Dickinson (BD) were carried out at room temperature (RT) and independent data is limited.

The aim of this study was to compare the analytical stability of routine chemistry analytes after overnight storage of plasma in PSTII tubes at RT and 4°C.

Sixteen paired specimens in PSTII tubes were separated by centrifugation and analysed for the following analytes: sodium, potassium, chloride, CO₂, urea, creatinine, creatine kinase, albumin, bilirubin, ALP, GGT, ALT, calcium, phosphate and magnesium, on the Roche Modular. The pairs were divided into two groups, one stored overnight at RT and the other at 4°C. The samples were re-analysed the next day.

At RT statistically significant differences were observed in CO₂, ALP, bilirubin, potassium, sodium, phosphate and albumin (seven analytes).

At 4°C statistically significant differences were observed for urea, creatine kinase, creatinine, CO₂, magnesium, bilirubin, albumin, potassium, ALT, and phosphate (eleven analytes).

This study demonstrates that storage of plasma on the gel barrier of PSTII tubes can have significant effects on the measurement of analytes, particularly when stored at 4°C. We conclude that it is advisable to analyse or remove plasma samples within 2h of collection in line with BD guidelines and in cases where this is not possible, it may be preferable to store samples at RT.

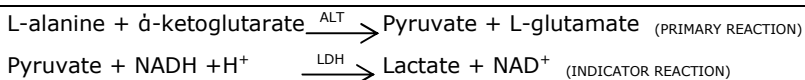
Poster D: Investigation of the stability of Beckman Coulter ALT on aged samples on Synchron LX/DXC Analysers

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Abstract

ALT is measured by an enzymatic kinetic method which utilises LDH in the final indicator reaction. See reaction scheme below

CHEMICAL REACTION SCHEME



Samples left unspun for >12 hours produce high levels of lactate which is converted to pyruvate by the action of serum LDH. This artifactually high level of pyruvate causes rapid kit LDH depletion which triggers an instrument error code 'OIR LO', falsely indicating a low ALT result. Several I.C.U. patients with multiple organ failure and high Lactate levels also present with these erroneous low ALT levels.

Most GP specimens have a corresponding Fluoride EDTA specimen accompanying them to estimate plasma glucose. This preservative stabilises both glucose and lactate levels

The aim of this study is to determine the effects of high Lactate on Beckman Coulter Alanine Aminotransferase (ALT) estimation.

Aged serum specimens which reported the 'OIR LO' error code were analysed for Lactate. Lactate values of >11mmol/L was obtained in all of these specimens. Their corresponding fluoride oxalate specimens all reported an ALT value.

These results show that high Lactate interferes with the Beckman Coulter ALT chemistry and measurement of the ALT on the Fluoride EDTA specimen may be implemented to alleviate this problem.

Participant Satisfaction Survey Oct 2007

Introduction

As part of our quality policy, IEQAS distributed a Participant Satisfaction Survey to all participants in October 2007. All information submitted was treated as confidential.

Results

Survey forms were sent to all participants registered with IEQAS (n=112); 55 (49%) were returned.

Participants were asked to rate IEQAS/Labquality by comparing with any other EQA provider they use. Tick boxes allowed an answer of Good, OK or Poor for each of 8 parameters. The results were very encouraging (Fig. 1):

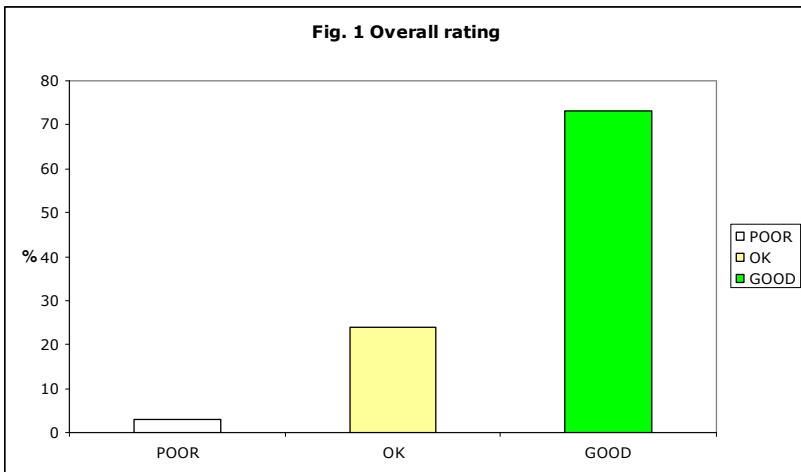
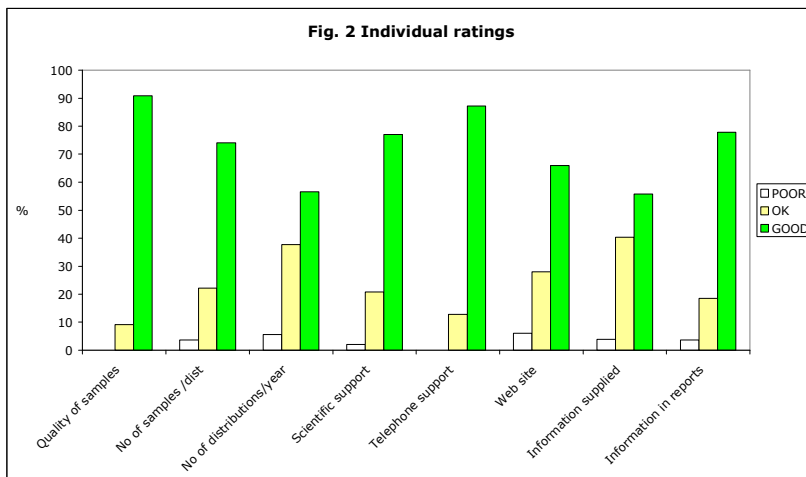


Figure 2 shows the ratings for each of the 8 parameters:



The table below shows any specific comments from those giving a 'Poor' rating:

	n	Comment
Samples /distribution	2	<ul style="list-style-type: none"> • Myocardial Markers: more • Clin Chem: more
Distributions/year	3	<ul style="list-style-type: none"> • Myocardial Markers, Clin Chem: more • CRP: more • Transfusion: more (UKNEQAS 10/year)
Scientific support	1	<ul style="list-style-type: none"> • Would like Transfusion topics covered at conference
Web site	3	<ul style="list-style-type: none"> • Labquality site tedious, prefer access via IEQAS website. • Make <u>all</u> web returns more user friendly. • Fax to Labquality awkward.
Information supplied with sample	2	<ul style="list-style-type: none"> • Introduction of participants' manual with all information in one place eg, distribution frequency, web site instructions, interpretation of reports explanation.
Information in reports	2	<ul style="list-style-type: none"> • FBC: grouping all users together can cause problems; better to group all technologies together, even if numbers in group are small. • <i>C difficile</i> reports quite confusing.

Participant recommendations already implemented include:

- Participant Handbook, introduced in January this year, providing a single reference document, includes:
 - Instructions for use (IEQAS surveys)
 - Interpretation of reports (IEQAS surveys)
 - IEQAS website instructions & web submission of results (IEQAS surveys)
 - Labquality website details
 - Details of all current schemes
 - IEQAS committee members
- Transfusion Workshop now included in the conference.

Participants then gave very useful feedback on suggestions for Special Surveys/Annual Conference, and the most important things they would like their EQA providers to improve. These were a very useful resource, not only for planning this year's Conference programme, but for our ongoing EQA service.

Finally, participants were asked for their general comments. They were all extremely positive about IEQAS; typical examples:

- Haematologist input in BCM very informative & necessary.
- Review of A_{1c} survey informative.
- IEQAS scheme & support useful when setting up lab as we had a lot of initial problems.
- Good service, friendly people & interesting conference.
- IEQAS is a very important Ext QC scheme & is extremely beneficial. The Conference is an event not to be missed.
- Conference very good. Excellent reviews & well chosen speakers.

Conclusion

This was an extremely useful survey and we are very encouraged by the general satisfaction of the vast majority of our participants, and with your very constructive suggestions. Thanks to all for taking the time to complete the questionnaire. We continue to welcome your suggestions throughout the year.

We plan to develop an annual short online survey to continue to gather this valuable information.