Minutes of the NGSP/IFCC Manufacturer Forum

Monday July 30, 2018 8:00AM—10:00AM
Marriott Marquis Chicago, Chicago IL

Presenters:
Randie Little—NGSP Network Coordinator
David Sacks —Chair, NGSP Steering Committee
Juliane Lessard—FDA
Cas Weykamp—IFCC HbA1c Network Coordinator
Garry John—Chair, IFCC C-EUBD

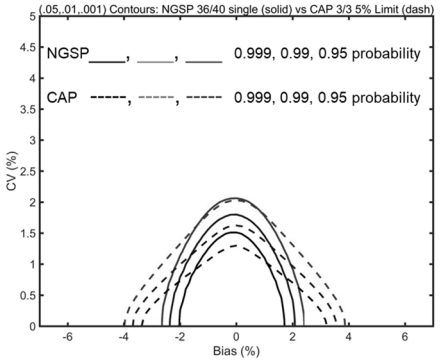
Present were members of the NGSP Steering Committee and representatives from various manufacturers, laboratories and agencies.

1. **Welcome and Introduction— David Sacks, Chair, NGSP Steering Committee**
   D. Sacks welcomed those in attendance on behalf of the NGSP and IFCC.

2. **NGSP Progress Report—Randie Little, NGSP Network Coordinator**
   - The NGSP is overseen by a Steering Committee and includes an administrative core and a laboratory network. The laboratory network consists of the Central Primary Reference Lab (CPRL), which runs the original DCCT HbA1c method, 2 backup PRLs and 10 Secondary Reference Laboratories (SRLs) located in the U.S., the Netherlands, Japan and China.
   - The network is monitored monthly via 10-sample comparisons and also by long-term QC specimens analyzed quarterly.
   - The NGSP laboratory network is linked to the IFCC laboratory network via twice yearly sample comparisons.
   - The NGSP has three processes
     - Calibration: Informal process to assist manufacturers/labs with calibration of their methods.
     - Certification: Formal process where manufacturer or lab certifies against a SRL via a 40-sample comparison and must pass specific criteria.
     - Proficiency testing: CAP whole blood survey, which is accuracy-based with target values assigned by the NGSP network, shows how well the harmonization process is working.
   - Number of certified methods and laboratories
     - The numbers of certified methods and laboratories have increased over the years; currently there are ~250 certified methods and ~150 certified laboratories.
     - The number of certified methods continues to increase while the number of certified labs has leveled off.
     - Certified laboratories are mostly outside of the U.S., and are distributed throughout the world.
   - Improvement in HbA1c testing.
     - There has been much improvement in the comparability of HbA1c results since 1993 when the results of the DCCT were reported.
     - CAP GH2 survey 2018A:
       - There are still several methods that show a lot of variability among laboratories and/or significant bias vs. the target values, but they are used by a small number of labs.
       - 2018A CAP Pass Rates

Specimen	NGSP Target (% HbA1c)	Acceptable Range	Pass rate % (Low/High)	Cumulative Pass Rate % ±6%
GH-01	7.15	6.7-7.6	81.8/100.0	**95.9**
GH-02	5.19	4.8-5.6	72.7/100.0	**97.3**
GH-03	8.42	7.9-9.0	79.1/100.0	**96.8**
GH-04	9.79	9.2-10.4	81.8/100.0	**95.6**
GH-05	6.12	5.7-6.5	84.6/100.0	**97.1**

    - The all-method CVs have shown a downward trend since 2000.
    - The overall pass rates using the current cutoff of ±6% have been >95% for the last 5 surveys.
    - The ion-exchange, CE, affinity and enzymatic methods overall showed lower CVs than immunoassay methods, but there was some overlap when looking at individual methods.
    - Mean absolute biases varied among individual methods, but overall were comparable among method types.
    - Among individual methods, some of the mean biases were positive while others were negative.
    - Method-specific, between-laboratory CV's ranged from 1.0% (Arkray HA8180) to 4.7% (Beckman Synchron).
    - 76% of laboratories are using methods with CVs<3.5% at all five HbA1c levels.
    - All-method CVs for the most recent survey ranged from 2.9-3.6% (3.0, 3.6, 2.9, 2.9, 3.0%)
    - Pass rates (at the current ±6% cutoff) have been >95% in the 5-10% HbA1c range for the last 7 surveys.
- Hb variant Interference
    - Methods with interference of one or more common variants:
        - Beckman AU (According to the manufacturer, the current version does not have interference but this has not been independently verified yet)
        - Bio-Rad Variant II Turbo
        - Tosoh G7
        - Tosoh G8 (current version in the U.S.)
    - Between 13.5% and 16.2% of laboratories are using a method with interference from one or more common variants
- Upcoming Change in Certification Criteria
    - Current Limits for NGSP
        - NGSP Manufacturer and Level II Lab Certification Criteria: 37/40 results must be within ±6%
        - NGSP Level I Lab Certification Criteria: 38/40 results must be within ±6%
    - 2019 Limits for NGSP
        - NGSP Manufacturer and Level II Lab Certification Criteria: 36/40 results must be within ±5%
        - NGSP Level I Lab Certification Criteria: 37/40 results must be within ±5%
    - Tightening NGSP Certification Criteria to be in Line with CAP Grading (C. Parvin analysis)



- NGSP criterion of 36/40 results within ±5% compared best to the proposed CAP criterion of 3/3 passing at ±5%
- Pass Rates for NGSP certification: ±6% vs. ±5%: Based on 6 months of certification data in 2018

Certification Type	Current ±6%	2019 ±5%
Manufacturer	92.2%	85%
Level I Lab	95.1%	90.2%
Level II Lab	78.6%	71.4%

- Conclusions
  - The NGSP network is still doing well with very low CVs
  - Hb variant interference is still a problem for a small number of methods…but a fair number of labs.
  - The change to tighter criteria for NGSP certification will cause more failures but is necessary if we want to see lower overall variability in HbA1c results for patient care.

3. CAP Grading—David Sacks

- CAP Grading
  - Initially, CAP used peer group grading for PT for GHb
  - Subsequently, introduced whole blood PT, but maintained peer group grading
  - In 2007 changed to accuracy-based grading
  - Target values assigned by NGSP network
  - +/- 15% acceptable
  - 99% pass rate
- PT Criteria Tightened
  - In 2008 acceptability reduced to 12%
  - In 2009 acceptability reduced to 10%
  - In 2010 acceptability reduced to 8%
  - In 2011 acceptability reduced to 7%
  - In 2013 acceptability reduced to 6%
- CAP 2010, 2012 & 2013 GH2A Pass Rates at ±6% HbA1c Cutoff

	2010	2012	2013
Low (5.1/5.6%/6.07)	91.0	95.8	93.4
Medium (6.0/7.2%/7.1)	91.6	92.9	95.3
High (8.4/9.4%/9.3)	88.6	92.5	94.3

- CAP Criterion 2020: ±5%
- Pass Rates for CAP 2018 GH5-A: ±6% vs. ±5%

Sample ID	±6%	±5%
GH-01	95.9	**95.9**
GH-02	97.3	**93.6**
GH-03	96.8	**95.9**
GH-04	95.6	**92.4**
GH-05	97.1	**96.1**

- By comparison, CAP 2010 GH2A Pass Rates at ±8%

	At ±8%
GH2-01 (5.9%)	95.5
GH2-03 (7.4%)	95.4
GH2-02 (9.8%)	95.2

- Summary

- CAP progressively tightened PT grading
  - 2007 - 15%
  - 2014 - 6%
  - 2020 - 5%
- Lab performance on CAP surveys improving due to better methods

Discussion:

CAP Criterion
D. Sacks noted that all labs participating in the 2018 and 2019 CAP surveys will receive an educational grade showing how they performed using the 2020 criterion.

What is the change from 6% to 5% based on, assay performance?
D. Sacks responded that the change is based on clinical need. HbA1c results need to be very accurate, clinicians use the values to treat and diagnose patients with diabetes. The ADA cited improvement in assay performance as one of the main reasons they began recommending HbA1c for diagnosis in 2010.

Will the CAP criterion be tightened further in the future?
D. Sacks said that although he cannot completely rule it out, there are currently no plans to further tighten the criterion.

Have you assessed whether the value assignments for NGSP and CAP need to be tightened?
D. Sacks said the analyses performed by C. Parvin have looked at this, there is some uncertainty inherent in the value assignments but the impact is minimal. R. Little added that as HbA1c methods have improved, so have the methods used by the SRLs. The confidence intervals for the NGSP value assignments are listed in the CAP summaries posted on the NGSP web site; they are very small. D. Sacks asked about the between-lab CVs of the SRLs, R. Little said they are consistently ≤1%. We monitor the network very closely to ensure that the SRLs consistently match each other very closely.

Variant Interference
R. Little said that of the methods that have interference from one or more variants, the G8 (U.S. version) is the most important because of the sizeable number of users on the CAP survey (~370).

NGSP Criteria
R. Little said that the 2018 NGSP certification reports going out to manufacturers and laboratories are including information on whether they passed using the 2019 ±5% criteria.

With tighter NGSP criteria and more failures, is the NGSP prepared to increase assistance to manufacturers?
R. Little responded that when the criteria have been tightened in the past this has not been an issue. The NGSP SRLs are here to help manufacturers, if at some point this requires extra staff, etc. this will be addressed.

4. FDA Update on Diagnostic HbA1c Assays— Juliane Lessard

- Regulatory History HbA1c
  - Since 1976: Monitoring HbA1c tests
    - For patients already diagnosed with diabetes
    - Track long-term glycemic control
  - Since 2013: Diagnostic HbA1c tests
    - For patients without diabetes
    - Diagnose diabetes
    - Determine the risk of developing diabetes in the future
- Regulatory Information

- 21 CFR 862.1373 – Diagnosing Diabetes (PDJ): Measurement of hemoglobin A1c is used as an aid in the diagnosis of diabetes mellitus and as an aid in the identification of individuals who may be at risk of developing diabetes mellitus.
- 21 CFR 864.7470 – Monitoring Diabetes (LCP): Measurement of hemoglobin A1c is used to monitor long term blood glucose control in patients previously diagnosed with diabetes.

- Premarket FDA review of HbA1c Tests
  - Assays detecting Hemoglobin A1c for clinical use are regulated by FDA as In Vitro Diagnostic (IVD) Devices
  - Review of IVDs is driven by the intended use of the device: The types of validation studies that are needed depend on the claims that are made in the intended use
  - The risk of an IVD is based on the consequences of a false result
    - Class I = Low risk: Usually exempt from Premarket FDA review
    - Class II = Moderate risk: Requires a predicate device and 510(k) clearance
    - Class III = High risk and novel intended uses: Requires premarket approval (PMA)
  - HbA1c tests are considered Class II moderate risk.
- Cleared diagnostic HbA1c assays

	HPLC	Immunoassay	Enzymatic	Capillary Electrophoresis	Boronate Affinity	Total
Number of 510(k)s	5	5	4	2	1	17
Central Lab	5	5	4	2	1	17
Point of Care	-	-	-	-	1	1
Venous Whole Blood	5	5	4	2	1	17
Venous Hemolysate	1	4	4	-	-	9
Capillary Fingerstick	-	-	-	-	1	1

- Recent 510(k) clearance of 1st diagnostic point-of-care HbA1c device
  - Addition of a diagnostic claim to a point-of-care HbA1c device with an existing claim for monitoring of diabetic patients
  - Capillary fingerstick sample matrix
  - Intended for moderate complexity point-of-care laboratories
    - FDA Advisory Panel Meeting in 2016 discussed use of diagnostic HbA1c assays in CLIA Waived settings – panel recommended against it
    - 2018 American Diabetes Association Standard of Care clinical guidelines explain: "Although point-of-care A1C assays may be NGSP certified, proficiency testing is not mandated for performing the test, so use of point-of-care assays for diagnostic purposes is not recommended but may be considered in the future if proficiency testing is performed, documented, and deemed acceptable."
- Diagnostic HbA1c tests – Special Controls
  - Initial and annual standardization verification by a certifying glycohemoglobin standardization organization deemed acceptable by FDA (e.g. NGSP)
  - Precision:
    - Blood samples with concentrations near 5.0, 6.5, 8.0, and 12% HbA1c
    - Minimum of 20 days using at least 3 lots of the device on each of 3 instruments
  - Accuracy:
    - Minimum of 120 blood samples that span the measuring interval of the device
    - Compare results of the new device to results of a standardized test method to show little or no bias
  - Total Error (TE):
    - Single measurements by the new device compared to results of the standardized test method.
    - TE at 5.0%,6.5%, 8.0% and 12% must be less than or equal to 6%
  - Hemoglobin (Hb) Variant Interference:
    - Little to no interference from common hemoglobin variants, including Hemoglobin C, Hemoglobin D, Hemoglobin E, Hemoglobin A2, and Hemoglobin S.
    - When assay interference from Hemoglobin F or interference with other hemoglobin variants with low frequency in the population is observed, a warning statement must be

placed in a black box and must appear in all labeling material for these devices describing the interference and any affected populations.

- Premarket Review Considerations
  - Precision
    - Special control requirements must be fulfilled
      (a) Native patient samples with HbA1c concentrations near 5.0, 6.5, 8.0, and 12%
      (b) ≥ 20 day study
      (c) 3 lots on each of 3 instruments
    - If device uses capillary fingerstick blood as a sample matrix, all relevant components of imprecision should be evaluated to estimate total error customers can expect--Public decision summaries can help with study design
    - If device is intended for point-of-care use, sponsors should demonstrate reproducibility at a minimum of 3 intended use sites with multiple operators per site
  - Hemoglobin (Hb) Variant Study
    - The concentration of Hb variant in samples should be established by FDA cleared method or evidence that method used is reliable and accurate
      (a) Levels of Hb variant tested should be reflective of Hb variant levels present in the intended use population. FDA provides general guidelines of these levels based on published information, but welcomes input/data from industry or NGSP on Hb variant levels in the general population using current methodologies
      (b) Hb variant levels tested for cleared devices are described in publicly available decision summaries
    - Compare candidate device results to FDA cleared HbA1c method free of Hb variant interference tested
    - Public decision summaries = resource for how to report data from this study
  - Method Comparison (Accuracy) Study
    - "Standardized test method" should be a FDA cleared, certified comparator method run in an NGSP secondary reference lab
    - Recommended distribution of samples (120 minimum):

Hemoglobin A1c level	Number of samples	Percent of samples
≤ 5%	5	4.2%
5 – 6%	15	12.5%
6 – 6.5%	30	25.0%
6.5 – 7%	30	25.0%
7 – 8%	20	16.7%
8 – 9%	10	8.3%
> 9%	10	8.3%
Total samples	120	100%

    - Deming and Passing-Bablok regression results + graphs
    - Bias estimates at 5.0, 6.5, 8.0, and 12.0% HbA1c
  - Total Error
    - Total Error should be calculated at 5.0%,6.5%, 8.0%, and 12% HbA1c
    - Should reflect intended use of the device (e.g. point-of-care, venous vs. capillary)
    - %TE =|%Bias| + 1.96 x %CV x (1+ (%Bias/100))
- Regulatory Process
  - A "Pre-submission" can be used to discuss diagnostic HbA1c tests with CDRH – the earlier the better!
  - Pre-submissions allow for informal communication between CDRH and sponsors
  - During a Pre-submission, CDRH can give feedback on analytical and clinical study protocols for test validation
  - Test-specific challenges can be discussed prior to the start of validation studies
  - FDA pre-submission guidance: http://www.fda.gov/downloads/medicaldevices/deviceregulationandguidance/guidancedocuments/ucm311176.pdf
- Additional Resources
  - Public Decision Summaries for diagnostic HbA1c devices (product code PDJ):https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfPMN/pmn.cfm

- Guidance for the Content of Premarket Submissions for Software Contained in Medical Devices: https://www.fda.gov/downloads/MedicalDevices/DeviceRegulationandGuidance/GuidanceDocuments/ucm089593.pdf
- Content of Premarket Submissions for Management of Cybersecurity in Medical Devices: https://www.fda.gov/downloads/medicaldevices/deviceregulationandguidance/guidancedocuments/ucm356190.pdf
- We also recommend the Clinical Laboratory and Standards Institute Evaluation Protocol Guidelines

- Questions? Ask us! juliane.lessard@fda.hhs.gov, 240-402-6126

Discussion:

FDA Process

The FDA way of calculating %TE makes it easier to pass a total error criterion if there is a negative vs. positive bias.
J. Lessard acknowledged this, stating that the total error equation is based on current CLSI guidelines. In the review process the FDA does consider whether the findings presented are reflective of what the data is actually showing.

Regarding accuracy testing, you stated that the comparison needs to be performed against a SRL. CLSI guidelines state that the comparison should be performed at 3 different sites, do manufacturers need to do this?
J. Lessard said no, manufacturers can generate the data for their method comparison studies for a central laboratory diagnostic HbA1c assay at multiple sites if they wish to but it is not a requirement. The comparator method testing should be conducted in a SRL, which is typically a single site.

Regarding the precision testing requirements, the requirement is that it be performed using 3 different lots on each of 3 different instruments. There has been confusion over whether the 3 different instruments need to be at 3 different sites or if they can all be at the same site. Also, if there are 3 instruments at the same site are 3 different operators required or can one or two operators run all 3 instruments?
J. Lessard said it depends upon the intended use of the device. If the method is to be used within a central laboratory one site is typically sufficient, but if it is a POC device you would have to show precision (and accuracy) over multiple sites. Regarding the number of operators the design of the precision study should reflect how the instrument will be used, this includes the number of operators. This is a question best addressed in the pre-submission.

If that is the case, each of the sites has to analyze the same samples. This means multiple aliquots would need to be made and each site would have to run them over 20 days. The logistics involved could result in more variability, and this is not reflective of how the test is actually used.
J. Lessard agreed, noting that there is only one currently approved POC device. That precision evaluation included both limited reproducibility studies at several sites and a 20-day precision study at a single site. FDA would need to consider the specific method when determining if this type of protocol is appropriate.

Since this is a 510k we need to show substantial equivalence to a predicate device, does this have to be a SRL?
J. Lessard said for a diagnostic HbA1c assay, the method comparison needs to be performed against a standardized method (SRL) to fulfill the special controls, but the predicate device used to show substantial equivalence does not need to be a SRL method – it can be any legally marketed HbA1c assay cleared for the diagnosis of diabetes.

In terms of the limits for variant levels when evaluating Hb variant interference, different methods for measuring the levels of the variants may give different results (e.g. one method may give a result of 27%, another might be 32%). How are these limits set, and is there some flexibility?
J. Lessard said the method has to be shown to be substantially equivalent, meaning that it needs to be tested to levels at least as high as what was seen previously. We try to be reasonable with these limits and recognize that it can be difficult to obtain samples with these levels. On the other hand, just testing some individuals with the variant present may not be adequate to evaluate interference across the range of levels that may occur. Right now there is not enough data for us to adjust these limits, even based on methodological considerations. If data could be provided showing how the levels of these variants are distributed in the population we could consider it.

Why are comparison samples included that are well outside of the diagnostic range/cutoff in order to obtain a diagnostic claim?
J. Lessard said they are included to show the total error for the device throughout the reportable range, not just around the cutoff. Focusing just on the range around the cutoff would not be adequate to show substantial equivalence. C. Weykamp added that when using a POC device you must be sure that a true result of 10% is not reading as 6%, there must be some validation that the instrument is properly measuring results that are outside of the diagnostic range.

What ranges are used by the IFCC and NGSP for their comparisons?
C. Weykamp said there is no definite answer, the IFCC generally goes up to at least 10%, 12% if available. R. Little said that NGSP certification samples used to go up to 12%, but now they go up to 10%.

When looking at a patient result, how will a physician know if the result is a diagnostic vs. a monitoring result?
J. Lessard said it is up to the lab to use a method that is for the intended use, and the proper code should be used for the test.

When a POC method is available as a moderate complexity test for diagnosis and a waived version for monitoring, how is that controlled in terms of distinguishing them?
J. Lessard said there are control mechanisms in place such that CLIA-waived user cannot perform the diagnostic test on their device. R. Little said they are labeled as two different tests, so theoretically a waived lab cannot purchase the diagnostic method. Also, the cartridges are different, so the diagnostic method cartridges will not work in waived instruments.

If a method got the diagnostic claim, then failed a subsequent annual standardization, what is required in terms of changing the labeling for that method?
J. Lessard said that failing annual standardization means that a diagnostic HbA1c device is no longer in compliance with the special controls.

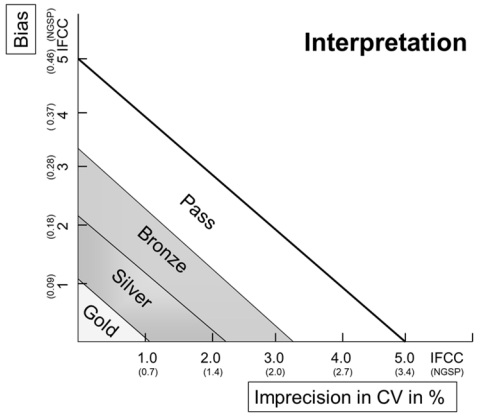
Since CAP is changing to 5%, does the FDA plan to change its' total error requirement as well?
J. Lessard said no, the special controls specifically state 6% and there are no plans to change that right now. If the criterion is further tightened in the future we may need to have discussions at that time.

4. Update: IFCC Network—Cas Weykamp

- IFCC Roadmap Optimum Performance HbA1c: Steps
  - IFCC Working Group
    - Reference Method
    - Global Network
    - Services Manufacturers
  - IFCC Task Force: Model Quality Targets
  - IFCC Committee: Monitoring Quality in the EU and US
- Services to Manufacturers
  - Calibrators to achieve Traceability
  - Controls to check Traceability
  - Certification Programme to prove Traceability

- Variant Samples (FDA Approval)
- Value Assignment Specimens
- Monitoring Master Equation IFCC – NGSP
- Calibrators: Specifications
  - Units provided: HbA1c: IFCC (mmol/mol) and NGSP (%) Units, mmol/L, g/dL
  - Total Hb: mmol/L, g/dL
- Controls: Specifications
  - Low, medium and high levels
  - Medium provided with low, medium and high hemoglobin concentrations
- Certification Program: Transition
  - New format for certificate based on quality targets
  - Will change from 12 duplicate samples to 24 individual samples
  - New web site: will change from www.ifcchba1c.net to www.ifcchba1c.org.
- Variant samples: Collection of AS, AE, AC, AD samples in stock along with limited quantities of A2, elevated HbF and rare variants.
- Monitoring Master Equation IFCC – NGSP
  - NGSP = 0.0915 x IFCC + 2.15
  - Sample comparisons between the networks are performed twice a year.
  - The ME is monitored over time and has been shown to be stable over time since 2001.

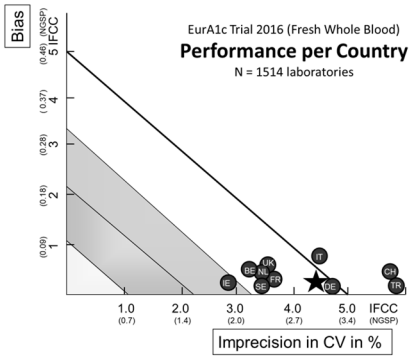
- Model Quality Targets
  - Published in Clinical Chemistry in 2015 (Clin Chem. 2015 May;61(5):752-9).
  - Essence of the Model
    - Model includes Sources of Analytical Error: Bias and Imprecision combined = Total Error
    - Define Allowable Total Error: "Results should not differ more than 5 mmol/mol from the true value"
    - Define Risk of not meeting the criterion: "It is acceptable that 1 out of 20 results will not meet the defined criterion"
  - Graph

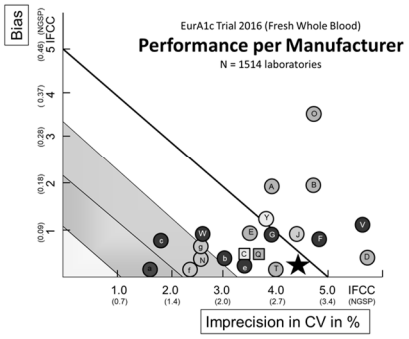


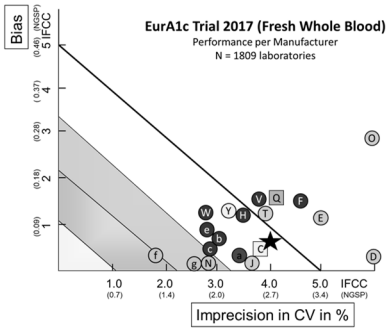
  - Application and Definition Imprecision
    - Country: Between-lab CV
    - Group of labs (manufacturer): Between-lab CV
    - One lab: Within-lab CV
- Monitoring Quality—EU: EurA1c
  - Concept: Once a year the respective European EQA/PT Organizers use the same 2 samples
  - Information
    - Overall performance in Europe
    - Performance per country
    - Performance per manufacturer
    - Performance per country per manufacturer
  - First EurA1c 2016: 17 countries participated
    - EurA1c samples

(a) Fresh Whole Blood
    i. Advantage: Commutable and suitable all methods
    ii. Disadvantage: Limited stability
(b) Lyophilized Hemolysate
    i. Advantage: Stable
    ii. Disadvantage: not commutable for all methods, not suitable for some POCT instruments

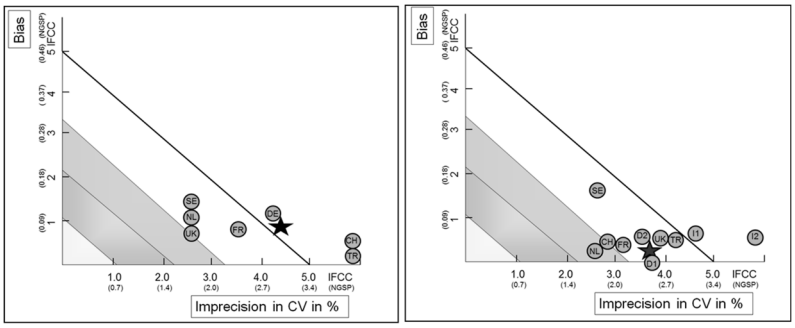
- Choice: National EQA organisers: Logistics in the Country
- Some countries chose lyophilized, some whole blood, others chose both
- Results: Fresh whole blood







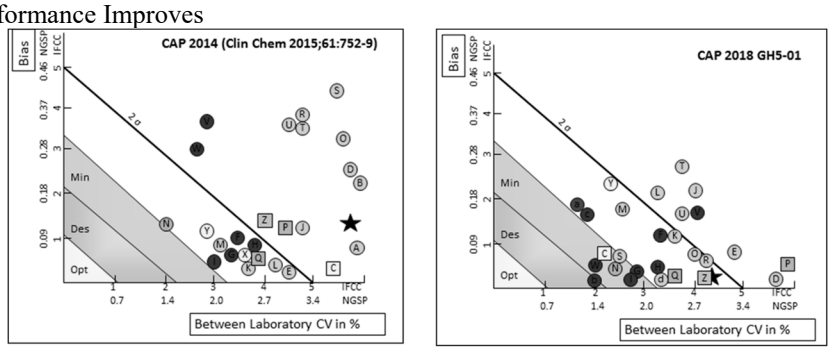
- EurA1c Trial - Manufacturer per Country



2016 2017

- Results are published in Clinical Chemistry (Clin Chem. 2018 Aug;64(8):1183-1192)

- Monitoring Quality—US:
  - Performance Improves



2014 2018

  - Several poorly performing methods from 2014 were off the market by 2018, several new methods for 2018 performed very well.
- Presentation available: Request c.w.weykamp@skbwinterswijk.nl

Discussion:

IFCC Quality Targets

Are there definitions for what gold, silver and bronze mean?

C. Weykamp said that there are two ways of defining whether performance is good enough. One is arbitrary, based on clinical decision limits, the other is based on biological variation. The 2 sigma (minimal acceptable) level is based on the former and is based on a difference of 5mmol/mol (0.5% DCCT), which is what clinicians consider to be a significant change in HbA1c. Biological variation levels are generally defined as optimum, desireable and minimum, this is what was used to define bronze, silver and gold. The "medal levels" represent the performance that should be achieved when using HbA1c for diagnosis, but this is a challenge for manufacturers.

Have you evaluated the performance of the SRLs in terms of what categories they would fall within?

C. Weykamp said yes, they are all in either the silver or gold category.

5. IFCC Committee for the Education in the Use of Biomarkers in Diabetes (C-EUBD) —Garry John, Chair, IFCC C-EUBD

- Members
  - Garry John Chair UK

    - Emma English Secretary UK
    - Rajiv Erasmus Member ZA
    - David Sacks Member US
    - Cas Weykamp Member NL
- Corresponding Members, Nominated by National Societies
    - D. Aslan Turkish Biochemical Society (TBS)
    - W. Cheneke Gebisa Ethiopian Medical Laboratory Association (EMLA)
    - A. Mosca Italian Society of Clinical Chemistry and Clinical Molecular Biology (SIBioC)
    - A. Sato Japan Society of Clinical Chemistry (JSCC)
    - P. Gillery Société Française de Biologie Clinique (SFBC)
    - A. Coj Lithuanian Society of Laboratory Medicine
    - R. Kumar Dubey Nepalese Association for Clinical Chemistry (NACC)
    - B. Kumar Yadav Nepalese Association for Laboratory Science (NAMLS)
    - B. Okesina Association of Clinical Chemists Nigeria (ACCN)
    - R. Nanda Association of Medical Biochemists of India (AMBI)

- Corresponding Members, nominated by Corporate Members
    - S. Baraldi A. Menarini Diagnostics
    - R. Molinaro Siemens Healthcare
- Consultant, HbA1c POCT: Erna Lenters
- Updated Terms of Reference
    - To work with IFCC Corporate Members to develop a consensus position on the information to be included in the Instructions for Use (IFU) as it relates to the clinical use and interpretation of HbA1c methods
    - Develop quality targets for the measurement of HbA1c and other biomarkers, and on the basis of these targets, and in conjunction with professional bodies, advise on the use of biomarkers for monitoring, diagnosis and screening of diabetes and glucose intolerance.
- Achievements to Date
    - Educational Events in:
        - China
        - India
        - Algeria
        - United Arab Emirates
        - Kenya
        - Egypt
        - Ethiopia
        - Mauritius
    - Corporate Sponsors
        - A.Menarini Diagnostics
        - Roche Diagnostics
        - Sebia
        - Tosoh
        - Trinity Biotech
    - China: Major project for coming year to develop a Working Group between IFCC and Chinese Diabetes Society.
        - To develop quality systems
        - Promote joint working between Laboratories and Diabetologists
        - Initiate joint working
    - Scientific Advisory Committee for Satellite Symposia:
        - Oriental Congress of Laboratory Medicine Shanghai, 2016
        - IFCC EuroMedLab, Greece, 2017
        - IFCC WorldMedLab, South Africa, 2017

        - IFCC EuroMedLab, Spain, 2019
        - COLABLIOCLI, Panama, 2019
    - EurA1c project: assessment of HbA1c analysis in European countries (Cas)
    - Workshop in SA on HbA1c quality; the target audience being Ethiopia but attendees also from SA, Kenya and Nigeria
    - Investigation of HbA1c quality in a multicentre study (30 labs) across China.
    - Numerous publications relating to quality targets and assessment of HbA1c quality.
- Future plans
    - Repeat EurA1c project with increased countries involved
    - Develop an IFCC-Chinese Diabetes Society Working Group
    - Develop an IFCC-African Working Group
    - PhD opportunity: Can we use Point of Care HbA1c Testing (POCT) to diagnose type 2 diabetes? (University of East Anglia)
    - Symposa developed for:
        - 2019 IDF Congress in Busan, Korea 2-6 December
        - 2020: IFCC WorldLab, Coex, Seoul, Korea 24-28 May
- Thank you for your support: Please contact one of us if you are planning educational events
- Twitter: @hba1c_research

Discussion:

IFCC C-EUBD
G. John noted that the IFCC Working Group on HbA1c Standardization was successful in standardizing HbA1c to a higher order reference method, and was then disbanded. The subsequent IFCC Task Force was then formed to implement the standardization and was also successful and subsequently disbanded. The IFCC C-EUBD has been formed to focus on the educational aspects of using the test.

Can you elaborate as to the contents and duration of the educational events?
G. John said there are no definitive timeframes, events can vary from a single lecture to full day or two-day symposia. The topics and information presented can vary depending upon the needs of the particular region, but mainly we try to focus on clinical use and interpretation as the analytical aspects have mostly been addressed.

There were no further questions, D. Sacks thanked everyone present for their attendance; the meeting was adjourned at 9:50 AM.

Minutes prepared by C. Rohlfing 9/19/18. Modified by R. Little 9/20/2018 and J. Lessard 10/5/2018.