IFCC C-STFT 2022 HYBRID MEETING

Tuesday, June 28, 2022

WorldLab Congress Seoul

Meeting Minutes

1) **Welcome and Introduction**

Hubert Vesper (CDC, USA), **Katleen Van Uytfanghe** (UGent Ref Lab Network, Belgium, **Marvin Berman** (Rep Gordon Avery, Abbott). *Virtual participants*: **Uliana Danilenko** (CDC Ref Lab Network, USA), **Teun van Herwaarden** (Nijmegen Ref Lab Network, The Netherlands), **Fidelia Pokuah** (CDC Ref Lab Network, USA), **Veronique Raverot** (Hospices Civils de Lyon, France), **Violeta Raneva** (ReCCs)**, Eri Shimizu** (ReCCs), **Michael Rottmann** (Roche Diagnostics, Germany), **Paul Williams** (Australia), **Stefaan Marivoet** (Tosoh, Belgium), **Stephan Fellner** (DiaSys Diagnostic System), **Vincent Chen** (Snibe, China), **Carol Dauscher** (SIEMENS), **Nino Bekaia** (Laboratory Medince Aossciation of Georgia - GLMA), **Dr. Ashish Agravatt** (India), **Zengming Jin** (Snibe); **Jiazhen Shen** (Snibe), **Jens Petter Berg, Wataru Motsuchi, Laura-Leena Kiiskinen**

- Reviewed C-STFT and corresponding members and consultants and reference laboratory network members

2) Review terms of reference

Reviewed C-STFT Terms of Reference for FT4 Reference System Measurements and TSH Harmonization

Note: Our reference system is traceable as outlined in ISO 17511. The calibration of the free thyroxine measurements are traceable to SI-units. However, results reported to the patient are only traceable to the FT4 RMP which defines the measurand. C-STFT therefore maintains the reference measurement system and supports standardization (national and regional) activities to ensure measurements are traceable to the IFCC system and ultimately to SI.

3. FT4 and TSH standardization/harmonization activities update

a. FT4 RMP Network

- currently 4 labs actively operate the RMP; 2 organization interested in joining: Autobio (China) and Government of Western Australia, Dept of Health
- Second network method comparison (MC2) – goal to demonstrate comparability of candidate reference labs over broader concentration range and identify potential sources of bias (see presentation for details on sample description)
- All labs have independent reference calibration procedures
- Next steps for MC2 are to evaluate results once all data sets are complete and evaluate NIST reference materials, prepare manuscript, revise RMP SOP based on feedback and formalize network
- Sustainability of the RMP – the members of the network are working on investigations (different membranes, ED cells and related hardware and primary calibrators) to assess impact on measurement accuracy. Initial data suggest some flexibility in terms of the types of supplies used with the FT4 RMP. This means that operation of the FT4 RMP is independent of specific suppliers or manufacturers.

b. **FT4 National/Regional activities**

- **CDC- USA**
  - CDC started a clinical standardization program for FT4 – design similar as other CDC standardization programs; so called phase 1 samples to assess analytical performance are available; phase 2 certification samples are planned to be available in Jan 2023. Efforts to measure US NHANES is underway (CDC developing routine method for FT4) to assist with RI development. This routine method (based on 96-well plate formats) is shows very good agreement to the FT4 RMP.

  - Baseline interlaboratory study for FT4 measurements was completed and data is under review. Preliminary results of CDC FT4 and TSH inter-lab comparison study. (see presentation on study design): 7 immunoassays and 7 LC/MS - 10 commercial FT4 assays

and 4 LDT; most shows negative mean bias (range -34 to -4.5%), several assays showed closed agreement with CDC RMP, even some immunoassays. ED MS-based assays agreed well with the FT4 RMP. Data suggest that the observed bias is mainly due to differences in calibration ("calibration bias") rather than other sources (i.e., specificity).
    - Results for TSH (7 IAs) – shows good agreement between the various platforms. Final report from study will be published

- **Japan**
  After successful implementation of TSH, JACRI also requested that FT4 should be standardized. ReCCS is asked to provide the reference measurement services for FT4. ReCCS is in process of setting up the IFCC FT4 RMP and is working on preparing panels for use with manufacturer calibration. Special attention will be given to measurements in serum from pregnant women.
- **Beligium – UGhent**
  continues to provide reference measurements to manufacturers and EQA providers
- **Radboud University medical Center of Nijmegen**
  provides reference measurement services to Dutch EQA schemes.

c. **TSH Harmonization Panel**

- 3rd TSH panel to ensure continuity of established calibration; using same protocol as 1st and 2nd panels and looking for samples with concentrations that covers entire measurement range (more samples close to assays LLoQ). Details in presentation.
  Active collection sites: Belgium, Japan, France & US (euthyroid); possible additional collection sites (Austria, Norway, Croatia, Belgium); So far about 89 samples collected- mixed of concentrations range. Proposed measurement protocol is being finalized
- Measurements will be initiated fall 2022, see also "Next steps"

d. **TSH National/Regional activities**

- 4th WHO IS for TSH – evaluate along with next TSH panel to ensure traceability of results

*Question raised on one high sample- study aims to have multiple samples in high concentration range rather than one or two, as well as samples with native TSH to be included in the panel

4. Educational activities and activities supportive of FT4 and TSH standardization/harmonization

Activities to create awareness about importance of standardized/harmonize FT4 and TSH assays, prepare stakeholders about potential changes in values as a result of recalibration and inform on work of the committee and national/international work in this area:

- AACC - CDC sessions at AACC 2022 Scientific Meeting in Chicago July 24-28th
- Partnership of the Accurate Testing of Hormones (PATH) – group of professional organizations and assay manufacturers to create awareness
- ATA – finalizing manuscript on current state of art on thyroid function testing (FT4, TSH focus as well as some on T4, T3)
- CDC Clinical Standardizations Programs (CSP) scientific presentations, Newsletters and website redesign
- C-STFT website & scientific presentations (i.e., EuroMedLab & WorlLab)

Q&A and Comments:

Australia –recent meeting to get agreement with groups in Australia to serve as collection sites for TSH panel

India – is it possible to have common units (i.e., SI units rather than conventional units)? The reference system established by C-STFT uses calibration traceable to SI. Therefore, it uses SI units. Some academic and scientific organizations require to report in SI-units. Some national or regional organizations may prefer the use of conventional units. C-STFT supports the use of SI units. However, it would be up to the national or regional organizations to promote or implement the use of certain units such as SI units.

5. Next steps/future plans

- Conduct study to establish 3rd TSH panel and characterize NIBSC TSH materials starting September 2022
- Perform FT4 RMP inter-lab study in 2023 and assists interested lab to establish FT4 RMP
- Assist reginal and nation organizations with establishing FT4 panels for recalibration, evaluation and certification as needed

- Now that FT4 RMPs are operational and routine assays calibrated to the C-STFT reference system being available, work on RI developments can start. C-STFT will reach out to relevant organizations to generate RIs linked to the C-STFT reference system
- Continue with educational activities on national and international level

6. Other items

Next IFCC C-STFT meeting in conjunction with IFCC General Conference in Brussels – October 29-30, 2022

Meeting Adjourned