Harmonization Study
Data Review Update &
Roadmap Manuscript

Tim Mercer and Marc Salit
Coronavirus Standards Working Group
What should a Coronavirus Standards Working Group do?

- Assure development and availability of standards, controls, interlab testing, knowledge to support successful rollout & scaling of 2019-nCoV testing
- Identify and develop critical infrastructure to support...
  - confidence in test results
  - interoperability
  - scale-up
  - long-term capacity
- Identify best practices that should be institutionalized
  - Learn what we need to so next time we have a global network in place ready to make standards.
Agenda

Harmonization Study Results
- Value Assignment
- Consistency
- Plan to publish

Roadmap Manuscript
- Outline
- Recommendations
- Plan to publish
Viral RNA
Harmonization Study
Dashboard Complete!

- Data in from 14/14 labs
- Analysis Dashboard refined
- Unitage resolved
- Preliminary value assignment
- Need to review anomalies, establish takeaways, develop manuscript

CSWG Viral RNA Harmonization Study Status

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Harmonization Dashboard Updates

- added data tables for calibration panel
  - calibration results
  - all raw data
- added material summary tab
  - robust “value assignment” estimates
- fixed unitage
- fixed 2x dilution problem with International Standard value
Comparison to nominal values

- added tab with graph of log results v. log nominal
- line has slope 7.7/8, intercept = 0
Nominal material values and study results
Conversion from copies/mL to IU/mL

WHO International Standard
First WHO International Standard for SARS-CoV-2 RNA
NIBSC code: 20/146
Instructions for use
(Version 2.0, Dated 05/01/2021)

3. UNITAGE
The assigned potency of the WHO International Standard for SARS-CoV-2 RNA for NAT-based assays is 7.40 Log10 IU/ampoule. After reconstitution in 0.5mL of molecular grade water or PBS, the final concentration of the preparation is 7.70 Log10 IU/mL.
Next steps on Viral RNA Harmonization Study

- review anomalies
- identify trends in results: extraction effects from different labs?
- develop key conclusions and takeaways
- disseminate values: suggest preprint publication
- plan to publish manuscript: build a team to develop
  • need a lead to do Methods section
Tim and Marc’s recent review is on the cover of this month’s *Nature Reviews Genetics*

• bringing the band back together again to lead development of the *CSWG Roadmap* paper
“A roadmap to better COVID-19 testing from the Coronavirus Standards Working Group”

### Introduction

- Reference materials
- Proficiency testing schemes
- Information standards
- Are we missing anything?
- Stories, studies, findings specific to COVID-19 pandemic.

### Standards needed for COVID-19 testing

- Molecular testing
- Antigen testing
- Serology testing
  - What standards are needed to measure vaccine performance, immune protection in population? - needed for safe recovery

### The COVID-19 testing process.

- Genome surveillance
  - What standards are needed for genome surveillance of SARS-
  - Foresee new standards for the future?

### Concluding recommendations.

- What did we get right? What did we get wrong?
- What can we improve testing/standards now? In the future? The next pandemic?
- We want bold, fair and thoughtful recommendations.
### Develop consensus on draft recommendations

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| • bring attention to developing standards that underpin reliability of tests
| • “X-Prize for Pandemic Pathogen Standards”
| • scalable distribution of widely-available calibration materials, controls, and standards of trusted quality
| • rapid studies to establish traceability to International Unit
| • recommend EUA for Standards
| • EUAs for Tests should be comparable by using comparable standards to calibrate

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| • establish/identify coordinating body for EQA schemes
| • recommend ongoing demonstration of EUA test comparability with EQA
| • address limitation of EUA by demonstrating field performance of authorized tests

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| • about a control – standardize information on how to use this control accurately
| • about a test – standardize information about a test and how to use and interpret results accurately |
Develop consensus recommendations

• Scalable distribution of widely-available calibration materials, controls, and standards for tests
  • oversight/evaluation/authorization of these standards
    • this could be an “EUA” for standards
  • calibration of these standards against the International Standard when it becomes available from WHO

• EUAs for tests should be calibrated with standards that have a provenance
  • standards that can be compared across EUAs
  • this would be a way to make EUAs comparable
Next steps

Timeline
- share draft today
- contributions by 26 July

Protocol for contributions
- shared Word Doc
- shared Google Doc

Google sheet for authorship
- Name, Contributions, Affiliation(s), COI