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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.
22 May Agenda

- Clare Morris, NIBSC
  Development of WHO International Standards
- Conversations on Interlab Study Proposal
  - Marc Salit
  - Alex Hoekstra
Considerations for Collaborative Study Comparing Tests and Materials

Coronavirus Standards Working Group
18 May 2020
Links to Transcript and Video Recording, and Alex’s Summary of Monday Meeting in Slack
I wish for us to develop a set of principles that would let us decide what to do.

What questions are we asking?
- how “good” are the tests?
- what are the attributes of a good test?
- how useful are the control reagents?
- can we tell them apart?

What resources are we trying to develop?
- a benchmarking strategy
- a set of benchmarking reagents
- a list of characteristics of “good” tests
- a list of characteristics of a useful reagent
There are 61 authorized molecular tests and about 50 different control materials for them.

- Our group could lead a collaborative, multi-lab study to assess performance
- Demonstrate methods to evaluate tests
- Establish utility of control materials
- Demonstrate performance of tests
- Compare values and utility of control materials
Other evaluations are ongoing and underway.
Scope & Conditions

• That’s a lot of tests
• The tests have multiple stages
• We have a heterogeneous set of control materials
• Some control materials are useful in some parts of some tests
• A lot of labs are busy
Current frame of Russell’s Proposal

• Phase 1: Develop a panel of reference samples
  • products of multiple vendors
  • characterized in a few reference labs – “well-evaluated”

• Phase 2: Test a bunch of tests with panel
  • demonstrate utility of panel
  • demonstrate benchmark method for evaluating tests
  • gain knowledge of test performance
CSWG Phased Approach for COVID-19 Testing.

Study 1: Qualitative RNA, Study 2: Quantitative RNA, Study 3: Serology, and Study 4: Antigen testing

Phase 1 Reference Material(s) Selection: Qualitative SARS-CoV-2 Virus RNA Testing

- Phase 1 Select Reference Samples by testing on assays available through the CSWG for qualitative RNA assays
  - Scope of Workflow being tested: Pre-analytical extraction, analytical, and post-analytical reporting.
  - Reference Samples selected by CSWG. Multiple ref. mat. assessed, select from GMP manufacturers that are part of CSWG, requires open vial stability already demonstrated to remove this variable.
    - VTM only to start. Paired saliva samples if possible.
    - Preference is that all viral genomic regions, targeted by EUA assays, are covered.
  - RNA assays for Phase 1 are selected by CSWG (e.g. dPCR, qPCR etc. and where testing is done).
  - Target viral levels that bracket lowest regions required based on clinical applications.
    - Levels informed by clinical data and reported as copies per mL
  - CSWG establishes specifications for the Phase 2 testing kit
    - Number of members and levels copies / mL
    - Blinded (preferred) or unblinded
    - Replicate testing
  - CSWG establishes a data analytics team to select appropriate statistical needs, replicates, data formats, data bases and performance analysis

Phase 2: Interlaboratory Study: Qualitative SARS-CoV-2 Virus RNA Testing

- Phase 2 Interlab Study to Assess Analytical Sensitivity of EUA assays.
  - Kit is designed by CSWG from Phase 1
  - Kit includes vials, instructions for use, instructions for reporting results to CSWG data analytics team and contact information for project management liaison person
  - Targeting all manufacturers inclusive to assay formats and single site EUAs
  - CSWG receives, organizes and analyzes the data:
    - Performance across the sensitivity panel
    - Intra-assay accuracy and precision
    - Inter-assay comparisons of accuracy and precision
    - Other?
  - Results are published in peer reviewed journal; data informs requirements to establish clinical sensitivity and requirements for SARS-CoV-2 RNA quant assays.

Depending on available resources, Serology Phase 1 and Phase 2 can be done in parallel
All other business

How are we doing?
Communications, planning, engagement, process, operations...
Discussion