Novel Coronavirus Host
Genomic study - South Africa
COVIGen-SA
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Outline

- Factors that affect COVID-19 outcome
- COVIGen-SA update
- Challenges & Next steps
Worldwide statistics (24 May 2021)

South Africa: 1,635,465 cases 55,802 deaths (3.4%)
Factors that affect COVID-19 outcome

Host factors:
- Genetic susceptibility
- Age & Sex
- Comorbidities
- Behaviour
- Vaccination

Samadizadeh et al., 2021
Update on global COVID-19 host genomic studies

Areas of the globe contributing to the most recent meta-analysis of host genetic factors for COVID-19 (The COVID Host Genetics Initiative, 2021)
https://doi.org/10.1101/2021.03.10.21252820 doi: medRxiv preprint

49,562 COVID-19 patients
46 studies
19 countries worldwide
Absence of African data
COVIGen-SA update
COVIGen-SA update – VIDA Research Unit

- 660 cases (257 asymptomatic; 403 symptomatic)
  - 457 female (70% female)
  - 154 requiring supplemental oxygen
  - 18 placed in ICU (none with mechanical ventilatory support)
  - 25 deceased
  - 106 pregnant
COVIGen-SA update – PHIRST-C (rural/urban community)

- Estimate community burden of SARS-CoV-2
- Assess transmission dynamic of infections
- ~100 households (5 people per household)
- Over a third infected; 16% symptomatic (of these 14% hospitalized; 3% repeat infection)
COVIGen-SA update - Genomics

576 DNA samples sent for genotyping on the H3Africa SNP genotyping array (~2.3M SNPs) (Funded by IHCC)

Additional funding for more genotyping (ALIVE Consortium at Wits University)

Population controls (~5000 South Africans) – already genotyped
Challenges and Next Steps

- Integrating phenotype data
- Increasing number of severe COVID-19 cases
- Resources
- Focus on fieldwork partnerships
- Analyze preliminary data and assess the African situation
- Partner with other host genomics studies
The core COVIGen-SA team