

## Efforts Made by Nigeria's Federal Ministry of Science and Technology in Fighting COVID-19 Pandemic

The outbreak of COVID-19 which originated in Wuhan, China, late last year rapidly spread to many other countries and overwhelmingly changed the socio-economic order globally. While this crisis is first and foremost a public health issue, it has claimed the lives of hundreds of thousands of people worldwide. The economic damage caused by this pandemic is unprecedented.

Consequently, the Federal Ministry of Science and Technology (FMST) of Nigeria identified and embarked on key viable projects, programmes and other related activities on COVID-19 pandemic. These are as follows:

- i. Molecular Diagnostics, Testing, Analysis, Research and Innovation;
- ii. Reconfiguration, Upgrading and Re-equipping of one of our existing molecular diagnostic laboratories to a Level III diagnostic laboratory;
- iii. Capacity Building, Development and Production of rapid molecular diagnostic test kits that can provide results within thirty minutes for rare bacterial and viral infections;
- iv. Vaccine Research and Development including Pilot Production for infectious diseases and immunization;
- v. Development and Production of high quality locally herbal-based disinfectants that can handle germs; bacteria and viruses;
- vi. Research and Development of a wide range of locally designed Fumigating Equipment for disinfecting roads, schools, market places, as well as disinfecting individuals in offices and public places;
- vii. Designing and sourcing of local raw materials for the production of Personnel Protective Equipment (PPE) for use in healthcare system. These products are being designed and produced to conform with the World Health Organisation (WHO), Food and Drugs Administration (FDA), European Union (EU) and Standard Organisation of Nigeria (SON) specifications, requirements and standards, for national consumption;
- viii. Research and Development of Prototype Ventilator and Respirator for use in managing serious and rare infectious cases through Reverse Engineering;
- ix. Evaluation and Authentication of anti-COVID-19 activity, efficacy and safety of herbal remedies, natural compounds and related products submitted to FMST by Nigerian Scientists, Researchers, and Traditional Medicine Practitioners;
- x. Research and Innovation in the use of FMST Telemedicine programme for more improved diagnostics, more access to care, better patient outcomes and more efficiency in the Nigerian healthcare system. Further research and innovation are on-going in this area and we are looking at five models going forward:
  - *Virtual Urgent Care*: This is presently the most common use for telemedicine. This allows a patient to remotely consult an unknown provider to avoid a trip to the physician for say, a stomachache.
  - *Virtual Office Visits*: This is for primary health care (including chronic conditions), behavioral health, and specialty care. These will be enabled by remote patient monitoring and digital therapeutics.
  - *Near Virtual Office Visits*: This will combine virtual access to physician consult with worksites or retail clinics testing and immunization. With this model a consumer (patient) shouldn't have to come to a doctor's office to get a COVID-19 test and advice about the result.
  - *Virtual Home Services*: This model will enable some services to be delivered remotely, such as physical and occupational therapy for the elderly.

- *Tech-Enabled Home Medication Administration*: For instance, an oncologist might oversee a nurse delivering chemotherapy to a patient at home.