



PROJECT:  
**JABER**

# **3D Printed Nasopharyngeal Swab Sterilization**

**A guided tutorial**

**July 2020**



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## **Sterilization Protocol for 3-D Printed Swabs and Quality Assurance and Infection Control Protocol**

- **Sterilization Protocol:**

Several sterilization protocols were considered. After consulting the infection protocol department from the Ministry of Health, the following protocol was implemented.

- Low temperature plasma sterilization using evaporated hydrogen peroxide
  - Sterilization was performed at the Infection Control Department at Al Sabah Medical Area, under Ministry of Health approved infection control conditions
- After sterilization, a high precision scale was used to measure the 3-D printed nasopharyngeal swab before and after testing to ensure that the sterilization protocol did not affect the integrity of the 3-D printed swabs
  - The 3-D printing engineering team also performed repeated tests of fragility and rigidity of the 3-D printed swabs, to ensure that the swabs' material properties were not altered by the sterilization process

- **Quality Assurance and Infection Control Protocol:**

To ensure that the 3-D printed swabs were adequately sterilized the following protocol was implemented to ensure sterility and quality. Testing was conducted by a board-certified infectious disease and infection control specialist from the Ministry of Health, in a Ministry of Health Microbiology laboratory at Jaber Al Ahmad Al Sabah Hospital, to ensure quality testing conditions:

- 10 randomly selected swabs were subjected to sterility testing
- Each swab was individually tested by streaming it against a blood agar plate (BAP) AND a chocolate agar plate
- The BAP and chocolate agar plates were incubated at 35°C in oxygen and carbon dioxide environments, respectively
- The plates were checked for bacterial growth after 48 hours

**i** Figure 1

*No bacterial growth was detected at the end of the incubation*



For any questions or concerns, please do not hesitate to contact us at [info@projectjaber.com](mailto:info@projectjaber.com)