



Dear Biosafety Professionals,

The emergence of a novel virus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and resulting coronavirus disease (COVID-19) pandemic present new risks for laboratory staff. Performing risk assessments and implementing mitigation steps can help to minimize the hazards associated with testing for the new virus. Members of the Association of Public Health Laboratories (APHL) Biosafety and Biosecurity Committee (BBC) developed the enclosed risk assessment template for equipment used in COVID-19 testing in public health laboratories (PHLs). This approach outlines potential hazards and mitigation procedures to assist PHLs with safely performing testing for SARS-CoV-2.

Each facility must perform its own site and activity specific risk assessment for COVID-19 testing based on their facility needs to determine whether enhanced safety precautions are warranted. This risk assessment developed by the BBC is not an all-encompassing plan as each facility will have to understand their laboratory specific risks associated with testing.

APHL recommends that PHLs refer to the Centers for [*Disease Control and Prevention \(CDC\) Interim Laboratory Biosafety Guidelines for Handling and Processing Specimens Associated with Coronavirus Disease 2019 \(COVID-19\)*](#) and [*Guidance for General Laboratory Safety Practices during the COVID-19 Pandemic*](#). Please refer to the [APHL Biosafety and Biosecurity website](#) for additional resources on laboratory biosafety and biosecurity best practices.

If you have any questions regarding biosafety or general safety for COVID-19 response, please contact APHL at eoc@aphl.org.

Thank you,

APHL Biosafety and Biosecurity Committee

ASSOCIATION OF PUBLIC HEALTH LABORATORIES
8515 Georgia Avenue, Suite 700, Silver Spring, MD 20910
240.485.2745 | www.aphl.org



COVID-19 Potential Hazards and Recommended Mitigation Procedures

Note: This risk assessment template is designed to assist PHLs with identifying potential hazards and mitigation procedures to safely perform testing for SARS-CoV-2, the agent which causes COVID-19.

Note: Certain specimen transport media, such as those included in the Aptima Multitest Swab Specimen Collection Kit and PrimeStore Molecular Transport Medium (MTM), are thought to inactivate SARS-CoV-2 and at least some other infectious agents. As a result, spills, splashes and aerosolization of such specimens is thought to pose a lower risk. However, the full extent of this inactivation is not well characterized, especially for spores. Therefore, all specimens should be considered potentially biohazardous. Likewise, nucleic acid extraction procedures such as those followed with the equipment and corresponding reagents listed below are thought to yield non-infectious nucleic acid extract, but such material should be treated as potentially biohazardous.

Equipment	Potential Hazard (s)	Control/Protection	Additional Information
Extraction Platforms			
QIAGEN EZ1 XL QIAGEN QIAcube Roche MagNA Pure 96 Roche MagNA Pure 24 Roche MagNA Pure Compact Roche MagNA Pure LC 2.0 BioMerieux EMAG® BioMerieux NucliSENS EasyMag® ThermoFisher KingFisher Flex	<ul style="list-style-type: none"> Spill or splash of specimen or specimen+lysis fluid Potential aerosol generation from pipetting Sharps hazard posed by micropipette tips when performing off-board lysis Broken tubes, trays, or cartridges Guanidine thiocyanate waste stream 	<ul style="list-style-type: none"> Process is enclosed within the unit (although not airtight) Off-board lysis done in a BSC prior to extraction on the unit All guanidine thiocyanate waste is collected to prevent accidental mixing with bleach 	<ul style="list-style-type: none"> Minimum PPE used: Disposable lab coat, gloves, and eye protection/face shield Additional PPE recommended for specimen lysing: Disposable sleeve covers, respiratory protection Work is performed on absorbent towels Use aerosol-resistant pipette tips with barrier filters for off-board lysis Disinfect instrument surfaces per manufacturer documentation EPA approved [list N] disinfectants are used to clean work area After handling a specimen container that is visibly leaking or broken, discard gloves, wash hands, and don new gloves Examine tubes for cracks, imperfections, and scratches prior to using in instrument Guanidine thiocyanate waste disposed of in accordance with local, state, and federal laws and regulations. In some jurisdictions, this is considered non-hazardous chemical waste Guanidine thiocyanate waste disposed of as non-RCRA (toxic) waste in CA. All other solid waste disposed of as regulated medical waste

Thermocyclers

Applied Biosystems® (ABI) 7500 Fast Dx	<ul style="list-style-type: none"> Nucleic acid extract may contain infectious agents Sharps hazard posed by micropipette tips when making master mix and manipulating nucleic acid extract 	Treat nucleic acid extracts and products that come into contact with them (plates, tips, etc.) as potentially biohazardous	Waste disposed of as regulated medical waste
Applied Biosystems® (ABI) 7500 Fast			
QuantStudio Dx			

Molecular Platforms

Cepheid Gene Expert	<ul style="list-style-type: none"> Spill or splash of specimen Potential aerosol generation from pipetting 	<ul style="list-style-type: none"> Process is enclosed within the unit 300 µL of specimen added to the Cepheid cartridge in a BSC 	<ul style="list-style-type: none"> Once opened, the re-capped Cepheid cartridge can leak if turned up-side-down. Careful handling after the specimen is loaded into the cartridge prevents accidental spills. Minimum PPE used: Disposable lab coat, gloves, and eye protection/face shield Additional PPE recommended for specimen addition to Cepheid cartridge: Disposable sleeve covers, respiratory protection Work is performed on absorbent towels EPA approved [list N] disinfectants are used to clean work area Waste disposed of as regulated medical waste
Abbott ID NOW™	The Abbott ID NOW system contains an open well and is subject to potential generation of splash/splatter.	Testing may be conducted in a biosafety cabinet if available but is not required. When testing is performed on the open benchtop, sites should consider use of bio-hazard shields or splash guards, as well as gloves, lab coat, face shields and respiratory protective equipment appropriate for specimen collection from patients.	<ul style="list-style-type: none"> If nasal swab needs to be collected remotely from test unit, place the nasal swab back into the swab pack aging (swab head first) and use caution to avoid contamination of outer packaging. Recommend putting the swab into a sterile tube not the swab wrapper Place swab packaging into outer leakproof transport container for transfer back to ID NOW unit. Work is performed on absorbent towels EPA approved [list N] disinfectants are used to clean work area Waste disposed of as regulated medical waste
Hologic Panther Fusion®	<ul style="list-style-type: none"> Adding specimen to specimen lysis tubes; Spill or splash, Potential aerosol generation from pipetting 	<ul style="list-style-type: none"> Reagents and specimen handled in BSC, PPE is worn including gloves, lab coat, [respiratory protection, and sleeves recommended]. Once the foil cap is pierced the specimens should be stored covered or recapped. Use gloves and lab coat and consider use of splash guard/face shield when manipulating lysis tubes with pierced foil caps. 	<ul style="list-style-type: none"> Work is performed on absorbent towels EPA approved [list N] disinfectants are used to clean work area Waste disposed of as regulated medical waste
Hologic Panther®			