Covid-19 Essential Equipment Task Force

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Covid-19 Essential Equipment Task Force

- 40+ faculty, researchers, and students from across OU’s three campuses are designing, prototyping, validating, and producing solutions to help fight Covid-19
- Task force members included VPRP, OUHSC VPR, Tom Love Innovation Hub, College of Dentistry, OU Libraries, Gallogly College of Engineering, Christopher C. Gibbs College of Architecture, Hudson College of Public Health, College of Medicine, OU IT, Office of Technology Commercialization, School of Community Medicine, Environmental Health and Safety Office, Goddard Health Services, OU Physicians, OU Medicine, and more.
- Designs, test results, product information, community links and more at ou.edu/foroklahoma
Protective Solutions

• Face shields and bands protect frontline personnel with 700+ face shields delivered.

• Small isolation box is used during respiratory therapy procedures to cover the patient limiting sputum and aerosol from spreading to personnel or equipment. 9 small isolation boxes delivered.

• Walk-in isolation box limits the burden on PPE supplies during testing procedures. These lightweight, durable boxes protect health professionals and patients from viral particulate. 3 walk-in isolation boxes delivered or on their way.

• 1800 linear feet of protective screens

• 100+ small desks for optimized social distancing

• Novel designs from Tom Love Innovation Hub Staff and Students.
3D Printed Respirators

- Critical need for respirators due to Covid-19, but scarcity of quantitatively validated options
- Novel 3D printed designs from Ken Marold, OU Architecture in partnership with Evan Floyd, OU Public Health
- Uses commonly available house air filters, surgical sponges (gauze) and microfiber cloths to provide 95% filtration efficiency with multiple layers.
- Validated through quantitative and qualitative fit testing with the primary goal of producing high-quality masks that will fit and function as needed.
- Filed provisional patent and published design for Gen 1 design
- Developing Gen 2 design for enhanced performance and large-scale manufacturing
3D Printed Swabs

• The State of Oklahoma needed up to 3,000 swabs per day to adequately test and screen the State’s citizens.

• **Bobby Reed, OU Libraries**, designed a novel medically appropriate 3D printed swab to obtain nasopharyngeal mucus samples with superior performance and manufacturability to competitive approaches.

• Filed provisional patent and working on FDA approval for manufacturing.

• Partnering with **Kent Teague** on clinical study

• Partnering with local manufacturers to produce and deliver swabs for Oklahoma.

• Ramping up production for clinical validation of swabs pending FDA authorization.
Additional Efforts

• Large Scale N95 Sanitization Techniques Team, led by James Papin, successfully demonstrated N95 mask sanitization at “institutional” scale.

• Small Scale N95 Sanitization Techniques Team, led by Fernando Esteban Florez, is building a novel design for a UV-based bench top sanitization device. Filed invention disclosure and exploring FDA requirements.

• Full Face Mask Team, led by Houssein Youness, completed and are publishing a highly successful IRB-approved study of full-face mask effectiveness

• Dental Mask Team, led by Brandt Smith, designed and validated a novel face shield for dental professionals that actively reduced their exposure to risks such as COVID-19.

• Ventilator and Ventilator Components Team, led by Kirsten Jefferys, successfully built a prototype ventilator that utilizes hospital air can deliver breaths with appropriate pressure ranges and timing

• The Website and Educational teams, led by Joy Summers-Ables and Dee Wu, launched the For Oklahoma (ou.edu/foroklahoma) website to publish designs, track interest and provide educational materials on the various designs.