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Space is hard on the body. Reduced gravity, exposure to space radiation, and confinement can take their toll especially during long duration deep space exploration missions. Humans are remarkably resilient and can adapt well even to a year or more of microgravity and confinement. Regardless, a mission to Mars will take 2-3 years and preclude the capability of aborting and returning to Earth. Thus, even healthy individuals will be susceptible to medical conditions necessitating healthcare. Administering care in space presents many challenges. Medical devices must be small and perform reliably in the hands of non-experts and countermeasures must be shelf-stable and compatible with microgravity. Products that can be implemented in space generally possess features that confer commercial advantages in terrestrial markets. For example, medical technologies for space are portable, can be implemented by low-cost providers, and are generally less expensive, non-invasive, and easy to operate.

The Translational Research Institute for Space Health (TRISH), in partnership with NASA, is looking for out-of-this-world solutions that can disrupt the way healthcare is delivered. Funding is available to support two types of projects: 1) the adaptation of more mature med techs for use in space; 2) the proof of concept testing of unconventional approaches to science, technology, and medicine.

Areas of high priority are resilience to environmental insults (particularly radiation or oxidative damage), physiological and behavioral health diagnostics and therapies (cardiovascular, neurological, ophthalmological, and immune), and medication and nutrient stability.

Going to space has the potential to fundamentally change the way we deliver healthcare on Earth.