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Author: Dr. Farhan M. Asrar  
University of Toronto, Canada

SPACE AND EARTH BASED HEALTHCARE - INNOVATION DRIVES CHANGE

**Abstract**

The medical care and management for astronauts involves several challenges that include the distance away from Earth, limited resources and diagnostic tools. Over the years space medicine has been adapting itself to cater to the needs of missions and looking towards future needs of long-duration human space missions.

The technological challenges that comes with various human space mission has been driving innovation in our Earth based lives. Healthcare not only plays a crucial role in space missions, but the technology also has a a vital role in supporting Earth based healthcare.

We investigated various areas that space technology can play a role in healthcare on Earth and also looked at innovative technology that was developed by Space Agencies for space but can also play an important role in enhancing healthcare on Earth.

Our Recommendations looked at enhancing healthcare delivery through the use of telemedicine, and the use of innovative medical devices that are portable, self-scanning and are involved in health delivery, diagnosis and management. Such devices include the Canadian Space Agency's Bio-Monitor that can provide ongoing monitoring of health and the Bio-Analyzer that tests blood and other fluid samples in remote locations during a short amount of time.

Other areas that we addressed also looked at using similar technology and devices in the cases of disaster management and relief missions as well as other public health emergencies. Additionally, Climate Change and Environmental Health relief efforts would be another area that would benefit from space technology by utilizing remote sensing data and using satellites that have the ability to track various environmental pollutants such as carbon dioxide, methane, carbon monoxide, nitrous oxide, ozone, and sulphur dioxide.

Overall our recommendations highlight the role space can play in healthcare and will educate physicians, stakeholders and decision makers to consider and incorporate space based technology into mainstream provision of healthcare and public health management