EXPLORE SPACE MISSION DESIGN
Topic: Space Mission & Campaign Design

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ABSTRACT

People in remote and rural environments can experience socioeconomic challenges, which have negative influences on their health. Remote/rural environments can be permanently remote due to their geography, or an urban environment can become remote due to vulnerability to natural hazards such as flooding. Rapid innovation and development of health services and products is required to help mitigate the risks to health for people in remote/rural environments.

Risks to health in remote/rural environments are caused by limited access to healthcare services, minimal resources, and delayed evacuation times. Exploratory space missions face similar challenges to health; therefore, research of health in space can benefit life on Earth. Researching health within the context of space exploration is a catalyst for innovation and development.

UCL Space Health Risks Research Group designed the first analogue space mission that simulated the human exploration of another planet that took place in the UK. A remote and uninhabited island in Scotland was used as the analogy of space, which was kept secret from the research participants (analogue astronauts). This meant that when they were brought to the island they saw it for the first time, simulating an astronaut seeing another planet for the first time. During the analogue mission, a program of research was conducted to investigate how health in space can mitigate risks to health on Earth.

Based on the research group's funded symposium, "Space Health and Disaster Risk Reduction," in Sep 2020, realistic healthcare scenarios were enacted as case studies during the analogue mission. The case studies enabled the various studies of space health to be conducted. The research that took place included testing newly developed remote health monitoring technology, an astropharmacy study (medicines in space), and anthropology was used to explore notion of 'normal health' during space exploration. As well as research, UCL Centre for Outer Space Studies won a grant to fund an artist-in-residence. The artwork was used to communicate the research findings and create awareness of analogues.

Findings from the research design of the analog mission will be presented. Developments of this design to increase the simulation fidelity (realism) will be included, and considerations for future research that can contribute to promoting and

protecting health during space exploration and life in remote/rural environments on Earth.

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Comments:

I am happy to present this abstract as an oral presentation or poster.