

Title: Medication Use by U.S. Crewmembers on the International Space Station

Author: V. E. Wotring

Affiliation: Division of Space Life Sciences, Universities Space Research Association

*Correspondence to: V. E. Wotring, Mail Code SK3, Johnson Space Center, 2101 NASA Parkway, Houston TX 77058 USA, Phone 281-483-6332, virginia.e.wotring@nasa.gov

ABSTRACT:

This study examined medication use during long-duration. Medication records from 24 crewmembers on 20 missions (> 30 days duration) were examined for trends in usage rates, efficacy, indication, as well as adverse event qualities, frequencies and severities. No controls were possible in this observational, retrospective analysis of available data; comparisons are made to similar studies of individuals on short-duration spaceflights and submarine deployments. The most frequently used medications were for sleep problems, pain, congestion or allergy. Medication use during spaceflight missions was similar to what is seen in adult ambulatory medicine; one notable exception is that usage of sleep aids was about 10 times higher in spaceflight. There were also two apparent treatment failures in cases of skin rash, raising questions about the efficacy or suitability of the treatments used. Many spaceflight-related medication uses were linked to extravehicular-activities and operationally-driven schedule changes. The data suggest that sleep and skin rash merit additional study prior to longer space exploration missions. It also seems likely that alterations in schedule-shifting or extravehicular activity suits would reduce the need for many medication uses, preserving resources as well as improving crew quality of life.

KEYWORDS: spaceflight, extreme environment, pharmacology, pharmaceutical