

# Don't forget to clean robotic support pets, study says

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Eight robot and toy animals used in stage one. From left: Paro, Miro, Pleo rb, Joy for All dog, Joy for All cat, Furby Connect, Perfect Petzzz dog, Handmade Hedgehog. Credit: Bradwell et al, 2020 (PLOS ONE, CC BY 4.0)

Robotic support pets used to reduce depression in older adults and people with dementia acquire bacteria over time, but a simple cleaning procedure can help them from spreading illnesses, according to a new study published August 26, 2020 in the open-access journal *PLOS ONE* by Hannah Bradwell of the University of Plymouth, UK and colleagues.

There is a wealth of research on the use of social robots, or [companion robots](#), in care and long-term nursing homes. "Paro the robot seal" and other robotic animals have been linked to reductions in depression, agitation, loneliness, nursing staff stress, and medication use—especially relevant during this period of pandemic-related social isolation.

In the new study, researchers measured the microbial load found on the surface of eight different robot animals (Paro, Miro, Pleo rb, Joy for All

dog, Joy for All cat, Furby Connect, Perfect Petzzz dog, and Handmade Hedgehog) after interaction with four care home residents, and again after cleaning by a researcher or care home staff member. The animals ranged in material from fur to soft plastic to solid plastic. The cleaning process involved spraying with anti-bacterial product, brushing any fur, and vigorous cleaning with anti-bacterial wipes.

Most of the devices gathered enough harmful microbes during 20 minutes of standard use to have a microbial load above the acceptable threshold of 2.5 CFU/cm<sup>2</sup> (colony forming units per square centimetre). Only the Joy for All cat and the MiRo [robot](#) remained below this level when microbes were measured after a 48 hour incubation period; microbial loads on the other 6 robots ranged from 2.56 to 17.28 CFU/cm<sup>2</sup>. The post-cleaning microbial load, however, demonstrated that regardless of material type, previous microbial load, or who carried out the cleaning procedure, all robots could be brought to well below acceptable levels. 5 of the 8 robots had undetectable levels of microbes after cleaning and 48 hours of incubation, and the remaining 3 robots had only 0.04 to 0.08 CFU/cm<sup>2</sup> after this protocol.

Hannah Bradwell, researcher at the Centre for Health Technology says: "Robot pets may be beneficial for [older adults](#) and people with dementia living in care homes, likely improving wellbeing and providing company. This benefit could be particularly relevant at present, in light of social isolation, however our study has shown the strong requirement for considerations around infection control for these devices."

**More information:** Bradwell HL, Johnson CW, Lee J, Winnington R, Thill S, Jones RB (2020) Microbial contamination and efficacy of disinfection procedures of companion robots in care homes. *PLoS ONE* 15(8): e0237069. [doi.org/10.1371/journal.pone.0237069](https://doi.org/10.1371/journal.pone.0237069)

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