

R. FUKUDA. **Research and development of robots for nursing care in Japan: A literature survey.** *Gerontechnology* 2016;15(suppl):16s; doi:10.4017/gt.2016.15.s.807.00 **Purpose** In Japan, the lack of caregivers is crucial: 380 thousand more caregivers are estimated to be required by 2025¹. In order to come over such situation, both increase of the number of caregivers and improvement in quality of care is necessary. Another solution is introduction of various technologies. This paper describes the current status of research and development and implementation of robots for nursing care in Japan based on a literature survey. **Method** Journal papers and conference proceedings from 2012 to 2016 written in Japanese were searched on Google scholar by keywords 'nursing care' and 'robot' and classified into several research areas based on classification in the Japanese database of academic society ('Gakkai Meikan' organized by the Science Council of Japan, Japan Science Support Foundation, and Japan Science and Technology Agency). **Results & Discussion** 514 publications were retrieved: 136 publications in mechanical engineering (80 publications in robotics), 121 publications in clinical medicine (88 publications in rehabilitation), and 109 publications in informatics. The total number of publications showed a pronounced increase in 2015. During these five years, publications in clinical medicine, especially in rehabilitation, and applied engineering increased, whereas publications in mechanical engineering, informatics, and electronics and electrical engineering decreased (*Figure 1*). It implies that research focus is moving gradually from development to use of robots in rehabilitation. For instance, 14 publications regarding the cyborg-type robot HAL (manufactured by Cyberdyne) retrieved in this survey mostly verified HAL's effect in rehabilitation. Now HAL has been approved as a medical device both domestically and abroad and is expected to be applied to rehabilitation more broadly. On the other hand, other empirical studies are still few in clinical medicine: most of publications only introduce the latest developments of robots. Information of robots has just started to be shared and pioneering institutions are now trying to utilize such new technology for their own purposes. Recently, many media reports treat other types of robots such as communication robots and they receive much attention in exhibitions. However, as is the case in rehabilitation, empirical studies are still few. For introduction of robots in older adults' daily lives other than rehabilitation, the latest information of robots should be provided to care recipients and caregivers, and further empirical studies should be accomplished on site to determine their needs. Japan Agency for Medical Research and Development (AMED) run a large scale empirical study on communication robots this year, aiming to determine the needs of users, to improve usability and to reduce the production costs. The project is expected to facilitate introduction of communication robots into nursing facilities or to homes.

References

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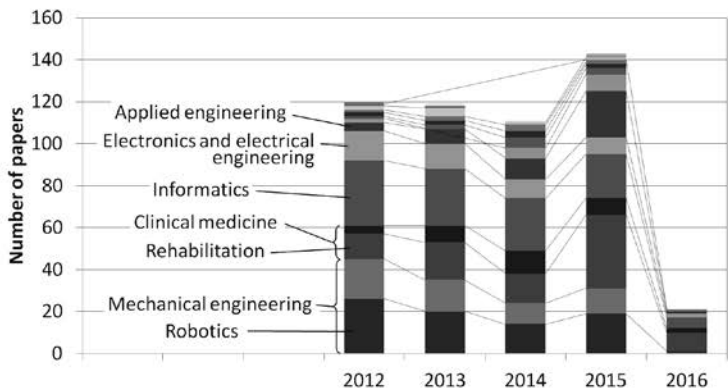


Figure 1. Number of publications on 'nursing care' and 'robots' from January 2012 to March 2016 as written in Japanese