



aba Inc.

Development and introduction of the Helppad, an excretion care system developed in Japan to solve the shortage of nursing staff

Object of the project

The purpose of this project is to develop and introduce our excretion care system “Helppad” for the local market and promote DX in the nursing care field in order to solve the shortage of nursing care personnel, which has become a social issue in Singapore’s healthcare, especially in the nursing care field.

In order to improve the quality of life of the elderly and disabled, it is important to assist them with excretion at the appropriate time. However, even if a person defecates in a diaper, those who cannot press the nurse call due to physical disability or those who have difficulty speaking even if they can press the call will not know until the caregiver checks the inside of the diaper. We will examine whether Helppad can solve this problem.

Cooperation with local companies/governments

The local partner company is Leave a Nest Singapore Pte. Ltd., which is skilled in social implementation of research and development. The company is not only knowledgeable in the healthcare field, but also has cooperative relationships with medical ventures and distributors in the country, which will enable efficient clinical trials and business validation. The role of the local partner will be to provide support for the demonstration (e.g., development of demonstration sites, interpretation, installation of equipment, etc.). As a result, 71 hospitals and nursing care facilities were contacted, of which 6 showed interest, and 2 were selected for demonstration testing.

Targeted economic/social issues

In Singapore, the population is aging more rapidly than in Japan. To cope with this situation, the government has a plan to increase the population of care workers by about 10,000, mainly foreign workers, but the policy of accepting immigrants alone is not a fundamental solution. This is because the country is not the only one trying to solve the shortage of nursing care workers by accepting immigrants. In addition, the country's nursing care sector has a short history and faces the challenges of a shortage of nursing care personnel and a lack of know-how related to the development of nursing care personnel. The introduction of ICT is considered to be an effective means of truly resolving the country’s elderly population problem, and the government is supporting this initiative.

As of November 2014, the Singaporean government announced its "Smart Nation" concept, which aims to create a society that is comfortable for the elderly by utilizing the latest information and communication technologies (ICT), such as big data and IoT.



Fig. 1 : Helppad

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Details of demonstration

Helppad, the excretion care system used in this demonstration, can detect both urination and defecation without being attached to a diaper or body using an odor sensor. It can also be used to visualize defecation patterns and subsequently improve defecation care. In this project, materials and web application were translated so that they can be used in English, and records were support for time-lag in records. In this project, we selected people who have difficulty excreting in the toilet, i.e., those who excrete in diapers or urine pads, and developed an excretion care system that enables timely diaper changes. The needs for timely diaper changing (for prevention and reduction of illness, reduction of discomfort time, and reduction of caregivers' workload) are the same all over the world. Although the excretion sensor used in this experiment was an odor sensor, it was able to detect the excretion by non-Japanese, or with non-Japanese made urine pads and diapers. The bar graph in the upper right corner of Figure 2 shows the number of times the sensor detected during each time period. After the cooperation in the demonstration, a web questionnaire and interviews were conducted, and the presentation of the defecation pattern chart was well received at both facilities. In addition, because changing diapers every time the amount of excretion is low would increase the workload and diaper costs, sensing the amount of excretion and notifying when the user's set amount is exceeded was raised as an indispensable function.

Project outcome / Future plans

It is a common issue and wish of all countries to prevent and improve skin problems of those who need care, shortening discomfort time, and reducing the workload of caregivers, and we have confirmed that this is a step toward solving these issues using the same device without localization. In future activities, we will utilize the issues learned from this cooperation partner in the development of the next generation Helppad, which is currently underway, to first launch and disseminate it in Japan, and then make improvements. Based on these improvements and the introduction results in Japan, we will proceed with the introduction of Helppad in Singapore and other Southeast Asian countries.



Fig. 2 : excretion pattern chart