

# Needs Survey for Health Support Application Development Project for Residents Returning from Evacuation After the Fukushima Nuclear Accident

Hironori NAKANO<sup>a,b,1</sup>, Aya GOTO<sup>a</sup>, Takashi OHBA<sup>a</sup>, Kazuki YOSHIDA<sup>c</sup>, Kenneth NOLLET<sup>a</sup>, Michio MURAKAMI<sup>a</sup>, Tetsuya OHIRA<sup>a</sup>, Atsushi KUMAGAI<sup>d</sup> and Koichi TANIGAWA<sup>e</sup>

<sup>a</sup>*Fukushima Medical University*

<sup>b</sup>*University of Hyogo*

<sup>c</sup>*Iryo Sosei University*

<sup>d</sup>*National Institutes for Quantum and Radiological Science and Technology*

<sup>e</sup>*Futaba Medical Center*

**Abstract.** The purpose of this study was to identify the needs of stakeholders in developing a mobile application (MP) to be used by returning residents and providers of healthcare and medical/social services. The needs assessment of the residents revealed that among the elderly, ownership of smartphones and tablets was low and they were less likely to use the applications themselves.

**Keywords.** Fukushima accident, mobile application, radiation protection, eHealth, health promotion

## 1. Introduction & Purpose

Long-term evacuation following the Great East Japan Earthquake and Fukushima Daiichi Nuclear Power Plant accident has affected the health of residents [1, 2]. Health support for residents returning to their pre-disaster residences has become an issue. The purpose of this study was to develop a method for local health care professionals to provide sustainable support to residents through a digital application for radiation measurement and health checks, usable on smartphones and tablet devices.

## 2. Methods

Project activities included a needs survey for residents and people involved in healthcare and medical/social support. The survey proceeded as a series of interviews conducted by a medical information specialist (HN) and a public health nurse. Survey subjects included: (1) elderly residents, such as those living in public housing created for

---

<sup>1</sup> Corresponding Author, Nakano H, Fukushima Medical University, 1 Hikariga-oka, Fukushima City 960-1295, JAPAN; E-mail: h-nakano@fmu.ac.jp.

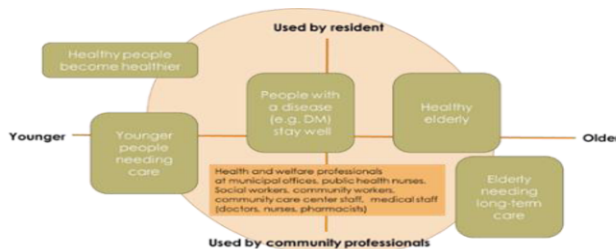
returnees, of whom 20 were surveyed; and (2) healthcare and support staff, of whom 16 participated. The target occupations were public health nurses, nurses, pharmacists, social workers, care support specialists, and university faculty.

### 3. Results and Discussion

A needs assessment conducted by interview allowed us to identify concerns and requests (Table 1), which led to five objectives for which an application may be of practical benefit (Figure 2). Currently, the MP being developed includes both radiation protection and health promotion items in order to respond to these identified needs among residents and health professionals [3].

**Table 1.** Concerns And requests

Concerns and challenges	Requests for operation after data entry
Ease of use as perceived by residents	Linking with existing activities
Integration with other professional duties	Required installed functions
Performance and operability of tablet	1.Information dissemination
Applicability to daily living	2.Data storage
Residents' perception of data management	3.Consultation / support
Coping with residents with diverse needs	4.Safety confirmation
Comparison with other models / tools	5.Health education and management
Collaboration and data sharing at start	6.Efficiency and ease of operation
	7.Personal information protection
	8.Information sharing with other institutions
	Data sharing system
	1.Medical / long-term care-related information
	2.Basic information



**Figure 1.** Summary of what needed for the application.

### References

- [1] Ohira T, Nakano H, et al. Trends in Lifestyle-related Diseases before and after the Great East Japan Earthquake: the Fukushima Health Management Survey. *Journal of National Institute of Public Health* 2018;67(1):34-41.
- [2] Sakai A, Nakano H, et al. Persistent prevalence of polycythemia among evacuees 4 years after the Great East Japan Earthquake: A follow-up study. *Preventive Medicine Reports* 2017 Jan 12;5:251-256.
- [3] Ohba T, Goto A, Nakano H, et al. Implementing eHealth with radiation records: a new support package for evacuees returning to areas around the Fukushima Daiichi nuclear power station. *Radioprotection*. 2020;55(4):291-295.