Development of Electronic Medical Chart for Acquired Visual Disabilities in Riryo Training

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There are more than 310,000 visually disabled people in Japan, and more than half of them have acquired visual disabilities. Most of them study at blind school or National Rehabilitation Centers for Persons with Disabilities (Rehab) to get a national license as a therapist of acupuncture and moxibustion (Therapist).

Riryo training is conducted as a part of lessons for the curriculum of the physical therapy education at Rehab in Tokorozawa, Saitama. They study skills of a medical interview, treatments of acupuncture, and methods to create a medical chart during their training. In the actual training, a student refers a patient’s pre-exam sheet. Later, the student conducts a medical interview, checks the patient’s case, treats the patient, and finally, creates a medical chart.

But the most serious problem is that totally blind students have only few methods to read and write patients’ medical records. Therefore, when they browse the medical records, they need sighted people to help them read or they have to read braille characters.

Because of these factors, the development of an electronic medical chart is needed so that those who have acquired visual disabilities can smoothly read and write patients' information by electronic data at any age. So, we are developing it with pen-input device and Web page, simulating Riryo training at Rehab [1].

The system summary of the electronic medical chart, currently built at Rehab, is shown in Figure 1. This system assumes using at Rehab. The system consists of a reception system, a patient system and a therapist system with a central focus on database to store reservation, pre-exam, note and treatment data. By using the common database, you can browse and record each data from two or more information equipments. In addition, introducing screen read-aloud software called “Screen Reader” to the therapist system, therapists can listen to patients’ data registered in the database.

Figure 1: System Summary of the Electronic Medical Chart at Rehab
Therapists use an electronic pen-input device with an electronic pen and binder as shown in Figure 2. When they use this system, they tuck a template for system operation between the binder and clip. I set up frames for each template different in levels, so that they can understand the position and meaning of the frames by touching with their fingers. Binder and PC are connected with a USB cable when using them. By filling out the information on binder using a digital pen, written data can be displayed on a screen in real time. The pen-input device has adopted an electromagnetic induction type like a pen tablet, but the nib of the pen is ball-point pen type, so the user can write letters comfortably.

![Figure 2: Electronic Pen-Input Device with Template](image)

Treatment recording function in the electronic medical chart for visually disabled therapists, which I developed this time, is shown in Figure 3. The users of this system can search patients from their names or lists of reservation data, listen to the pre-exam and treatment data, and create a treatment record while filling out or touching each frame of template. Regarding to the color scheme of the system screen, the background is made black and characters are made white so that students of weak eyesight can read characters as well.

![Figure 3: Treatment Recording Function in the Electronic Medical Chart for Visually Disabled Therapists](image)

For the further research, while using this system in Riryo training at Rehab, I would like to make some evaluation and improve the function of this system.

References