Human-Centered Design of the Thyroid Uptake System Human-System Interfaces

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Technology plays an important role in modern medical centers, thus healthcare relies increasily on complex technical equipment. This technical complexity is particularly noticeable in the nuclear medicine. The human-centered approach emphasizes the development of equipment with a deep understanding of the activities, current work practices, needs and abilities of the users. An important concept of human-centered design is that the ease-of-use of the equipment can be ensured only if users participate actively in all phases of the life cycle of the design process. Representative groups of users are exposed to the equipment at various stages of its development, in a variety of testing, evaluation and interviewing situations. The users feedback obtained is then used to refine the design, with the result serving as input to the next interaction of the design process. One of the restrictions of the approach is that users cannot point to any future necessity if they do not have prior experience or knowledge about the equipment operation. Human error has many causes such as performance shaping factors, organizational factors and user interface design [1]. Complex medical equipment can exhibit problems in man-machine interaction that could trigger a human error [2]. The user interface is composed of information, data, controls and commands in computer screens. Nuclear medical equipment designed using the usability criteria can improve operational reliability and the time required to learn how to use the equipment can also be reduced. The aim of this work is to present a methodological framework which contributes to the design of the human-system interfaces, through an approach related to the users and their activities. A case study is described in which the methodological framework is applied in the development of new human-system interfaces of the thyroid uptake system [3]. The industrial designers were responsible for the initial sketch of the interfaces framework layout and details about the information to be presented. The following interfaces were developed: Initial screen; equipment calibration; general information of the patient, isotope and doctor; particular information of the patient; particular information of the doctor; particular information of the isotope; radiation counting results; background radiation counting; results report. Figure 1 shows the calibration screen. Figure 2 shows patient information.

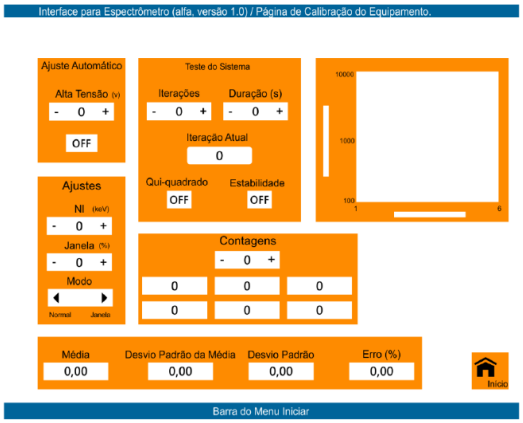

Figure 1. Calibration screen

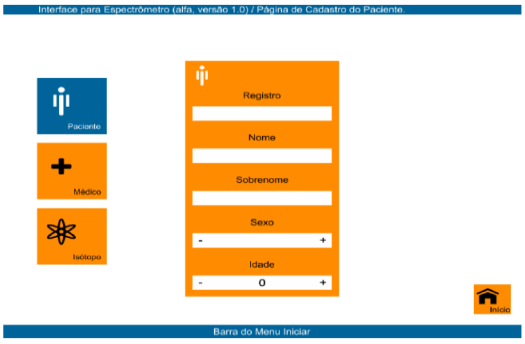

Figure 2. Patient information

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