



Use of portable ultrasound device during clinical consultation in a basic health unit of the Brazilian Unified Health System

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Background, Motivation and Objective. Through individualized case of studies, the research evaluated whether a portable ultrasonography device (PUD), during clinical consultation in a basic public health unit of the Brazilian Unified Health System (SUS), was able to provide reliable information for therapeutic decision, by means of the comparison between the findings obtained with the PUD and a conventional ultrasound device (CUD). Contrary to many protocols, some patients from SUS need to wait up to two years for ultrasound exams, compromising patient's health potentially. The research evaluated the effectiveness of the technology, its limitations and the subsidies that PUD can provide to the therapy proposed by the physicians.

Methods. From March 2017 to November 2017, patients from a SUS unit in Navegantes, Santa Catarina, Brazil, were selected from first consulting with the researcher, as approved by the Research Ethics Committee at the Federal University of Technology – Paraná (CEP-UTFPR), protocol number 1.817.412. Areas demanded were: (1) 82 subjects in internal medicine, (2) 24 subjects in musculoskeletal system and (3) 19 subjects in cardiology. The selected patients were clinically evaluated and, regarding American Institute for Ultrasound in Medicine (AIUM) protocols, submitted to an image examination using the PUD, model GE-Vscan™. Until two days after the PUD tests, the same patients were submitted to another examination using a CUD, performed by an ultrasound expert physician and the results were statistically analyzed.

Results. Comparing the image findings in PUD examinations and the findings with CUD, a reliability matrix was figured out. The final results obtained are shown on Table 1.

Discussion and Conclusions. Portable ultrasound device can help the physician's diagnosis. In this work, it permitted reliable findings in internal medicine and musculoskeletal examinations, despite limitations in cardiac ultrasound. It provided important findings that can subsidize the therapy proposed by the clinician and shorten the wait time to further evaluations.

Table 1 - Diagnostic reliability between observers (COHEN's Kappa index)

EXAMINATION AREA	Examinations (n)	Concordance PUD x CUD	Kappa
Internal Medicine	82	80	97,18%
Musculoskeletal	24	21	86,36%
Cardiac	19	16	76,29%
Sub-total	125	117	-----
GLOBAL Kappa	-----	-----	91,12%

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Keywords. Portable Ultrasound, Internal Medicine, Public Health, Biomedical Engineering.