THE EVALUATION OF DSS SONARES

S. Cojocaru, C. Gaindric*, S. Puiu
*Institute of Mathematics and Computer Science of the Academy of Sciences of Moldova,
Chisinau, Republic of Moldova*
*E-mail: gaindric@math.md; Svetlana.Cojocaru@math.md

Ultrasound scanners are being used more and more frequently by physicians of different specialities: family doctors, cardiologists, gastrologists etc. Unfortunately, the known problem of dependency on the operator (the physician) in this mode of examination remains an important one. Moreover, it is topical even for the experienced physicians in the domain of ultrasound diagnostics in spite of appearance of impressive visualization possibilities offered by modern ultrasound equipment.

In order to give an assistance in ultrasound diagnostics, in the Institute of Mathematics and Computer Science of ASM in co-operation with a team of physicians from Moldova State University of Medicine and Pharmacy 'N. Testemitsanu' a decision support system for ultrasound diagnostics of hepato-pancreatic-biliary zone SonaRes [1] was elaborated.

It is intended to guide examination process, ensuring the access to a collection of images, finding similar images, generating the standardized reports. The system is destined to different categories of physicians. Its usefulness can be appraised only after an assessment made by the physicians, who give their views on the system's usefulness. The system was tested by two groups of physicians: the experienced ones and interns, being conducted on a test sample of 132 patients with cholecystopathies. For elaboration of evaluation questionnaires the reference points of the system Sonoconsult [2] testing were used, being adapted for the necessities peculiar to the system SonaRes. This permits also to compare these two systems (Tab.1).

	Consistent conclusions	
	SonaRes	Sonoconsult
All diagnoses	84%	74%
therefrom simple diagnoses	90,7%	81%
therefrom complex diagnoses	72,7%	61%

Tab.1. Comparison of diagnoses evaluation

Users' attitude was examined according to the following criteria: quality of conclusion, argumentation, obtaining a detailed report on detected changes. It was determined a higher positive perception of the novice users (including those in training). Both groups evidenced high appreciation of conclusions argumentation. The more experienced physicians showed less interest for conclusions generation.

[1]   L.Burtseva, S.Cojocaru, C.Gaindric, O.Popcova, I.Secrieru. SonaRes – Diagnostic decision support system for ultrasound examination. *Proceedings of the 3rd International Conference on E-Health and Bioengineering - EHB 2011, 24th-26th November, 2011*, Iaşi, Romania. IEEE, pp.239-242.

[2]   Huettig M, Buscher G, Menzel T, Scheppach W, Puppe F, Buscher HP. *A diagnostic expert system for structured reports, quality assessment, andtraining of residents in sonography*. Med Klin (Munich). 2004 Mar 15;**99(3)**, pp.117-122.