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# SOME RESULTS FROM A SURVEY FOR MEDICAL SPECIALIST'S OPINION ABOUT E-HEALTH

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**ABSTRACT**
E-health includes a number of tools based on information and communication technologies (ICT). Its introduction in the practice of medical specialists helps them for more effective work.
PURPOSE The aim is to analyze the adjustment and the efficiency of the usage in the practice of medical specialists.
METHODS: A representative scientific survey among medical specialists working in 8 hospitals from 5 cities in Bulgaria – 3 university (2 MHAT and 1 SHAT), 4 private (MHAT) and 1 complex oncology center (COC).
RESULTS: The present article analyzes the answers of questions relevant to using information systems (IS) of medical specialists' practice. The success of e-health depends on the understanding of its current role and proficiency in its usage from medical specialists.
CONCLUSIONS: Time to review the patient is not enough for large part of medical specialists. They enter corresponding data consecutively in using information system (IS) after the review.

**Key words**: survey, hospitals, information system, ICT, costs

## INTRODUCTION

Health is one of the important sectors in the politics of every civilized country; it is priority in national interests. One of the important roles of Information and Communications Technology (ICT) in healthcare is to reduce costs (money, time, labour) and to improve quality of medical service (1).

E-health – this is the transfer of health resources and health care by electronic means. It provides a new method for using health resources, such as information, money and medicines, which in time will lead to an improvement in effective use of these resources (2).

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E-health provides a possibility of medical specialists to receive easier access to medical records of patients, to the results from their laboratory tests, which could give direct prescriptions on pharmacists, too.

The purpose of this article is to establish do the information systems help in the practices of medical specialists.

## MATERIALS AND METHODS

In the period October 2013 to December 2013 was conducted representative scientific survey among medical specialists working in the following hospitals: Sofia - UNMHAT "St. Ekaterina", University Hospital "Tsaritsa Yoanna-ISUL" and Tokuda Hospital Sofia, Plovdiv – MHAT Eurohospital, Stara Zagora - MHAT Niamed and COC, Burgas – Virgin Mary

Hospital and Varna – University Hospital" St. Marina " **(Figure 1).** The information transfers between different units of the hospitals, which are included in the survey (registry departments, laboratories, etc.) are carried out electronically. Inquiry form is composed with 27 questions, some of them are presented in **Table 1**. For analysis of results were used descriptive statistics, analysis of dependencies by nonparametric methods.

***Table 1***. *Some of the questions included in the inquiry form, relating to the use of medical specialists IS, that are used in the evaluation of patients.*

| Question | yes | I can not decide | no |
|---|---|---|---|
| 1. Does the program you're using, facilitates your work? | | | |
| 2. You increase your time for review? | | | |
| 3. Do you feel more informed, more motivated using programs? | | | |
| 4. Do you enter the data later, not at the time of the review? | | | |
| 5. According to you, do you have to fill a variety of documents (outpatient list, recipes and more) only electronically? | | | |
| 6. Do you worry of unauthorized access to your computer? | | | |
| 7. Would you like the program, you are using, to allow printing of the entire history of the disease? | | | |

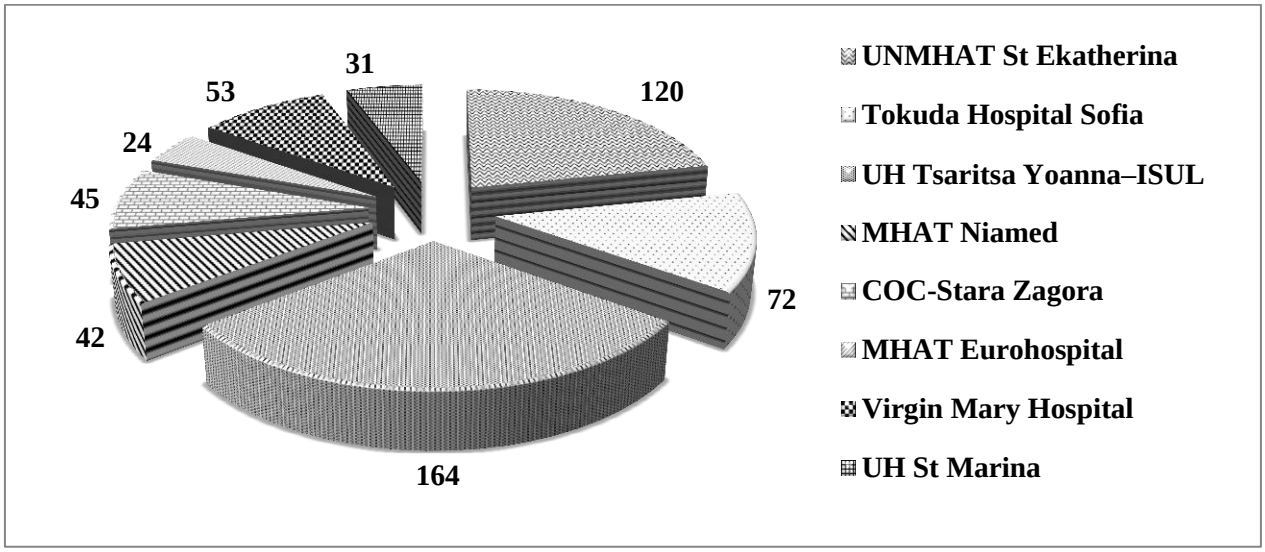


**Figure 1.** Distribution of medical specialists by hospitals

**RESULTS**

Respondents were 551 medical specialists with a preformed questionnaire. Women 418 (75.9%) and men - 133 (24.1%).

From **Figure 2** is visible their distribution by age and gender. 178 doctors, nurses – 273, midwives – 22, post-graduate students – 29, laboratory assistants - 49. **Figure 3** shows the distribution by age and structure.

The results show that the question "You increase your time for review?"- For 171 (95% CI (31.0 ± 3.86)%) health professionals has increased, 197 (95% CI (35.8 ± 4.0)%) not can estimate and 183 (95% CI (33.2 ± 3.93)%) time to view has not changed with the introduction of an information system in their practice. After applying Fisher's exact test indicates there was a weak (Cramer's V = 0.108) significant difference between gender and answer the question ($\chi^2$=6.469, p=0.038<0.05). It observes a difference between their opinions in this question. Positive answer gives more often women medical specialists - 70.8% in comparison with 29.2% men.

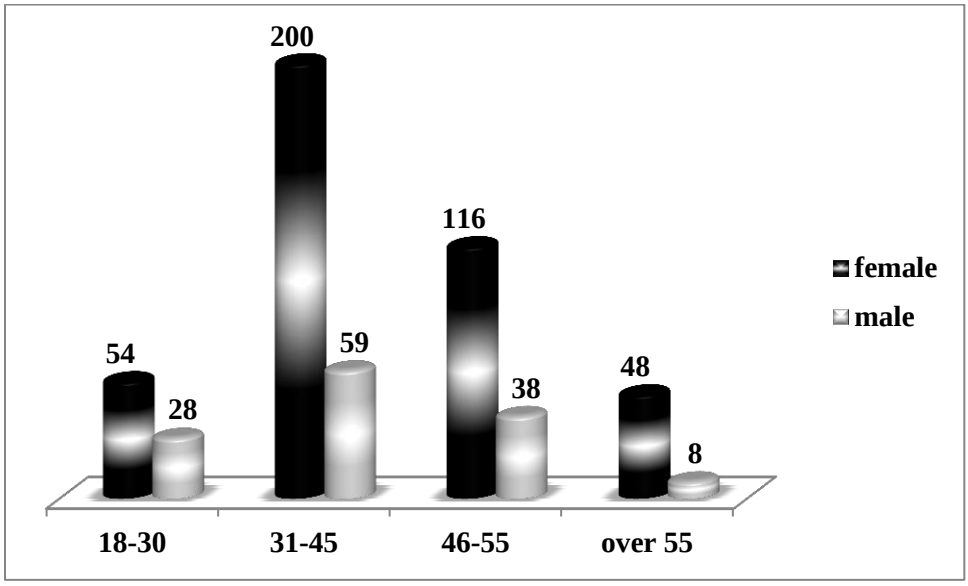


**Figure 2.** Distribution by gender and age

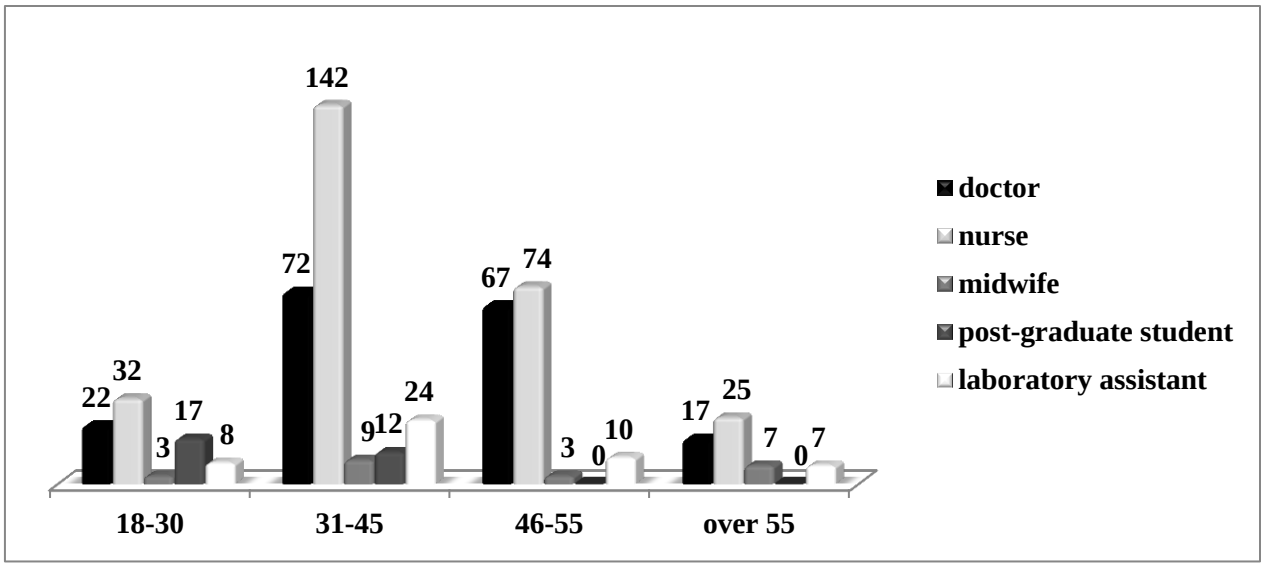


**Figure 3.** Distribution by structure and age

The used IT system (IS) helps in the work of 405 (95% CI (73.5 ± 3.69)%) medical specialists, 65 (95% CI (11.8 ± 2.69)%) did not help, and 81 (95% CI (14.7 ± 2.96)%) can not decide. Fisher's exact test indicates there was no significant difference between gender and answer the question ($\chi^2$=0.901, p=0.641>0.05). It follows that men and women uniquely determine the benefits of the information system in their work.

When working with information system (IS) 283 (95% CI (51.4 ± 4.17)%) medical specialists feel more informed and more motivated, 142 (95% CI (25.8 ± 3.65)%) can not decide, but 126 (95% CI (22.9 ± 3.51)%) did not feel improvement using IS. Fisher's exact test indicates there was a weak (Cramer's V = 0.138) between the answers to questions and gender ($\chi^2$ 2 = 10.001, p = 0.006 <0.05). It observes a there was no significant difference in this matter between the sexes, but more often in women predominate awareness and motivation.

Enter data subsequently, and not at the time of review 256 (95% CI (46.5 ± 4.16)%) medical specialists, both 90 (95% CI (16.3 ± 3.08)%) do this at the time of review and after that, and 205 (95% CI (37.2 ± 4.04)) manage to enter data for the patient during the examination. Fisher's

exact test indicates there was no significant difference between gender and answer the question ($\chi^2$= 2.370, p = 0.316> 0.05). Consequently of medical specialist both two sexes not have time to review and enter the data from the review afterwards equally.

To the question "Should you fill various documents only electronically" - 268 (95% CI (48.6 ± 4.17)%) medical specialists respond positively, 137 (95% CI (24.9 ± 3.61)%) can not decide, 146 (95 % CI (26.5 ± 3.68)%) reply in the negative. The last enter data in both ways. Fisher's exact test indicates there was a weak (Cramer's V = 0.127) significant difference between the answers to questions and gender ($\chi^2$ = 9.208, p = 0.01<0.05). It observes a difference in this matter between the sexes, but more often in women predominate desire to enter information only electronically.

Of unauthorized access to their computer worry 315 (95% CI (57.2 ± 4.13)%) medical specialists, can not decide 79 (95% CI (14.3 ± 2.93)%), and 157 (95% CI (28.5 ± 3.77 )%) are not worried. Fisher's exact test indicates there was no significant difference between gender and answer the question ($\chi^2$= 5.06, p = 0.087> 0.05). Both men and women uniquely worry of risk of unauthorized access to the computer on which they work.

Used IS to have the possibility to print the entire history of the disease intimate 441 (95% CI (80.04 ± 3. 34)%) medical specialists require, can not decide - 75 (95% CI (13.61 ± 2.86)%), and only 28 (95% CI (6.35 ± 2.04)%) did not want this. Fisher's exact test indicates there was no significant difference between gender and answer the question ($\chi^2$= 3.746, p = 0.153> 0.05). Medical specialists of both sexes want to acquaint themselves in detail with the previous condition of the patient, as this help them to make the most correct diagnostic-therapeutic decision.

## DISCUSSIONS

Most medical specialists determine that the use of information systems (IS) have not brought to extension of time for review. Position of others, who are of the opposite opinion is prompted by this, that time under the law (3) for review is not enough or the interface is complex. Time is not enough most probably because the data for patients is entered not immediately after the review, and subsequently. IS helps in work of 405 (95% CI (73.5 ± 3.69)% ), as over half of them feel more informed and more motivated.
Over 50% of survey participants have worried from unauthorized access to their personal computer, although the hospitals in which the survey has done have IT departments responsible for the security of networks and computers. This raises the need for employees in the IT department to explain the security of the existing IT infrastructure. Sometimes uncertainty is explained by the fact that the number of professional computers is insufficient and requires one to be shared by more medical specialist.

Expected result was that most medical specialists want to be able to print the entire history of the disease. According to doctors, that drafting the questionnaire, this will lead to fewer errors and faster decision-making, especially in emergencies.

E-health was designed to be of help for medical specialists. Using of ICT they will not acquire new skills, but will have faster and easier access to medical records of patients, and immediate access to the results of the various laboratory tests.

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