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ATTITUDE OF DOCTORS AND NURSES OF CENTRO AND ŠEŠKINĖ OUTPATIENT CLINICS TO IMPLEMENTATION OF INFORMATION TECHNOLOGIES DEPENDING ON THEIR AGE AND JOB

AUDRONĖ JUODAITĖ-RAČKAUSKIENĖ[1,2], JONAS KAIRYS[1,3], KĘSTUTIS ŠTARAS[2,4]
[1]Vilnius University, Faculty of Medicine, [2]"Centro poliklinika" Outpatient Clinic,
[3]Šeškinė Outpatient Clinic, [4]Mykolas Romeris University

INTRODUCTION

E-health covers facilities based on information and communication technologies which are used by health care institutions in order to ensure and improve monitoring of patients health condition, diagnostics and prevention (1).

According to the data of the study conducted by the Department of Statistics, at the beginning of 2011 almost all (99.6 percent) of health care and social work institutions with 10 and more staff used computers and internet in the daily routine work. At the beginning of 2011, there were 21.1 computers per 100 personnel, 38.4 percent of the staff of health care and social work institutions used computer and 35.6 percent used internet at least once in a week (31.4 and 29 percent respectively in 2009). 63.3 percent of the institutions possessed local computer networks (51.9 percent in 2009). Key areas of computer use includes administration of activities of the institutions (85.3 percent of the total), monitoring of public health, preparation of statistical reports for Patients Funds under the Ministry of Health (64.9 percent), and management of functional activity maintenance (34.8 percent) (2).

The current health system in conjunction with e-health provides for equal opportunities for the personnel to access medical information (text files and images) in a convenient and safe manner in compliance with regulations and laws (3). Information technologies ensure contact possibilities between patients and health care service providers, make it possible to transfer data from one institution to another, and provide for communication among patients and health care specialists. It also encompasses health care information networks, electronic medical records, telemedical services, and personal wearable and portable patient monitoring devices and patient assistance communication systems. E-health media can help ensure that any vital information related to health is immediately accessible at the required location. This gains a special relevance in view of ever increasing international mobility of people and patients (4, 5, 6).

Information technologies are primarily used to satisfy needs of information usage and to avoid errors in medical records, and to create detailed and comprehensive electronic medical records at low time expenditure (7,8).

Electronic medical records not only brought a number of innovations into the health system but also reformed health care by facilitating provision and management of health care services. Notwithstanding the positive contribution of information technologies, there remain a number of legal, ethical and financial questions to be answered at the present which impede universal acceptance and use of e-health media. Many stakeholders in the world have initiated discussion of these issues at the national forum by identifying main priorities and seeking that widespread, safe and effective information technologies might help restructure health care (9,10).

The European Union seeks to create the European e-Health space. The specific tasks identified for this purpose include development of a standardised system of electronic medical records to promote information exchange and standardisation, establishment of health care information networks linking health care service provision facilities. In order to successfully implement these purposes, it is necessary that implementation strategies and projects take into account requirements of population, patients and health professionals and induce their involvement (1).

Correspondence to: Audronė Juodaitė-Račkauskienė, el. p. a.j.rackauskiene@gmail.com

"Centro poliklinika" and Šeškinė Outpatient Clinics of the City of Vilnius have implemented information technologies which are used on a daily basis by medical personnel for provision of fast, safe and affordable health care services to patients.

The **objective of this study** is to study opinions of doctors and nursing staff on information technologies implemented in Centro and Šeškinė outpatient clinics and determine whether implementation and development of information technologies in health care establishments have met expectations of the personnel in relation to their age and job.

STUDY MATERIALS AND METHODOLOGY.

The study was conducted at the largest personal health care institutions in the City of Vilnius, namely Centro and Šeškinė outpatient clinics. The study in the form of anonymous survey was conducted in the mentioned institutions in January to March 2010. Doctors and nursing staff using information technologies for the provision of health care services in their job took part in the survey. The objective of the study was explained to each respondent. Total number of 339 respondents participated in the survey. 145 completed questionnaires were produced in Centro outpatient clinic and 194 questionnaires in Šeškinė outpatient clinic. Analysis of the questionnaires showed that not every respondent gave answers to all the questions, therefore the number of answers to the questions might be less.

Respondents were asked for demographic details (age, gender, speciality, and place of employment) in the survey. The questionnaire reflected the opinions of doctors and nursing staff on the influence of technological information on provision of personal health care services, accessibility and quality of such services, and on computer literacy of medical staff, the questionnaire also included the question whether availability of information technologies in the health care establishment had any influence on the choice of such establishment as a place of one's job. The data obtained were analysed in terms of differences in age, speciality and employer.

The findings were entered into the database and statistical analysis of data was performed by means of SPSS (Statistical Package for the Social Sciences) software package. The data were processed to obtain absolute values and percentage values. When comparing several discrete values non-parametric criterion χ^2 was applied irrespective of which scale (nominal or ordinal) such values belong to. Difference between processed values was deemed significant when $p<0.05$.

In accordance with the rules of analysis of variance, respondents were split into four ordinal groups based on age: under 30 years, 31-40, 41-50, 51-60 and 61 and over years of age; according to speciality: doctor, nurse; and based on employer: Centro and Šeškinė outpatient clinics. Doctors account for 41.4 % and nurses for 58.6 % of those involved in the survey.

The survey involved the medical staff which use information technologies implemented in office on a daily basis for the purpose of rendering personal health care services.

RESULTS

Respondents were asked whether use of information technologies in job facilitate rendering of health care services. 52.2 percent doctors and 48.9 percent nurses employed with Centro outpatient clinic, and 47.8 percent doctors and 51.1 percent nurses in Šeškinė outpatient clinic said that use of information technologies in job highly facilitated rendering of health care services. The findings show that there is not any material difference between doctors and nurses attitudes (Table 1). Information technologies implemented in the outpatient clinics were evaluated positively, however, distribution in age groups is uneven: 72.7 percent of the doctors in the age group 31-40 in Centro outpatient clinic and 60.0 percent in the age group 41-50 in Šeškinė clinic believe that use of information technologies in job highly facilitate rendering of health care services; while 75.0 percent of the doctors in the age group 61 and over in Centro outpatient clinic and 70.0 percent in the age group 51-60 in Šeškinė clinic state that use of information technologies in job facilitate rendering of health care services on the average. 50.0 percent of the doctors in the age group 51-60 in Centro outpatient clinic and 91.7 percent in the age group 41-50 in Šeškinė clinic state that use of information technologies influence provision of such services in part. 80.0 percent of the nurses in the age group 51-60 and 60.0 percent in the age group 61 and over in Šeškinė outpatient, and 57.1 percent of the nurses in the age group 41-50 in Centro outpatient clinic maintain that use of information technologies in job facilitate rendering of health care services only to partial extent. 88.9 percent of the nursing staff in 41-50 age

group employed at Šeškinė clinic said that provision of health care services improved on the average. 75.0 percent of the nurses in the age group 61 and over in Centro outpatient clinic, and 54.5 percent of the nursing staff under 30 years age employed with this clinic, and 45.5 percent nurses under the age of 30 in Šeškinė clinic, and 55.6 percent in the age group 31-40 of this clinic said that owing to implementation of information technologies rendering of health care services had improved highly. The findings show that opinions of various age respondents in both clinics differ ($p<0.05$).

Table 1. Distribution of respondents by specialisation and place of employment when answering to the question whether use of information technologies in job facilitate provision of health care services

Specialisation*	Evaluation	Employer**		Total
		Centro clinic	Šeškinė clinic	
		N, percent	N, percent	N, percent
Doctors	highly	36	33	69
		52.2%	47.8%	100.0%
	on average	13	17	30
		43.3%	56.7%	100.0%
	in part	10	22	32
		31.3%	68.8%	100.0%
	did not facilitate at all	2	5	7
		28.6%	71.4%	100.0%
	don't know	0	1	1
		0.0%	100.0%	100.0%
	Total	61	78	139
		43.9%	56.1%	100.0%
Nurses	highly	44	46	90
		48.9%	51.1%	100.0%
	on average	10	24	34
		29.4%	70.6%	100.0%
	in part	22	38	60
		36.7%	63.3%	100.0%
	did not facilitate at all	2	4	6
		33.3%	66.7%	100.0%
	don't know	1	4	5
		20.0%	80.0%	100.0%
	Total	79	116	195
		40.5%	59.5%	100.0%

*χ^2=11,421; p=0.179; **χ^2=10,016; p=0.040*

The medical personnel have to use computer constantly when rendering health care services. The medical personnel of Šeškinė outpatient clinic evaluated their computer literacy better: 66.7 percent of the doctors and 60.0 percent of the nurses believe that they have a very high computer literacy. Mere 33.3 percent of the doctors and 40.0 percent of the nurses in Centro clinic said that they had a high-level computer literacy. Computer literacy of the respondents was appraised in relation to age. The results show that the doctors in the age group 31-40 of both Centro and Šeškinė clinics (50.0 percent each) deemed their computer literacy very high. Computer literacy as average is evaluated by 77.8 percent of respondents in the age group 61 and over in Centro clinic, and 66.7 percent of respondents under 30 years of age in Šeškinė clinic. 50 percent of the respondents in the age group 51-60 in both clinics evaluate their computer literacy as adequate (sufficient) for the purpose of provision of health care services.

The nursing staff also use computer for their job of providing health care services to patients. Nurses rate their computer literacy positively, too: as high as 75 percent of respondents in the age group 31-40 in Centro clinic and 75 percent in the age group 41-50 in Šeškinė clinic rated their computer literacy as very high. 66.7 percent of the nurses under 30 in Centro clinic and 78.9 percent in the age group 31-40 in Šeškinė clinic evaluated their computer literacy as average. 66.7 percent of the nursing staff of 60 and over in Centro clinic and 76.0 percent in the age group 51-60 in Šeškinė clinic have an adequate (sufficient) computer literacy. The findings show that evaluation of computer literacy of nursing staff in both clinics does not depend on age and place of employment ($p>0,05$).

The information technologies implemented in the clinics have made material changes in the jobs of medical staff; therefore the respondents were asked whether there was need for development and expansion of information technologies in their respective medical institution. The findings show that 49.5 percent of doctors and 45.5 nurses in Centro clinic, and 50.5 percent doctors and 54.5 percent nurses in Šeškinė clinic think that development of information technologies is necessary in their job (outpatient clinic). 70.0 percent of doctors in the age group 31-40 and 72.2 percent in the age group 61 and over in Centro clinic, and 61.5 percent doctors in the age group 41-50 and 51-60 percent in Šeškinė clinic think that development of information technologies is necessary

in their clinic ($p<0.05$). 77.8 percent of nurses of 61 years old and over and 66.7 percent of those under 30 years in Centro clinic, and 60.6 percent in the age group 41-50 and 60.3 percent in the age group 51-60 in Šeškinė clinic said that such development was necessary.

One of the aims of implementing information technologies in outpatient clinics is improvement of accessibility of health care services for patients. 51.5 percent of doctors and 53.4 percent of nurses employed in Centro clinic said that information technologies had improved accessibility and quality of personal health care services. 69.9 percent of the doctors in Šeškinė clinic believe that information technologies do not influence accessibility and quality of personal health care services. 64.2 of the nursing staff in Šeškinė outpatient clinic said that information technologies had improved accessibility and quality of personal health care services in part ($p<0.05$).

The findings show that majority of respondents, depending on age, had a positive attitude towards impact of information technologies: 85.7 percent of the doctors in the age group 31-40, 83.3 percent in the age group 61 and over, and 50 percent in each age group under 30 and 51-60 in Centro outpatient clinic; in Šeškinė clinic - 69.2 percent of the doctors in the age group 41-50 and 50.0 percent in the age group 51-60, said that information technologies had improved accessibility and quality of personal health care services in the clinic. 66.7 percent of the doctors in the age group 31-40 in Šeškinė clinic said that information technologies had improved accessibility and quality of personal health care services in part. Attitude of the nursing staff proved positive as well: 75.0 percent of those over 60 and 58.3 percent in the age group under 30 in Centro clinic, and 50.0 percent of the respondents in each age group 31-40 and 41-50 in both clinics said that information technologies implemented in the clinic had improved accessibility and quality of health care services. 76.0 percent of the nurses between 51-60 years of age in Šeškinė clinic said that it had improved partially.

Appointment of a patient for the next visit or physician's consultation at a doctor's office bypassing the reception desk by using information technologies was positively rated 50.5 percent of doctors and 45.6 nurses in Centro outpatient clinic; while in Šeškinė outpatient clinic 70.4 percent of doctors and 66.1 percent of nurses think that information technologies partly improved this service for patients ($p<0.05$).

70.0 percent of the doctors in the age group 31-40, 50.0 percent in the age group under 30 and 68.8 percent of those over 61 in Centro clinic, and 62.2 percent of the doctors in the age group 41-50, 50 percent in the age group under 30 in Šeškinė clinic said that information technologies had improved the service of a patient's appointment to a specialist. 66.7 percent of the nurses in the age group 61 and over, 56.3 percent under 30, and 41.7 percent of those in the age group 41-50 employed in Centro clinic said that information technologies had improved the service of a patient's appointment to a specialist. 61.3 percent of the nursing staff in the age group 31-40, 58.3 percent in the age group 41-50, and 43.8 percent in the age group under 30 in Šeškinė clinic also said that this service had improved due to implementation of information technologies.

Following analysis of the findings of the facility to remind a patient of a visit to a doctor by SMS or e-mail which has been created thanks to information technologies, we have found that 48.3 percent of the doctors and 41.6 percent of the nurses in Centro clinic believe that this service is relevant; 77.8 percent of the doctors and 61.2 percent of the nurses in Šeškinė clinic think that this service is superfluous.

Reminding a patient of a visit by SMS message or e-mail is deemed relevant by 85.7 percent of the doctors of 61 and over, 80.0 percent of those in the age group 31-40, 60 percent in the age group 51-60 in Centro outpatient clinic; and 54.2 percent of the doctors in the age group 41-50 in Šeškinė clinic. This service is deemed superfluous by 52.9 percent doctors in the age group 51-60 in Šeškinė clinic. 58.3 percent of the nurses in the age group under 30, 46.2 in the age group 31-40 in Centro clinic, and 71.4 percent of the nursing staff in the age group 51-60, 62.5 percent in the age group 41-50, 58.3 percent in the age group 31-40, and 41.7 percent in the age group under 30 in Šeškinė clinic said that reminding a patient of a visit by SMS message or e-mail was relevant. 44.4 percent of the nurses 61 and over, 38.9 percent in the age group 41-50, and 38.2 percent in the age group 51-60 in Centro clinic said that this service was irrelevant ($p<0,05$).

A positive impact of information technologies on the change effect in a job, on the quality of rendered services, justification of expectations of the personnel is reflected by the respondents' attitudes towards the impact upon choice of one's place of employment made by availability of information technologies.

56.7 percent of the doctors in Šeškinė clinic and 42.3 percent of the nurses in Centro clinic said that availability of information technologies in a health care establishment did influence the choice of such clinic as a place of employment, however, 48.1 percent of the doctors in Centro clinic and 58.2 percent of the nurses in Šeškinė clinic said that availability of information technologies in a health care establishment did not have any influence on the choice of a place of employment (p<0,05).

The findings show that opinions of the respondents of the impact on the choice of a place of employment made by availability of information technologies in a clinic vary depending upon the age group. 50 percent of the doctors in the age group 31-40 in both Centro and Šeškinė outpatient clinics said that availability of information technologies in a clinic had influenced their choice of a particular clinic as a place of employment. 77.8 percent of the doctors in the age group 61 and over in Šeškinė clinic, and 77.8 percent of the doctors in the age group 61 and over, 45.8 percent in the age group 41-50 in Centro clinic also said that availability of information technologies in a clinic had influenced their choice of it as a place of employment. 64.7 percent of the doctors in the age group 51-60 in Centro clinic and 84.2 percent of the doctors in the age group 41-50 in Šeškinė clinic said that availability of information technologies had not influenced their choice of a place of employment. 73.3 percent of the nursing staff in the age group 41-50, 66.7 percent in the age group 61 and over and 63.6 percent in the age group 31-40 in Šeškinė clinic, and 47.5 percent of the nurses in the age group 51-60 in Centro clinic also agree with the statement that availability of information technologies in a clinic influences their choice of a place of employment. Assessment by the nursing staff under 30 years of age in both clinics is similar: one-half of the respondents in this age group stated that availability of information technologies had influenced their choice of the clinic as a place of employment. However, 50.0 percent of the nurses in the age group 31-40, 46.2 percent in the age group 41-50 in Centro clinic, and 100 percent of the nursing staff in the age group 51-60 in Šeškinė clinic believe to the contrary, i.e. no influence. The findings show that opinions of the medical staff on the choice of a place of employment in both clinics do not correlate with the age group (p>0,05), however, the current job where information technologies are available does influence opinions of the staff (p<0,05), (Table 2).

Table 2. Breakdown of respondents by specialisation and age in respect of the question whether availability of information technologies in the health care establishment has any influence of its choice as a place of employment

Specialisation*	Answer	Age**		Employer***		Total
				Centro clinic	Šeškinė clinic	
				N, percent	N, percent	N, percent
Doctors	influence		under 30	1	1	2
				50.0%	50.0%	100.0%
			31-40	3	3	6
				50.0%	50.0%	100.0%
			41-50	11	13	24
				45.8%	54.2%	100.0%
			51-60	4	14	18
				22.2%	77.8%	100.0%
			61 and over	7	2	9
				77.8%	22.2%	100.0%
		Total		26	33	59
				44.1%	55.9%	100.0%
	no influence	Age	under 30	0	3	3
				.0%	100.0%	100.0%
			31-40	4	0	4
				100.0%	.0%	100.0%
			41-50	3	16	19
				15.8%	84.2%	100.0%
			51-60	11	6	17
				64.7%	35.3%	100.0%
			61 and over	8	1	9
				88.9%	11.1%	100.0%
		Total		26	26	52
				50.0%	50.0%	100.0%
	don't know	Age	31-40	2	2	4
				50.0%	50.0%	100.0%
			41-50	1	7	8
				12.5%	87.5%	100.0%
			51-60	5	3	8
				62.5%	37.5%	100.0%
			61 and over	1	3	4
				25.0%	75.0%	100.0%
		Total		9	15	24
				37.5%	62.5%	100.0%

Nurses	**influence**	**Age**	**under 30**	**6**	**6**	**12**
				50.0%	**50.0%**	**100.0%**
			31-40	**8**	**14**	**22**
				36.4%	**63.6%**	**100.0%**
			41-50	**4**	**11**	**15**
				26.7%	**73.3%**	**100.0%**
			51-60	**19**	**21**	**40**
				47.5%	**52.5%**	**100.0%**
			61 and over	**2**	**4**	**6**
				33.3%	**66.7%**	**100.0%**
		Total		**39**	**56**	**95**
				41.1%	**58.9%**	**100.0%**
	no influence	**Age**	**under 30**	**4**	**1**	**5**
				80.0%	**20.0%**	**100.0%**
			31-40	**9**	**9**	**18**
				50.0%	**50.0%**	**100.0%**
			41-50	**6**	**7**	**13**
				46.2%	**53.8%**	**100.0%**
			51-60	**0**	**15**	**15**
				.0%	**100.0%**	**100.0%**
			61 and over	**4**	**0**	**4**
				100.0%	**.0%**	**100.0%**
		Total		**23**	**32**	**55**
				41.8%	**58.2%**	**100.0%**
	don't know	**Age**	**under 30**	**1**	**0**	**1**
				100.0%	**.0%**	**100.0%**
			31-40	**3**	**9**	**12**
				25.0%	**75.0%**	**100.0%**
			41-50	**4**	**7**	**11**
				36.4%	**63.6%**	**100.0%**
			51-60	**6**	**9**	**15**
				40.0%	**60.0%**	**100.0%**
			61 and over	**1**	**1**	**2**
				50.0%	**50.0%**	**100.0%**
		Total		**15**	**26**	**41**
				36.6%	**63.4%**	**100.0%**

$^{*}\chi 2=5,116$; $p=0.276$; $^{**}\chi 2=6,604$; $p=0.580$; $^{***}\chi 2=1,458$; $p=0.0482$

DISCUSSION OF THE RESULTS

Majority of the doctors and nursing staff employed with Centro and Šeškinė outpatient clinics have a positive attitude towards use of information technologies in job and maintain that it highly facilitates provision of health care services. The results show that information technologies implemented in the mentioned outpatient clinics are evaluated positively by both doctors and nurses without any material difference, however, distribution by age groups is uneven: the highest satisfaction by influence of information technologies on provision of health care services is demonstrated by majority of doctors in the age group 31-40 and two-thirds of the doctors in the age group 41-50 in Šeškinė clinic. Large majority of the doctors in the age group 61 and over in Centro clinic and in the age group 51-60 in Šeškinė clinic have similar attitudes stating that information technologies have facilitated provision of health care services on the average degree. One-half of the doctors in the age group 51-60 in Centro clinic and majority (91.7 percent) of the doctors in the age group 41-50 in Šeškinė clinic were critical and said that they were satisfied partly. The nursing staff under 30 years of age in both institutions had similar attitudes; younger nurses had a positive attitude towards impact of information technologies on provision of health care services. Also, sizable majority of the nurses in the age group 61 and over in Centro outpatient clinic and more than half of the nurses in the age group 31-40 in Šeškinė clinic noted a significant positive impact of information technologies. However, majority of the nursing staff in the age groups 51-60 and 61 and over in Šeškinė clinic was critical and stated that information technologies only partially facilitated provision of health care services. The nursing staff in the age group 41-50 in both clinics had differing attitudes: majority in Šeškinė clinic said that provision of health care services had improved on the average scale, and more than half in Centro clinic said that improvement had been only partial.

The medical staff have to use computer for the purpose of provision of health care services. Majority of the doctors and nurses in Šeškinė clinic believe that they have a very high computer literacy. Mere one-third of the doctors and less than half of the nurses in Centro clinic said that they had a high computer literacy. The medical personnel of Šeškinė clinic rated their computer literacy better than those in Centro clinic; however, there is no material difference. The results show that one-half of the doctors in the age group 31-40 in both Centro and Šeškinė clinics evaluated their computer literacy as very high. Computer literacy as average is rated by majority doctors in the age group 61 and over in Centro clinic and in the age group under 30 in Šeškinė clinic. Half of the respondents in the age group 51-60 in both Centro and Šeškinė clinics rated their computer literacy as adequate for the purpose of provision of personal health care services to patients. The nursing staff

is also using computer in their job when providing personal health care services to patients. Nurses rate their computer literacy as positive as well: majority in the age group 31-40 in Centro clinic and in the age group 41-50 in Šeškinė clinic rated their computer literacy as very high. More than half of the nurses in the age group under 30 in Centro clinic and majority in the age group 31-40 in Šeškinė clinic rate their computer literacy as average. Majority of the nursing staff in the age group 61 and over in Centro clinic and 51-60 in Šeškinė clinic have an adequate (sufficient) computer literacy. The findings show that evaluation of computer literacy by the medical staff of both outpatient clinics does not depend upon age and job.

Information technologies implemented in the outpatient clinics have made material changes in the jobs of medical staff and respondents have positive attitude to the development of information technologies in their medical establishments. The findings show that one-half of the doctors and nurses employed in Centro and Šeškinė outpatient clinics support development of information technologies at their job. Majority of the doctors in the age group 31-40 and 60 and over in Centro clinic and more than half of the respondents in the age group 41-50 and one-half in the age group 51-60 in Šeškinė clinic have positive attitude towards development of information technologies in their clinic. The nursing staff are also satisfied with implementation of information technologies in their clinics. More than half of the nurses in the age group under 30 and majority of those 60 and over in Centro clinic, and more than half of the nursing staff in the age groups 41-50 and 51-60 in Šeškinė clinic have positive attitude towards development of information technologies.

By implementing information technologies in outpatient clinics accessibility of health care services to clients is expected to improve. More than half of the doctors and nurses in Centro clinic said that information technologies had improved accessibility and quality of health care services. More than half of the doctors of Šeškinė clinic, however, believe that information technologies had not influenced accessibility and quality of health care services, and more than half of the nursing staff of Šeškinė clinic think that information technologies had improved accessibility and quality of health care services only to a partial degree.

The findings show that majority of respondents, depending on age, have positive attitude towards impact of information technologies upon accessibility and quality of health care services. Large majority of the doctors in the age groups 31-40 and 60 and over employed in Centro clinic, and doctors in the age group 41-50 in Šeškinė clinic said that they had noticed the influence of information technologies on improvement of accessibility and quality of health care services. Doctors in the age group 51-60 in both Centro and Šeškinė clinics rated impact of information technologies similarly: one-half of the respondents in this age group stated that information technologies had enhanced accessibility and quality of health care services in the clinic. More than half of the doctors in the age group 31-40 employed in Šeškinė clinic said that information technologies had partially improved accessibility and quality of health care services in the clinic. The findings show that the nursing staff are also satisfied with the improvement of accessibility and quality of health care services as a result of implementation of information technologies. In Centro clinic the highest satisfaction is demonstrated by the respondents under 30 years of age and 61 years and over. One-half of the nursing staff in the age groups 31-40 and 41-50 in both clinics had a similar attitude and maintained that information technologies had improved accessibility and quality of health care services in the clinic. Majority of nurses in the age group 51-60 in Šeškinė clinic, however, were critical, they believe that information technologies have only partially improved accessibility and quality of health care services in the clinic.

In the clinic where information technologies are available for provision of health care services, medical staff communicate among themselves saving time expenditures, and make appointments for patients for the next visit or physician's consultation at a doctor's office bypassing the reception desk by using information technologies. One-half of the doctors and nearly half of the nurses in Centro outpatient clinic are satisfied with this facility. Rating of this service by the medical staff of Šeškinė clinic is inferior: majority of doctors and nursing staff in Šeškinė clinic believe that information technologies have improved this service for patients partially.

Majority of the doctors in the age groups 31-40 and 61 and over in Centro clinic and more than half of the doctors in the age group 41-50 in Šeškinė clinic are satisfied with the use of information technologies for the service of patients' appointment for a visit to the doctor. Half of the doctors in the age group under 30 in both Centro and Šeškinė clinics had a similar positive attitude. Two-thirds of the nurses in the age group 61 and over and more than half in the age group under 30 in Centro clinic agree that information technologies have improved the service of patients' appointment for a visit to the doctor. Two-thirds of the nurses in the age

groups 31-40 and 41-50 and less than half in the age group under 30 in Šeškinė clinic also maintained that this service has improved due to implementation of information technologies.

Availability of information technologies provides for the facility to remind a patient of an appointment with a doctor by means of SMS message or e-mail. Analysis of the findings evidences that nearly half of the doctors and nurses in Centro clinic believe that this service is relevant, while majority of the doctors and two-thirds of the nursing staff in Šeškinė clinic believes that this service is irrelevant.

Reminding a patient of an appointment through SMS or e-mail is positively evaluated by a large majority of the doctors in the age groups 31-40 and 60 and over in Centro clinic, and more than half of the doctors in the age group 41-50 in Šeškinė clinic. Attitudes of the doctors in the age group 51-60 were different in both clinics: two-thirds of the respondents in the age group 51-60 in Centro clinic support this service, while more than half of the doctors in the age group 51-60 in Šeškinė clinic maintain that this service is superfluous. Attitudes of the nursing staff depending upon age were different in both outpatient clinics. More than half of the nurses in the age group under 30, less than half in the age group 31-40, and majority in the age groups 51-60, 41-50 in Centro clinic, and more than half in the age group 31-40 and less than half in the age group under 30 of those employed in Šeškinė clinic are satisfied with the service of reminding a patient of an appointment with a doctor by means of SMS message or e-mail. Less than half of the nurses in the age group 61 and over, and over one-third of those in the age groups 41-50 and 51-60 in Centro clinic believe that such service is irrelevant.

Favourable impact of information technologies on the changes in one's job is reflected by the fact whether respondents have positive attitude towards their clinic as a choice of one's place of employment owing to availability of information technologies. More than half of the doctors employed in Šeškinė clinic and less than half of the nurses in Centro clinic state that they are influenced by availability of information technologies in the health care establishment when choosing it as a place of employment; however, such influence is not evident in respect of less than half of the doctors in Centro clinic and more than half of nurses in Šeškinė clinic.

Respondents, depending upon age, have varying attitudes towards availability of information technologies when choosing a clinic as a place of employment. Half of the doctors in the age group 31-40 in Centro and Šeškinė outpatient clinics said that they would choose the clinic where information technologies were available. Majority of the doctors in the age group 51-60 in Šeškinė clinic, and majority of the doctors in the age group 61 and over, and less than one-half in the age group 41-50 in Centro clinic would also choose the clinic where one is given opportunity to use information technologies in one's job. More than two-thirds of the doctors in the age group 51-60 in Centro clinic and majority of those in the age group 41-50 in Šeškinė clinic said that availability of information technologies did not influence their choice of a place of employment. Attitudes of the nursing staff in the age group under 30 were similar in both clinics: one-half of the respondents in this age group said that availability of information technologies in the health care institution influenced their choice of such clinic as a place of employment. Majority of the nursing staff in the age group 41-50, and more than two-thirds in the age groups 31-40 and 60 and over in Šeškinė clinic, and less than half of those in the age group 51-60 in Centro clinic would also choose the clinic where information technologies are available as their place of employment. However, one-half of the nurses in the age group 31-40 and less than half in the age group 41-50 in Centro clinic, and entire nursing staff in the age group 51-60 in Šeškinė clinic would choose a clinic as a place of employment irrespective of availability of information technologies. The findings show that age does not correlate with the attitudes of the medical staff in both clinics in respect of choice of a place of employment; however, the current place of employment where information technologies are available does influence opinions of the staff.

When implementing information technologies in an institution, expectations include availability of fast information, efficient planning, control, time expenditure saving, enhancement of the quality of personal health care services provided. This was exactly the purpose of implementation of information technologies in Centro and Šeškinė outpatient clinics.

CONCLUSIONS

1. The best satisfaction of expectations of the use of information technologies in one's job is demonstrated by doctors in the age group 31-40 and nurses in the age group 61 and over in Centro clinic, and doctors in the age group 41-50 and nurses in the age group 31-40 in Šeškinė clinic.
2. There is no material difference in the assessments of computer literacy by medical staff of different age in both clinics.

3. One-half of the doctors and nurses employed in Centro and Šeškinė outpatient clinics support development of information technologies in their jobs.

4. Doctors and nurses of Centro clinic rate the influence of information technologies on improvement of accessibility and quality of personal health care services higher than those in Šeškinė clinic.

5. The service of registration (appointment) of a patient for the next visit or specialist's consultation at a doctor's office bypassing the reception desk by using information technologies is better rated by the medical staff of Centro clinic than those of Šeškinė clinic.

6. Reminding a patient of a visit to a doctor by means of SMS message or e-mail was rated more positively by the personnel of Centro clinic.

7. The nursing staff of Šeškinė outpatient clinic show higher satisfaction with the service of reminder of a patient's visit to a doctor by means of SMS message or e-mail in comparison to doctors.

8. The doctors and nurses in Centro clinic, irrespective of age, had similar attitudes to those of Šeškinė clinic when rating the influence of availability of information technologies upon their choice of the clinic as a place of employment.

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CENTRO IR ŠEŠKINĖS POLIKLINIKŲ GYDYTOJŲ IR SLAUGYTOJŲ POŽIŪRIS Į INFORMACINIŲ TECHNOLOGIJŲ DIEGIMĄ PRIKLAUSOMAI NUO JŲ AMŽIAUS IR DARBO VIETOS

Audronė Juodaitė-Račkauskienė, Jonas Kairys, Kęstutis Štaras

Santrauka

Raktažodžiai: gydytojai, slaugos darbuotojai, informacinės technologijos, e. sveikata.

Tyrimo tikslas. Ištirti gydytojų ir slaugos darbuotojų nuomonę apie įdiegtas informacines technologijas Centro ir Šeškinės poliklinikose bei nustatyti, ar informacinių technologijų diegimas ir plėtra sveikatos priežiūros įstaigose atitiko personalo lūkesčius priklausomai nuo jų amžiaus ir darbo vietos.

Medžiaga ir metodai. Tyrimas buvo atliekamas Vilniaus miesto Centro ir Šeškinės poliklinikose 2010 m. sausio–kovo mėn. Atliktas tyrimas – anketinė apklausa. Anketinėje apklausoje dalyvavo 339 respondentai, kurie savo darbo vietose, teikdami asmens sveikatos priežiūros paslaugas, naudojasi informacinėmis technologijomis.

Rezultatai. Tyrimo rezultatai rodo, jog dauguma Centro ir Šeškinės poliklinikos gydytojų ir slaugos darbuotojų teigiamai vertina naudojimąsi informacinėmis technologijomis darbo vietoje ir teigia, jog tai labai palengvina sveikatos priežiūros paslaugų teikimą. Poliklinikose įdiegtas informacines technologijas gydytojai ir slaugytojai vertina pozityviai ir esminio jų vertinimo skirtumo nėra. Tačiau duomenys rodo, jog abiejų poliklinikų respondentų nuomonė priklausomai nuo amžiaus yra skirtinga ($p < 0,05$).

Dauguma gydytojų ir slaugos darbuotojų informacinių technologijų diegimą ir plėtrą poliklinikose vertina pozityviai. Tarp abiejų įstaigų gydytojų ir slaugytojų nuomonės esminių skirtumų nėra. Duomenys rodo, jog abiejų įstaigų medicinos darbuotojų nuomonė pasirenkant darbo vietą nuo amžiaus nepriklauso ($p > 0,05$), tačiau dabartinė darbo vieta, kurioje įdiegtos informacinės technologijos, turi įtakos darbuotojų nuomonei ($p < 0,05$). Pusė gydytojų ir slaugytojų, dirbančių Centro ir Šeškinės poliklinikose, pritaria informacinių technologijų plėtrai jų darbo vietoje. Daugelis 31–40, 61 metų ir vyresnių gydytojų Centro poliklinikoje bei daugiau nei pusė 41–50, pusė 51–60 metų amžiaus respondentų Šeškinės poliklinikoje teigiamai vertina informacinių technologijų plėtrą jų poliklinikoje. Slaugos darbuotojai taip pat patenkinti informacinių technologijų diegimu jų įstaigoje. Daugiau nei pusė Centro poliklinikos gydytojų ir slaugytojų teigė, jog informacinės technologijos pagerino asmens sveikatos priežiūros paslaugų prieinamumą ir kokybę. Tačiau daugiau nei pusė Šeškinės poliklinikos gydytojų mano, kad informacinės technologijos neturėjo įtakos sveikatos priežiūros paslaugų prieinamumui ir kokybei bei daugiau nei pusė Šeškinės poliklinikos slaugos darbuotojų nurodė, jog informacinės technologijos tik iš dalies pagerino sveikatos priežiūros paslaugų prieinamumą ir kokybę. Išvada. Labiausiai patenkinti Centro poliklinikos 31–40 metų amžiaus gydytojų bei 61 metų ir vyresnių slaugytojų, Šeškinės poliklinikos 41–50 metų amžiaus gydytojų ir 31–40 metų amžiaus slaugytojų lūkesčiai naudojantis informacinėmis technologijomis darbo vietoje.

Abiejų poliklinikų pusė gydytojų ir slaugytojų pritaria informacinių technologijų plėtrai jų darbo vietoje.

Centro poliklinikos gydytojai ir slaugytojai informacinių technologijų įtaką asmens sveikatos priežiūros paslaugų prieinamumui ir kokybei gerinti vertina geriau nei Šeškinės poliklinikos respondentai.

Centro poliklinikos gydytojai ir slaugytojai nepriklausomai nuo amžiaus įdiegtų informacinių technologijų įtaką pasirenkant įstaigą, kaip darbo vietą, vertino panašiai teigiamai kaip ir Šeškinės poliklinikos respondentai.

Adresas susirašinėti: a.j.rackauskiene@gmail.com

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