

VILNIUS UNIVERSITY

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**ATTITUDES TOWARDS INFECTION CONTROL
AMONG DENTAL HEALTH CARE PROFESSIONALS**

Summary of Doctoral Dissertation
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VILNIAUS UNIVERSITETAS

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SPECIALISTŲ POŽIŪRIU**

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ABBREVIATIONS

CI – confidence interval

DA – dental assistant

df – degree of freedom

DH – dental hygienist

DHCP – dental health care professional

HBV – hepatitis B virus

HCV – hepatitis C virus

HIV – human immunodeficiency virus

IC – infection control

n – number of cases

OR – odds ratio

OR^a – odds ratio estimating all others attributes

p – value of statistical significans

χ^2 – chi square criterium

WHO – World Health Organization

1. INTRODUCTION

1.1. Investigation problem and its relevance

The oral flora is one of the most ecologically diverse microbial populations known to man [1]. The composition and number of oral microorganisms change over life. The number of microorganisms in 1g of oral mucous reaches even 10^{11} (including constant and temporary oral microorganisms and pathogens) [2]. Most of them are not hazardous and being in the mouth for a long time may not cause any disease; however, when entering other parts of the body of the same organism or the organism of another person they may become pathogenic. According to its characteristics, saliva and blood are the two favourable media for multiplication, growth and proliferation of microorganisms [3]. During dental treatment, both media are faced, which are related with the risks of the spread of infection: from patient to dental health care professional (DHCP), from DHCP to patient and from patient to patient. It has been proved that any dental intervention: dental preparation, professional oral hygiene, extraction of teeth, regular prophylactic examination of patient's mouth is related with a possible spread of infection. [4, 5]. When carrying out dental procedures, oral and upper respiratory tract microorganisms contaminate smaller and larger instruments used for work, and get into the environment [6]. If compulsory personal hygiene care measures are not taken, they get into respiratory tract, eyes, settle on hair, clothes of DHCP, contaminate working place surfaces, may be transmitted to other people or cause a disease. [3]. Therefore, one of the most important tasks for the dental care professionals is to prevent the spread of infection and create safe environment for a patient, the dentist himself and other dental staff [7].

Safety of DHCP and patients' health depends on the individually implemented requirements of the infection control programme. The aim of this programme is to ensure the safety of dental and oral treatment procedures, to avoid disease, transmitted via blood and saliva. The requirements of the programme shall be observed in daily dental practice [8]. In the Republic of Lithuania, infection control procedures are regulated by the

Lithuanian legislation, hygiene norms, which should be observed by each dental care professionals (when the data was collected, LHN 45 and LHN 47 were in force) [9, 10]. A dentist frequently works with a very small staff and is usually the leader of that team (dental assistant, dental hygienist or a junior colleague) and is responsible for infection control procedures. The main principles of infection control are taught at university, and practical skills are acquired at work.

The quality of infection control in dental health care institutions is checked by the State Public Health Services under the Ministry of Health of the Republic of Lithuania. The findings of inspection show that the principles of infection control in a daily dental care practice are not always observed accurately.

Studies carried out in other countries show that infection control does not always comply with the recommendations and requirements, and it is a burning problem both in developed European countries or the USA and in the developing Asian and African countries [3, 11-16]. A number of studies have been carried out in the world, which study not only the dentists' but also other health care professionals attitudes towards infection control and its quality when carrying out diagnostic or treatment procedures. To sum up the of studies results, the following causes of insufficient infection control in medicine and dentistry are frequently pointed out: lack of knowledge about infection control procedures; insufficient provision with materials and instruments; lack of time for patient examination and treatment; hand, respiratory tract irritation due to improper use of chemical materials, which are used to process surfaces and instruments; inapt behaviour of senior colleagues forming erroneous attitude of younger colleagues to the performed procedures; indifference of the dentist himself towards his health [17, 18]. It has also been proved that education on infection control shall be continuous and systematic [19].

1.2 The aim and objectives

The aim of the present study is to identify and evaluate the attitudes of Lithuanian dental health care professionals towards infection control and carried out infection control procedures, and to determine vaccination frequency against hepatitis B.

To reach the aim of this work, the following objectives were set:

1. To analyze the attitude of dental health care professionals towards infection control and its procedures.
2. To compare the attitudes of dental health care professionals towards infection control and carried out procedures according to the duration of professional activity, ownership status of a dental health care institution (public, private) and geographical localization of workplace (a major Lithuanian city, other Lithuanian regions).
3. To evaluate possible incompliance of infection control procedures in dental health care institutions with normative documentation.
4. To identify the causes of possible incompliance of infection control procedures in dental care institutions with normative documents.
5. To identify the frequency of vaccination against hepatitis B virus among Lithuanian dental health care professionals.

1.3 Scientific novelty and relevance

The attitude of Lithuanian dental care professional towards infection control, its necessity, peculiarities, possible spread of disease and factors related with incompliance of the requirements set in hygiene norms, were evaluated for the first time.

The opinion, attitude, knowledge about infection control in the workplaces of dental health care professionals were investigated with the help of a questionnaire. Special attention was paid to personal safety measures taken by dental health care professionals. The findings of this investigation will help to study the principles of infection control observed by Lithuanian dental health care professionals more thoroughly, to identify the factors which might influence on the quality of infection control, to set prevention measures and to give recommendations on how to improve the quality of dental services.

The conducted study showed that the topic under investigation is of utmost importance in Lithuania. Although strict infection control norms are valid in medical institutions of our country, they are not always observed in dental health care practice.

This study could be useful when drafting normative documentation, planning material base of dental services and implementing the right attitude towards the health of dental health care professionals and appropriate application of infection control procedures.

2. MATERIAL AND METHODS

The study highlighting the dental health care professionals' attitude towards infection control and infection control procedures as well as non-compliance of infection control procedures with the valid normative documentation was conducted at the Institute of Odontology, Faculty of Medicine, Vilnius University in 2008-2010. All 2,235 Lithuanian dentists, registered in the Lithuanian Dental Chamber Registry in 2008 and carrying general practice dentist's license, all 1,814 dental assistants and all 370 dental hygienists registered in 2010 (according to the database of the Lithuanian Dental Chamber Registry) were invited to take part in the investigation.

Minimal study sample size was calculated through the use of sample size spreadsheet [20]. The probability selected for the investigation and written into the spreadsheet was that of 95%, and error – 5% [21]. The calculated minimal sample values for dentists was 328 and those for dental assistants and dental hygienists were 317 and 189, respectively. Dentists carrying general practice license were selected for the investigation as these physicians had not undertaken any special graduate studies. Therefore, their opinion best reflects the general attitude of dentists towards infection control.

Dental health care professionals were questioned about their age, gender, attitude towards infection control procedures, their observation and possible causes of non-compliance of the infection control procedures with the set requirements (Annex). The questionnaire was developed based on the hygiene norms valid in the Republic of Lithuania during the investigation as well as recommendations approved in the world on the infection control in dental health care institutions [3, 9, 10]. The questionnaire contained 9 general questions, 30 questions on infection control (IC): the importance of IC in dentist's work, hand hygiene, care about dental professionals' health (gloves, facial masks, protective glasses, face shields); surface care; attitude towards infection transmitted via saliva and blood, vaccination against hepatitis B; water pollution control, disinfection and sterilization of large instruments, the use of rubber dam system. These were multiple choice questions. Respondents were invited to choose the answer that best fitted their attitude.

The participants of the survey were sent questionnaires with an explanatory letter. The questionnaire was sent by post. An envelope contained another stamped addressed return envelope and the delivery fee was paid. The questionnaires were anonymous. The questionnaires were sent once. Overall dentists' response rate was 64.7% (1,446 dentists replied). Overall dental assistants' response rate made up 53.3% (971 dental assistants replied) and that of dental hygienists' was 57.6% (213 dental hygienists replied).

All received questionnaires were coded, according to which the data was handled and analyzed with the software *SPSS 15.0 for Windows*.

Before carrying out the main investigation, the questionnaire was fully piloted and refined for clarity before being issued. It was piloted by 50 dentists who took part in a conference. It turned out that the questions were clear, and their number did not cause any difficulties; therefore, they were not amended. The estimated *Kappa* coefficient was 0.752.

All obtained data were analyzed and compared taking into account the respondents' duration of professional activity, working place localization (a major Lithuanian city or other Lithuanian regions), the ownership status of the working place (private, public institution), an educational institution dentists graduated from (Vilnius University, Lithuanian University of Health Sciences (former Kaunas Medical Institute, Kaunas Medical Academy, Kaunas Medical University) as well as other universities. Major Lithuanian cities were considered cities with more than 100,000 inhabitants: Vilnius, Kaunas, Klaipėda, Šiauliai, Panevėžys [22].

According to the duration of their professional activity, respondents were categorized into 4 groups: group A (work experience 9 years and under), group B (work experience of 10-19 years), group C (work experience of 20-29 years) and group D (work experience of more than 30 years).

The attitudes of dentists according to the graduated universities was compared only among those respondents who graduated from a university since year 2000 as that year the first crop of Vilnius University dentists was produced.

Statistical analysis of the study data was conducted with software *SPSS 15.0 for Windows (Statistical Package for Social Sciences)*. The strength of statistical relationship dependences among qualitative features was evaluated through the use of related features Chi square (χ^2) criterion. Statistical relationship of qualitative features was investigated

through the use of related tables method. Based on the values of tables, the value of Chi square (χ^2) criterion and its degree of freedom (df) as well as statistical significance (p value) were calculated. These parameters enabled to find out if features are related.

The phenomenon (correct or incorrect compliance with infection control requirements) probability was evaluated by calculating the odds ratio through the use of univariate or multiple logistic regression analysis.. Possible independent impact of various factors on the application of infection control measures was evaluated through the use of the method of inclusion of multiple factors logistic regression into the model by calculating the odds ratio and 95% confidence interval (CI). Multiple logistic regression was calculated only for those cases where the application of univariate logistic regression yielded significant differences. A group was selected as a dependent variable (improper infection control measures: 0, proper infection control: 1), and significant infection control factors were selected as independent ($p < 0.05$). All factors were included into the model as categorical. When calculating the odds ratio, a relatively more ordinary group was selected as a comparative (reporting) group. Criterion χ^2 was used to verify if the logistic regression model was coordinated with the data. To verify the values of dependent Y and dependences of independent variables *Nagelkerke* coefficient was calculated. To verify if the model is suitable for prognosis, the percentage of correct prognoses was calculated (classification table).

3. RESULTS

3.1. Description of the studied population

Study results revealed that the population of women prevailed among dentists, dental assistants and dental hygienists: 87.4%, 100% and 98.6%, respectively (Table 1).

Table 1. The studied contingent according to gender

Groups of respondents	Female, n (%)	Male, n (%)	Total, n
Dentists	1264 (87.4)	182 (12.6)	1446
Dental assistants	971 (100)	-	971
Oral hygienists	210 (98.6)	3 (1.4)	213

The mean age of dentists was 44.8 (± 12.4) (range 23-74 years), dental assistants: 42.5 (± 10.6) (range 22-67 years), dental hygienists: 30.6 (± 5.8) (range 22-52 years). A majority of respondents lived in major Lithuanian cities. More than half of the dentists and dental hygienists worked in private clinics: 60.8% and 64.8%, respectively; whereas dental assistants worked more often in public than in private dental health care institutions. (Tables 2, 3, 4). The distribution of respondents by duration of professional activity is presented in Tables 2, 3, 4. Dentists, dental assistants and dental hygienists with shorter work experience more often than those with longer work experience worked in major Lithuanian cities and private clinics.

Table 2. Geographical localization and working environment of dentists according to the duration of their professional activity

	Groups of respondents				Total n=1446
	A n=320 (22.1 %)	B n=380 (26.3 %)	C n=324 (22.4 %)	D n=422 (29.2 %)	
Working place localization					
Major cities, n (%)	257 (80.3)	283 (74.5)	185 (57.1)	202 (47.9)	927 (64.1)
Other regions, n (%)	63 (19.7)	97 (25.5)	139 (42.9)	220 (52.1)	519 (35.9)
$\chi^2=109.6$; df=3; p<0.001					
Ownership status of the working place					
Public institution, n (%)	22 (6.9)	60 (15.8)	80 (24.7)	186 (44.1)	348 (24.1)
Combination of public and private institution, n (%)	67 (20.9)	67 (17.6)	38 (11.7)	47 (11.1)	219 (15.1)
Private institution, n (%)	231 (72.2)	253 (66.6)	206 (63.6)	189 (44.8)	879 (60.8)
$\chi^2=163.113$; df=6; p<0.001					

Table 3. Geographical localization and working environment of dental assistants according to the duration of their professional activity

	Groups of respondents				Total n=971
	A n=246 (25.3 %)	B n=223 (23.0 %)	C n=282 (29.0 %)	D n=220 (22.7 %)	
Working place localization					
Major cities, n (%)	202 (82.1)	156 (70.0)	161 (57.1)	112 (50.9)	631 (65.0)
Other regions, n (%)	44 (17.9)	67 (30.0)	121 (42.9)	108 (49.1)	340 (35.0)
$\chi^2=61.016$; df=3; p<0.001					
Ownership status of the working place					
Public institution, n (%)	57 (23.2)	73 (32.7)	184 (65.2)	174 (80.2)	488 (50.4)
Combination of public and private institution, n (%)	7 (2.8)	19 (8.5)	27 (9.6)	8 (3.7)	61 (6.3)
Private institution, n (%)	182 (74.0)	131 (58.7)	71 (25.2)	35 (16.1)	419 (43.3)
$\chi^2=238.257$; df=6; p<0.001					

Table 4. Geographical localization and working environment of oral hygienists according to the duration of their professional activity

	Groups of respondents				Total n=213
	A n=160 (75.8 %)	B n=44 (20.9 %)	C n=4 (1.9 %)	D n=3 (1.4 %)	
Working place localization					
Major cities, n (%)	105 (65.6)	25 (56.8)	4 (100)	0 (0)	112 (63.5)
Other regions, n (%)	55 (34.4)	19 (43.2)	0 (0)	3 (100)	101 (36.5)
$\chi^2=8.68$; df=3; p=0.034					
Ownership status of the working place					
Public institution, n (%)	22 (13.8)	17 (38.6)	0 (0)	3 (100)	42 (19.9)
Combination of public and private institution, n (%)	23 (14.4)	10 (22.7)	0 (0)	0 (0)	33 (15.6)
Private institution, n (%)	115 (71.9)	17 (38.6)	4 (100)	0 (0)	136 (64.5)
$\chi^2=35.572$; df=6; p<0.001					

Out of the respondents of the survey, there were 265 (83.1%) dentists who have graduated Kaunas Medicine University since 2000 and 54 (83.1%) have graduated from Vilnius University.

3.2. Attitude to the importance of infection control among dental health care professionals

Dental health care professionals taking part in the survey were asked about the role of infection control in their work and about possible consequences of the spread of infection. Even 95.3% of the surveyed dentists, 96.0% of dental assistants and 93.4% of dental hygienists answered that infection control is important and if its principles were not observed, both patients and staff could be infected. The comparison of this attitude according to the duration of professional activity showed that statistically significantly more dentists and dental assistants with shorter work experience than those with longer work experience shared this opinion (Table 5). The opinion of dental hygienists in this category did not differ statistically significantly.

Table 5. Attitude to infection control according to the duration of professional activity

Attitude to infection control	Groups of respondents				Total
	A	B	C	D	
Dentists					
Patients can be infected, n (%)	4 (1.3)	13 (3.6)	16 (5.3)	29 (7.6)	62 (4.6)
Patients and staff can be infected, n (%)	308 (98.7)	347 (96.4)	285 (94.1)	352 (92.4)	1292 (95.3)
No importance, n (%)	0 (0)	0 (0)	2 (0.6)	0 (0)	2 (0.1)
$\chi^2=23.9$; df=6; p=0.01					
Dental assistants					
Patients can be infected, n (%)	4 (1.6)	5 (2.3)	10 (3.5)	13 (5.9)	32 (3.3)
Staff can be infected, n (%)	5 (2.0)	0 (0)	0 (0)	0 (0)	5 (0.5)
Patients and staff can be infected, n (%)	237 (96.3)	215 (97.7)	272 (96.5)	295 (93.2)	929 (96.0)
No importance, n (%)	0 (0)	0 (0)	0 (0)	2 (0.9)	2 (0.2)
$\chi^2=29.104$; df=9; p=0.01					
Oral hygienists					
Patients can be infected, n (%)	8 (5.0)	6 (13.6)	0 (0)	0 (0)	14 (6.6)
Patients and staff can be infected, n (%)	152 (95.0)	38 (86.4)	4 (100)	3 (100)	163 (93.4)
$\chi^2=4.670$; df=3; p=0.198					

The attitude towards the importance of infection control among dentists working in private and public health care institutions did not differ ($\chi^2=4.620$; df=4; p=0.329); however, dentists working in other Lithuanian regions more often than those working in major Lithuanian cities considered that infection control is important as only patients can be infected ($\chi^2=25.9$; df=2; p<0.01). The same attitude was observed among dental hygienists working in public health care institutions ($\chi^2=36.372$; df=2; p<0.001) and those who worked not in major cities ($\chi^2=11.683$; df=1; p=0.001). However, dental assistants working in other Lithuanian regions expressed such attitude more rarely than those working in major Lithuanian cities ($\chi^2=7.835$; df=3; p=0.05); whereas dental assistants working in public health care institutions ($\chi^2=21.272$; df=6; p=0.002) expressed this attitude more often.

Although dentists must take care and observe infection control, which is an inseparable part of their work, in a dental setting, only 90.7% of them take care of infection control in their working places. The others replied that they do not take care of it and that other dental health care staff in charge of infection control takes care of it.

Dentists with work experience under 9 years more often than older respondents answered that they do not take care of infection control because there is other staff in charge of it (Table 6). Dentists working in private health care institutions more often take care of infection control themselves than those working in public institutions (Table 6).

Table 6. Care of infection control in a working place among dentists according to professional activity and ownership status of the institution

	Care of infection control			
	Yes	No	Others*	
Groups of the duration of professional activity				
A group, n (%)	270 (84.9)	2 (0.6)	46 (14.5)	$\chi^2=20.084$; df=6; p=0.003
B group, n (%)	334 (93.3)	0 (0)	24 (6.7)	
C group, n (%)	293 (91.8)	2 (0.6)	24 (7.5)	
D group, n (%)	375 (91.9)	0 (0)	33 (8.1)	
Ownership status of the working place				
Public institution, n (%)	293 (86.7)	1 (0.3)	44 (13.0)	$\chi^2=11.114$; df=4; p=0.025
Public and private institution, n (%)	194 (89.8)	0 (0)	22 (10.2)	
Private institution, n (%)	785 (92.5)	3 (0.4)	61 (7.2)	
Total, n (%)	1272 (90.7)	4 (0.3)	127 (9.1)	

Others* - dentists do not care of infection control in a working place, because other dental health care staff is in charge

Dental assistants working in public, private and both dental health care institutions take equal responsibility for infection control: 97.8%, 97.7% and 95.1%, respectively ($\chi^2=5.274$; df=4; p=0.260). Statistically significant difference was estimated among dental hygienists working in private, public and both dental health care institutions, 133 (96.4%), 40 (95.2%) and 26 (78.8%), respectively ($\chi^2=10.599$; df=2; p=0.005). Others replied that they do not take care of infection control or that other staff is in charge of it in their dental health care institution. The comparison of replies about the care of infection control did not show any statistically significant difference among dental hygienists and dental assistants with shorter and longer duration of their professional activity.

3.3. Hand hygiene and gloving when working with patients

According to the Lithuanian guidelines in force during data collection, dental health care professionals before work (i.e. before donning gloves) and after work with

each patient (i.e. after removing gloves) shall wash their hands. Only 83.0% (1,113) of the surveyed dentists wash their hands before donning and after removing gloves after work with each patient. Meanwhile, 6.5% (87) and 5.4% (73) of respondents wash their hands only before donning gloves or right after removing gloves, respectively. Approximately 5.1% (68) of the respondents pointed out that they do not wash their hands between patients or wash them irregularly. 82.2% (787) of dental assistants observe requirements when washing their hands, and other 59 (6.2%) wash them before donning gloves, 43 (4.5%) after removing gloves and 68 (7.1%) wash them irregularly or do not wash them at all. Dental hygienists prepare their hands as follows: 179 (86.1%) wash their hands according to the set requirements, 20 (9.6%) before donning gloves, 3 (1.4%) after removing gloves, and 6 (2.8%) wash their hands irregularly or do not wash them at all.

The analysis of differences among dentists, dental hygienists and dental assistants working in major cities and other regions of Lithuania showed statistically significant differences (Table 7). It was estimated that dentists and dental hygienists working not in major Lithuanian cities more frequently wash their hands correctly, whereas dental assistants do not.

Table 7. Hand hygiene according to working place localization

Working place localization	Washing of hands				
	Before glowing	After glowing	Before and after glowing	Irregular	Never
Dentists					
Major cities, n (%)	68 (7.8)	47 (5.4)	705 (80.7)	46 (5.3)	8 (0.9)
Other regions, n (%)	19 (4.1)	26 (5.6)	408 (87.4)	14 (3.0)	0 (0)
$\chi^2=15.9$; df=4; p=0.003					
Dental assistants					
Major cities, n (%)	36 (5.8)	22 (3.5)	524 (84.1)	41 (6.6)	0 (0)
Other regions, n (%)	23 (6.9)	21 (6.3)	263 (78.7)	24 (7.2)	3 (0.9)
$\chi^2=10.583$; df=4; p=0.032					
Oral hygienists					
Major cities, n (%)	20 (15.3)	0 (0)	108 (82.4)	3 (2.3)	0 (0)
Other regions, n (%)	0 (0)	3 (3.9)	71 (92.2)	0 (0)	3 (3.9)
$\chi^2=24.264$; df=4; p<0.001					

Having compared hand hygiene habits according to the duration of professional activity, statistically significant difference among dentists ($\chi^2=46.2$; df=12; p<0.001) and dental hygienists ($\chi^2=25.757$; df=12; p=0.012) with different work experience was found.

It was noticed that dentists and dental hygienists with shorter duration of their professional activity more rarely than their older colleagues correctly prepare their hands before work with a patient. Dentists washing hands before and after gloves removal distributed as follows: A group – 250 (78.6%), B group – 277 (76.9%), C group– 264 (88.9%) and D group – 325 (88.1%). According to the duration of their professional activity, dental hygienists wash their hands before donning gloves and after removing gloves as follows: group A – 138 (89.0%), group B – 32 (72.7%), groups C and D – all wash correctly. Dental assistants wash their hands correctly more often in groups of the shortest and longer duration of professional activity: group A: 205 (83.3%), group B: 173 (79.0%), group C: 226 (82.2%), group D: 183 (84.3 %) ($\chi^2=32.294$; $df=12$; $p=0.001$).

Having compared the answers according to the status of ownership of the institution, it was identified that there was no statistically significant difference among dentists; whereas dental assistants and dental hygienists working in public health care institutions more often wash their hands correctly than in those working in private or both dental health care institutions ($\chi^2=64.538$; $df=8$; $p<0.001$ and $\chi^2=26.174$; $df=8$; $p=0.001$, respectively).

79.6% (1,061) of dentists, 78.4% (163) of dental hygienists and 77.5% of dental assistants not only wash their hands but disinfect them with hand disinfectants.

Applying the model of multiple logistic regression and gradually removing statistically insignificant factors from the model, it was identified that longer duration of professional activity, male gender, care of infection control and correct attitude towards the importance of infection control had the greatest impact on the correct hand hygiene (washing hands before donning and after removing gloves) of dentists (Table 8). Work in a public dental health care institution, working place localization in major cities, and care of infection control had the greatest impact on the correct hand hygiene (hand washing before donning gloves and after removing them) of dental assistants (Table 9). The application of multiple logistic regression model showed that only care of infection control among dental hygienists increases a possibility to wash their hands correctly by 8 to 10 times ($\chi^2=26.93$, $df=5$, $p<0.001$, determination coefficient *Nagelkerke* $R^2=0.257$). The impact of other factors in the model was insignificant.

Table 8. The probability of dentists washig hand correctly (before and after glowing) in relation to professional activity, gender, working place localization, ownership status of the working place, the importance and care of infection control (multiple logistic regression)

Attribute	OR ^a	95% CI	p
Groups of professional activity			
A group	1		
B group	0.89	0.61-1.30	0.529
C group	2.27	1.42-3.65	0.001
D group	2.08	1.31-3.31	0.002
Gender			
Female	1		
Male	1.62	1.00-2.61	0.049
Working place localization			
Major cities	1		
Other regions	1.49	1.05-2.1	0.024
Ownership status of the working place			
Public institution	1		
Public and private institution	1.67	1.00-2.79	0.048
Private institution	1.30	0.89-1.91	0.178
The importance of infection control			
Incorrect	1		
Correct	3.70	1.90-7.17	<0.001
Care of infection control			
No	1		
Yes	2.00	1.290-3.10	0.002
a – estimating all others attributes in the table, OR – odds ratio. CI – confidence interval, p – level of significance. The compatibility of the model with the data $\chi^2=59.57$, $df=9$, $p<0.001$; the suitability of the model – the determination coefficient Nagelkerke $R^2=0.075$; the model prognosticated 82.5% accuracy.			

Table 9. The probability of dental assistants washig hand correctly (before and after glowing) in relation to working place localization, ownership status of the working place, the importance and care of infection control (multiple logistic regression)

Attribute	OR ^a	95% CI	p
Ownership status of the working place			
Public institution	1.542	1.05-2.27	0.028
Public and private institution	0.274	0.15-0.49	<0.001
Private institution	1		
Working place localization			
Other regions	1		
Major cities	1.659	1.14-2.41	0.008
The importance of infection control			
Incorrect	1		
Correct	0.634	0.20-2.03	0.443
Care of infection control			
No	1		
Yes	3.57	1.74-7.32	0.001
a – estimating all others attributes in the table, OR – odds ratio, CI – confidence interval, p – level of significance. The compatibility of the model with the data $\chi^2=43.92$, $df=5$, $p<0.001$; the suitability of the model – the determination coefficient Nagelkerke $R^2=0.075$, the model prognosticated 83.8% accuracy.			

The use of disposable gloves in dental setting is mandatory as dentists and their assistants directly contact with patient's saliva, mouth mucous and possibly with blood. However, during the investigation it turned out that only 85.3% of dentists always work with gloves, 10.7% use them sometimes and 3.6% use them only during surgical operations, and 0.3% of respondents replied that they always work without gloves. Almost 93% (1,296) of dentists change them before each patient, and 5.7% change them only sometimes, and 1.4% of the surveyed do not consider that they should change gloves between patients and disinfect them (Table 10). Only 76.5% of dental assistants always use gloves at work. Comparison of the frequency of using gloves according to the duration of professional activity, the status of ownership of the institution and working place localization identified that more dental assistants with shorter duration of professional activity as well as those working in private dental health care institutions and major Lithuanian cities use gloves always (Table 11).

Table 10. Use of medical gloves among dentists according to the duration of professional activity, ownership of status of institution and workplace localization

	Use of medical gloves				
	Never	Only for surgery	Sometimes	Always	
Groups of duration of professional activity					
A group, n (%)	0 (0)	0 (0)	2 (0.6)	316 (99.4)	$\chi^2=132.306$; df=9; p<0.001
B group, n (%)	0 (0)	8 (2.2)	28 (7.7)	330 (90.2)	
C group, n (%)	4 (1.3)	12 (3.8)	39 (12.3)	262 (82.6)	
D group, n (%)	0 (0)	31 (7.7)	82 (20.4)	288 (71.8)	
Ownership status of the working place					
Public institution, n (%)	0 (0)	18 (5.4)	61 (18.4)	253 (76.2)	$\chi^2=38.586$; df=6; p<0.001
Public and private institution, n (%)	0 (0)	12 (5.5)	17 (7.8)	188 (86.6)	
Private institution, n (%)	4 (0.5)	21 (2.5)	73 (8.6)	755 (88.5)	
Working place localization					
Major cities, n (%)	0 (0)	12 (1.3)	78 (8.6)	818 (90.1)	$\chi^2=63.630$; df=3; p<0.001
Other regions, n (%)	4 (0.8)	39 (7.9)	73 (14.8)	378 (76.5)	
Total, n (%)	4 (0.3)	51 (3.6)	151 (10.8)	1196 (85.3)	

Table 11. Use of medical gloves among dental assistants according to the duration of professional activity, ownership of status of institution and workplace localization

	Use of gloves				
	Never	Only for surgery	Sometimes	Always	
Groups of the duration of professional activity					
A group, n (%)	0 (0)	7 (2.9)	27 (11.1)	210 (86.1)	$\chi^2=25.060$; df=9; p=0.003
B group, n (%)	0 (0)	8 (3.6)	51 (22.9)	164 (73.5)	
C group, n (%)	4 (1.4)	9 (3.2)	68 (24.3)	199 (71.1)	
D group, n (%)	3 (1.4)	9 (3.2)	41 (18.9)	164 (75.6)	
Ownership status of the working place					
Public institution, n (%)	7 (1.4)	19 (3.9)	119 (24.5)	341 (70.2)	$\chi^2=32.907$; df=6; p<0.001
Public and private institution, n (%)	0 (0)	5 (8.2)	12 (19.7)	44 (72.1)	
Private institution, n (%)	0 (0)	9 (2.2)	56 (13.5)	349 (84.3)	
Working place localization					
Major cities, n (%)	0 (0)	15 (2.4)	92 (14.7)	517 (82.9)	$\chi^2=47.458$; df=3; p<0.001
Other regions, n (%)	7 (2.1)	18 (5.3)	95 (27.9)	220 (64.7)	
Total, n (%)	7 (0.7)	33 (3.4)	187 (19.4)	737 (76.5)	

Eight hundred fifty four (94.3%) dentists working in major cities and 442 (90.2%) in other Lithuanian regions ($\chi^2=7.912$; df=2; p=0.019) change gloves between patients. Comparison of groups according to the duration of professional activity showed that younger dentists change gloves between patients more often than dentists with longer work experience: in group A: 306 (96.2%), in group B: 346 (95.1%), in group C: 281 (90.4%) and in group D: 363 (90.1%) ($\chi^2=17.301$; df=6; p=0.008). Dentists working in private dental health care institutions more often than those working in public and both dental health care institutions always change gloves between patients: 94.7% (802), 89.5%, (297), 90.8% (197), respectively ($\chi^2=11.802$; df=4; p=0.019).

Only 83.9% (778) of dental assistants always change gloves between patients. Dental assistants working in major cities change gloves more often: 86.2%, and those working in other Lithuanian regions: 79.6% ($\chi^2=11.212$; df=3; p=0.011). Statistically significant difference was identified among groups with different duration of professional activity. Like dentists, their assistants with shorter work experience more often always change gloves than those with longer work experience: in group A: 211 (86.5%), in group

B: 193 (86.5%), in group C: 213 (82.2%) and in group D: 161 (80.1%) ($\chi^2=40.882$; $df=9$; $p<0.001$). Having compared the habit of changing gloves according to the status of ownership of institution, statistically significant difference was not estimated.

Almost 99.0% (210) of dental hygienists always change gloves between patients. Statistically significant difference was not found among respondents' habit when compared by the duration of professional activity, working place localization and institution's ownership status.

Dentists were asked if their assistants use gloves. 73.1% of the surveyed answered that their assistants always use gloves, 20.7% do that sometimes, and 6.2% use them only when working with disinfection materials or do not use them at all. When asked about the habit of using gloves, 83.9% of dental assistants answered that they always use them. In the opinion of dentists, 74.1% of their assistants always change gloves between patients. 83.9% of dental assistants themselves answered that they change gloves between each patient.

The use of gloves at work was always positively related with the shorter duration of dentists' activity, working place localization in major Lithuanian cities, female gender and correct interpretation of the importance of infection control. Dentists with the shortest duration of their professional activity had even 34 times bigger possibility to use gloves correctly than dentists with the longest duration of professional activity (Table 12). Female gender, work in major Lithuanian cities and correct attitude towards infection control increased a possibility to always use disposable gloves by almost twice (1.87; 1.77 and 2.39 respectively). However, shorter work experience had no impact on the correct use of gloves among dental assistants. Only the second group according to the duration of professional activity (from 10 to 19 years) was statistically significantly negatively related with the correct use of gloves. Work in a major city and private clinics increased a possibility to use gloves at work by almost twice (2.24 and 1.80, respectively) (Table 13). The analysis of univariate and multiple logistic regression revealed that none of the independent factors had statistically significant impact on the correct use of gloves of dental hygienists.

Table 12. The probability of correct use (always) of medical gloves among dentists in relation to the duration of professional activity, gender, working place localization and the importance of infection control (multiple logistic regression)

Attribute	OR ^a	95% CI	p
Groups of the duration of professional activity			
A group	34.03	7.89-146.79	<0.001
B group	3.17	1.84-5.45	<0.001
C group	1.78	1.07-2.89	0.022
D group	1		
Gender			
Female	1.87	1.14-3.07	0.014
Male	1		
Working place localization			
Major cities	1.77	1.26-2.47	0.001
Other regions	1		
The importance of infection control			
Incorrect	1		
Correct	2.39	1.35-4.26	0.010
a – estimating all others attributes in the table, OR – odds ratio, CI – confidence interval, p – level of significance. The compatibility of the model with the data $\chi^2=161.54$, $df=6$, $p<0.001$; the suitability of the model – the determination coefficient Nagelkerke $R^2=0.20$; the model prognosticated 85.8% accuracy.			

Table 13. The probability of correct use (always) of medical gloves among dental assistants in relation to the duration of professional activity, working place localization and ownership of working institution (multiple logistic regression)

Attribute	OR ^a	95% CI	p
Groups of the duration of professional activity			
A group	1.14	0.68-1.94	0.618
B group	0.61	0.38-0.97	0.037
C group	0.75	0.47-1.08	0.114
D group	1		
Working place localization			
Major cities	2.24	1.62-3.09	<0.001
Other regions	1		
Ownership status of the working place			
Public institution	1		
Public and private institution	1.22	0.66-2.25	0.522
Private institution	1.80	1.23-2.62	0.002
a – estimating all others attributes in the table, OR – odds ratio, CI – confidence interval, p – level of significance. The compatibility of the model with the data $\chi^2=61.03$, $df=6$, $p<0.001$; the suitability of the model – the determination coefficient Nagelkerke $R^2=0.093$; the model prognosticated 76.4% accuracy.			

The habits of dentists to change gloves between each patient was positively related with the correct attitude towards the importance of infection control. Work in private clinics increased a possibility to change gloves after each patient; however, the level of statistical significance was $p=0.059$. The duration of professional activity had no statistically significant impact; however, dentists with shorter duration of professional activity tended to change gloves after each patient more often (Table 14).

Table 14. The probability of dentist changing gloves between patients (always) in relation to the duration of professional activity, ownership status of the working place and the importance of infection control (multiple logistic regression)

Attribute	OR ^a	95% CI	p
Groups of the duration of professional activity			
A group	1.94	0.94-3.98	0.072
B group	1.76	0.92-3.34	0.086
C group	0.758	0.44-1.30	0.314
D group	1		
Ownership status of the working place			
Public institution	1		
Public and private institution	0.93	0.49-1.77	0.825
Private institution	1.64	0.98-2.75	0.059
The importance of infection control			
Incorrect	1		
Correct	3.89	2.02-7.5	<0.001
a – estimating all others attributes in the table, OR – odds ratio. CI – confidence interval, p – level of significance. The compatibility of the model with the data $\chi^2=35.51$, $df=6$, $p<0.001$; the suitability of the model – the determination coefficient Nagelkerke $R^2=0.067$; the model prognosticated 93.1% accuracy.			

The dental assistants' habit of changing gloves after each patient was statistically significantly positively impacted only by the working place localization, i.e. dental assistants working in major Lithuanian cities had 1.5 times bigger possibility to change gloves after each patient. The impact of other factors was statistically insignificant (Table 15). The analysis into the impact of factors on the habit of dental hygienists to change gloves after each patient was not conducted as only 3 out of 213 respondents change them sometimes, and the rest of them always change them after each patient.

Table 15. The probability of dental assistants changing gloves between patients (always) in relation to the duration of professional activity, working place localization, the importance and care of infection control (multiple logistic regression)

Attribute	OR ^a	95% CI	p
Groups of the duration of professional activity			
A group	1.441	0.853-2.436	0.172
B group	1.619	0.945-2.773	0.079
C group	1.130	0.702-1.820	0.614
D group	1		
Working place localization			
Major cities	1.465	1.008-2.129	0.045
Other regions	1		
The importance of infection control			
Incorrect	1		
Correct	0.280	0.066-1.187	0.084
Care of infection control			
Care by others	1		
Care by themselves	0.801	0.18-359	0.772
a – estimating all others attributes in the table, OR – odds ratio, CI – confidence interval, p – level of significance. The compatibility of the model with the data $\chi^2=14.96$, $df=6$, $p=0.021$; the suitability of the model – the determination coefficient Nagelkerke $R^2=0.028$; the model prognosticated 84.1% accuracy.			

3.4. The use of medical face masks and protective face shields and eye glasses

Face masks protect DHCP from microorganisms, debris generated during dental procedures, intake of vapour of chemical materials into respiratory tract and in the opposite way from staff to the treated patient's respiratory tract. However, only 1,057 (75.1%) of dentists always wear masks when working with a patient, 317 (22.5%) use them only sometimes, and 34 (2.4%) do not use masks at all. Only 377 (28.0%) of dentists always change masks after each patient, 454 (33.7%) change them sometimes, and 143 (10.6%) change them when they wear out and 374 (27.7%) change them once in a shift. According to the model of univariate logistic regression, none of the factors (working place localization, the status of ownership of the institution, duration of professional activity, attitude towards the importance of infection control) had impact on changing masks ($p=0.064$, of the total model). Dentists working in private and both private and public clinics always wear masks more rarely than those working only in

public clinics (Table 16). The use of face masks like that of gloves has a tendency to decrease with the increasing duration of professional activity of the respondents ($p < 0.001$) (Table 16).

Table 16. Use of facial masks among dentists according to the duration of professional activity, ownership status of the working place and working place localization

	Use of facial masks			
	Never	Sometimes	Always	
Groups of the duration of professional activity				
A group, n (%)	4 (1.3)	36 (11.3)	278 (87.4)	$\chi^2=64.940$; df=9; $p < 0.001$
B group, n (%)	6 (1.6)	71 (19.5)	285 (78.3)	
C group, n (%)	4 (1.3)	83 (26.2)	230 (72.6)	
D group, n (%)	18 (4.4)	127 (31.1)	264 (64.5)	
Ownership status of the working place				
Public institution, n (%)	20 (6.0)	95 (28.4)	219 (65.6)	$\chi^2=42.930$; df=6; $p < 0.001$
Public and private institution, n (%)	0 (0)	52 (24.0)	165 (76.0)	
Private institution, n (%)	12 (1.4)	170 (19.8)	673 (78.5)	
Working place localization				
Major cities, n (%)	12 (1.3)	199 (22.0)	693 (76.5)	$\chi^2=12.184$; df=3; $p=0.007$
Other regions, n (%)	20 (4.0)	118 (23.5)	364 (72.5)	

Dentists with work experience with and under nine years had a greatest possibility, i.e. 3.65 times, to use face masks. A possibility to use face masks at work decreased with the increasing duration of professional activity (Table 17). According to the replies of dentists a possibility to use masks in a private health care institution was 1.47 (Table 17).

Table 17 . The probability of dentist to use facial masks in relation to the duration of professional activity, working place localization, the importance of infection control and ownership status of the working place (multiple logistic regression)

Attribute	OR^a	95% CI	p
Groups of the duration of professional activity			
A group	3.645	2.387-5.565	0.000
B group	1.868	1.322-2.639	0.000
C group	1.414	1.009-1.982	0.044
D group	1		
Working place localization			
Major cities	0.89	0.683-1.183	0.445
Other regions	1		
The importance of infection control			
Incorrect	1		
Correct	1.289	0.737-2.254	0.373
Ownership status of the working place			
Public institution	1		
Public and private institution	1.181	0.782-1.784	0.429
Private institution	1.476	1.087-2.003	0.013
a – estimating all others attributes in the table, OR – odds ratio, CI – confidence interval, p – level of significance.			
The compatibility of the model with the data $\chi^2=63.72$, $df=7$, $p<0.001$; the suitability of the model – the determination coefficient <i>Nagelkerke</i> $R^2=0.069$; the model prognosticated 75.4 % accuracy.			

Statistically significant difference in the use and frequency of changing masks was not identified among dentists who have graduated from Kaunas Medical University since 2000 and those who have graduated from Vilnius University.

Dental assistants use face masks even more rarely than dentists. 423 (44.1%) of the surveyed dental assistants replied that they always use face masks. Statistically significantly more assistants always use masks in private dental health care institutions in major Lithuanian cities as well as those with shorter duration of professional activity (Table 18). When asked about the frequency of their assistants' use of masks, 45.5% of the dentists replied that their assistants always use face masks when working with patients (44.1% of dental assistants replied that they always use face masks at work).

Working place localization in major Lithuanian cities increased a possibility for dental assistants to use face masks always at work by 2.01 times, and working in private clinics by 2.29 times, and correct opinion about the importance of the infection control by 2.77 times (Table 19).

Table 18. Use of facial masks among dental asisstant according to the duration of professional activity, ownership status of the working place and working place localization

	Use of facial masks			
	Never	Sometimes	Always	
Groups of professional activity				
A group, n (%)	20 (8.2)	93 (38.1)	131 (53.7)	$\chi^2=56.98$; df=6; p<0.001
B group n (%)	11 (4.9)	82 (36.8)	130 (58.3)	
C group, n (%)	28 (10.3)	163 (59.9)	81 (29.8)	
D group, n (%)	26 (11.8)	113 (51.4)	81 (36.8)	
Ownership status of the working place				
Public institution, n (%)	61 (12.6)	273 (56.3)	151 (31.1)	$\chi^2=80.775$; df=4; p<0.001
Public and private institution, n (%)	9 (16.1)	23 (41.1)	24 (42.9)	
Private institution, n (%)	15 (3.6)	155 (37.3)	245 (59.0)	
Working place localization				
Major cities, n (%)	25 (4.0)	277 (44.5)	320 (51.4)	$\chi^2=70.813$; df=2; p<0.001
Other regions, n (%)	60 (17.8)	174 (51.6)	103 (30.6)	

Table 19. The probability of dental asisstants to use facial masks in relation to the duration of professional activity, working place localization, the importance of infection control and ownership status of the working place (multiple logistic regression)

Attribute	OR ^a	95% CI	p
Groups of the duration of professional activity			
A group	1.04	0.68-1.60	0.854
B group	1.58	1.04-2.42	0.033
C group	0.62	0.41-0.92	0.018
D group	1		
Working place localization			
Major cities	2.01	1.48-2.73	<0.001
Other regions	1		
The importance of infection control			
Incorrect	1		
Correct	2.77	1.24-6.18	0.013
Ownership status of the working place			
Public institution	1		
Public and private institution	1.54	0.86-2.78	0.150
Private institution	2.29	1.66-3.15	<0.001
a – estimating all others attributes in the table, OR – odds ratio, CI – confidence interval, p – level of significance. The compatibility of the model with the data $\chi^2=121.30$, df=7, p<0.001; the suitability of the model – the determination coefficient Nagelkerke $R^2=0.160$; the model prognosticated 67.8% accuracy.			

Face masks are always changed after each patient only by 226 (25.3%) dental assistants. Having applied the model of multiple factor logistic regression, none of the factors had statistically significant impact on the change of masks.

Medical face masks are always used at work by 173 (81.2%) of dental hygienists. Other 40 (18.8%) use them sometimes. The use of masks statistically significantly differed among dental hygienists working in major Lithuanian cities and in other regions: 117 (86.0%) and 56 (72.7%), respectively ($\chi^2=5.704$; $df=1$; $p=0.017$), among those working in private clinics 117 (84.8%), in both types of dental health care institutions 33 (100%), and those working in public institutions 23 (54.8%) ($\chi^2=28.055$; $df=2$; $p<0.001$). However, only work in a private health care institution increased a possibility to use face masks always by 3.85 times (after removal of other statistically insignificant factors from multiple logistic regression model and retaining only working place localization and various types of institutions) ($\chi^2=31.86$, $p<0.001$; *Nagelkerke* $R^2 = 0.244$, the model prognosed at the accuracy of 81.2%). Only 71 (34.1%) dental hygienists change masks after each patient. None of the factors had statistically significant impact on the frequency of changing masks after each patient.

Protective eye glasses or face shields are important personal dentists' barrier protection measures protecting eyes, facial skin and respiratory tract from miscellaneous contamination when working with patients. Only 49.5% of dentists always use protective eye glasses and face shields when working with patients.

Dentists working in major Lithuanian cities and other regions always use protective shields and eye glasses when working with patients, 49.2 and 50.0% respectively. Statistically significantly more dentists working in private clinics use protective eye glasses and face shields (50.8%) than those working in public health care institutions (44.5%) ($\chi^2=31.8$; $df=6$; $p<0.001$). Dentists with the longest duration of professional activity use protective eye glasses and face shields most rarely. They are always used as follows: in group A 51.3%, in group B: 55.4%, in group C: 51.0%, and in group D: most rarely 40.5% ($\chi^2=104.2$; $df=9$; $p<0.001$).

Shorter duration of professional activity had positive impact on the habit of always using face shields when working with patients. It also impacted on the positive attitude towards infection control. However, the institution's ownership status did not have statistically significant impact on the habit of using face shields (Table 20).

Table 20. The probability of dentist to use protective glasses and face shields in relation to the duration of professional activity, the care of infection control and ownership status of the working place (multiple logistic regression)

Attribute	OR ^a	95% CI	p
Groups of the duration of professional activity			
A group	1.46	1.05-2.017	0.023
B group	1.76	1.29-2.39	<0.001
C group	1.30	0.95-1.78	0.096
D group	1		
Care about infection control			
Others	1		
Themselves	1.49	1.02-2.19	0.041
Ownership status of the working place			
Public institution	1		
Public and private institution	1.19	0.822-1.72	0.358
Private institution	1.19	0.90-1.58	0.223
a – estimating all others attributes in the table, OR – odds ratio, CI – confidence interval, p – level of significance. The compatibility of the model with the data $\chi^2=23.92$, $df=7$, $p=0.001$; the suitability of the model – the determination coefficient <i>Nagelkerke</i> $R^2=0.160$; the model prognosticated 54.6% accuracy.			

Only 13.4% of dental assistants use protective eye glasses or face shields when working with patients, 43.0% use them sometimes and even 46.1% do not use them at all. Statistically significant difference of using eye glasses and face shields was identified among dental assistants working in private (17.1%) and public institutions (10.9%) ($\chi^2=89.0$; $df=4$; $p<0.001$) as well as groups according to the duration of their professional activity: in group A: 11.6%, in group B: 20.5%, in group C: 13.3%, in group D: 9.6% ($\chi^2=39.9$; $df=6$; $p<0.001$). According to dentists, protective eye glasses or face shields are used when working with patients by 11.4% of their assistants. Having applied multiple factor logistic regression model and removed other insignificant factors, it was found out that the second age group and work in a private dental health care institution increased a possibility to use protective eye glasses or face shields by 2.4 and 1.5 times, respectively (Table 21).

Table 21. The probability of dental assistants and oral hygienists to use protective glasses and face shields in relation to the duration of professional activity and other factors (multiple logistic regression)

Attribute	OR ^a	95% CI	p
Dental assistants			
Groups of the duration of professional activity			
A group	1.11	0.561-2.21	0.759
B group	2.4	1.27-4.53	0.007
C group	1.66	0.89-3.074	0.108
D group	1		
Ownership status of the working place			
Public institution	1		
Public and private institution	0.51	0.17-1.47	0.210
Private institution	1.50	1.00-2.42	0.049
The compatibility of the model with the data $\chi^2=21.89$, $df=5$, $p=0.001$; the suitability of the model – the determination coefficient <i>Nagelkerke</i> $R^2=0.043$; the model prognosticated 86.6 % accuracy.			
Oral hygienists			
Ownership status of the working place			
Public institution	1		
Private institution	2.90	1.11-7.38	0.029
Self-dependence in the private institution			
Hired, no possibility to choose	1		
Hired, may choose	12.93	2.81-59.39	0.001
Owner of institution	6.50	1.37-30.82	0.018
a – estimating all others attributes in the table, OR – odds ratio. CI – confidence interval, p – level of significance.			
The compatibility of the model with the data $\chi^2=24.90$, $df=3$, $p<0.001$; the suitability of the model – the determination coefficient <i>Nagelkerke</i> $R^2=0.187$; the model prognosticated 63.9% accuracy.			

Dental hygienists always use protective face shields more often than dental assistants. 41.2% of the surveyed always work with face shields. 48.5% of them working in private clinics always use face protection, and those working in public and both types of institutions 33.3% and 21.2%, respectively ($\chi^2=9.8$; $df=4$; $p=0.44$). Statistically significant difference was not identified among dental hygienists working in major Lithuanian cities and other regions as well as groups with different duration of professional activity. According to the multiple factor logistic regression model and after removing statistically insignificant factors, work in a private health care institution (OR^a – 2.9), work in a private institution when a dental health care specialist is hired and may choose protective means for work (OR^a – 12.9), when a dental hygienist or a dentist in

whose clinics they work is the owner of the institution (OR^a – 6.5) had the greatest impact on a possibility to always use face protection means (Table 21).

3.5. The analysis of the causes of not changing disposable personal protection equipment after each patient and not using face shields and protective eyewear

51.5% of dentists who do not change face masks after each patient pointed out that they should not be changed as they do not get contaminated. 35.3% of the surveyed do not change masks and gloves because they economize. Even 8.9% of the dentists replied that they get a limited number of protective means.

Dentists working in public clinics claimed more often that they economize disposable personal protective equipment and do not change them because they get a limited number of them ($p < 0.001$) (Table 22) even though they are aware that masks do get contaminated. It should be pointed out that even 62.4% of dentists working in private clinics and not changing masks claim that masks should not be changed as they do not get contaminated. 30.6% of dentists working in public health care institutions share this opinion ($p < 0.001$) (Table 22). Differences among those working in major Lithuanian cities and other regions were statistically insignificant.

22 Table. Causes why dentists do not change personal protective equipment between patients according to the duration of professional activity and ownership of working place

	Reply options				
	Saving	Limited number	Masks do not get contaminated	Gloves might be washed	
Groups of the duration of professional activity					
A group, n (%)	40 (31.7)	12 (9.5)	68 (54.0)*	6 (4.8)	$\chi^2=23.179$; df=9; p=0.006
B group, n (%)	34 (30.1)	9 (8.0)	66 (58.4)	4 (3.5)	
C group, n (%)	33 (32.4)	7 (6.9)	52 (51.0)	10 (9.8)	
D group, n (%)	60 (46.2)	14 (10.8)	56 (43.1)	0 (0)	
Ownership status of the working place					
Public institution, n (%)	58 (46.8)**	24 (19.4)	38 (30.6)	4 (3.2)	$\chi^2=53.117$; df=6; p<0.001
Public and private institution, n (%)	30 (33.7)	12 (13.5)	43 (48.3)***	4 (4.5)	
Private institution, n (%)	79 (30.6)	6 (2.3)	161 (62.4)****	12 (4.7)	
Total, n (%)	167 (35.5)	42 (8.9)	242 (51.4)	20 (4.2)	

* univariate logistic regression: OR – 1.76; CI 95% 1.19-2.60; p=0.04.

** univariate logistic regression: OR – 2.0; CI 95% 1.40-2.92; p<0.001.

*** univariate logistic regression: OR – 1.83; CI 95% 1.25-2.67; p=0.002.

**** univariate logistic regression: OR – 1.99; CI 95% 1.24-3.20; p=0.004.

None of the factors had any impact on the possibility to change any disposable personal protective equipment among dentists in the multiple factor logistic regression model.

The most frequent cause pointed out by dental assistants (who do not change disposable personal protective equipment after each patient) was saving (40.6%). 36% pointed out that masks do not get contaminated; 13% claimed that gloves may be washed, and 10.4% pointed out that the number of disposable personal protective equipment is limited. Statistically significant differences were obtained when the answers of respondents were compared according to the duration of their professional activity and various types of institutions (Table 23). Applying the model of multiple logistic regression and removing insignificant factors, it was found out that saving among dental assistants is positively related with the status of ownership of the institution (public and both types of dental health care institutions) as well as with the duration of professional activity (dental assistants with the shortest duration of professional activity save more often) (Table 24). The same tendency was observed among those respondents who

replied that the number of provided disposable personal protective equipment is limited (Table 24).

Table 23. Causes why dental assistants do not change personal protective equipment between patients according to the duration of professional activity, ownership and localization of working place

	Reply options				
	Saving	Limited number	Masks do not get contaminated	Gloves might be washed	
Groups of the duration of professional activity					
A group, n (%)	62 (45.3)	9 (6.6)	48 (35.0)	18 (13.1)	$\chi^2=31.007$; df=9; p<0.001
B group, n (%)	51 (46.4)	6 (5.5)	47 (42.7)	6 (5.5)	
C group, n (%)	36 (29.3)	24 (19.5)	45 (36.6)	18 (14.6)	
D group, n (%)	38 (41.8)	9 (9.9)	26 (28.6)	18 (19.8)	
Ownership status of the working place					
Public institution, n (%)	96 (44.9)	37 (17.3)	57 (26.6)	24 (11.2)	$\chi^2=52.633$; df=6; p<0.001
Public and private institution, n (%)	21 (63.6)	5 (15.2)	5 (15.2)	2 (6.1)	
Private institution, n (%)	70 (32.7)	6 (2.8)	104 (48.6)	34 (15.9)	
Total, n (%)	187 (40.6)	48 (10.4)	166 (36.0)	60 (13.0)	

Table 24. The probability of dental assistants not to change personal protective equipment in relation to saving and limited numbers of personal protective equipment (multiple logistic regression)

Attribute	Saving		Limited numbers	
	OR ^a (95% CI)	p	OR ^a (95% CI)	p
Groups of the duration of professional activity				
A group	1.97 (1.07-3.64)	0.030	3.02 (1.16-7.89)	0.024
B group	1.73 (0.93-3.20)	0.820	1.05 (0.346-3.15)	0.983
C group	0.58 (0.31-0.98)	0.430	2.77 (1.21-6.33)	0.160
D group	1			
Ownership status of the working place				
Public institution	2.42 (1.51-3.98)	p<0.001	10.48 (4.07-27.01)	0.001
Public and private institution	5.87 (2.54-13.54)	p<0.001		0.003
Private institution	1		7.51 (1.99-28.38)	

Saving: The compatibility of the model with the data $\chi^2=53.30$, df=6, p<0.001; the suitability of the model – the determination coefficient Nagelkerke $R^2=0.21$; the model prognosticated 88.1% accuracy.
Limited numbers: The compatibility of the model with the data $\chi^2=33.79$, df=5, p<0.001; the suitability of the model – the determination coefficient Nagelkerke $R^2=0.095$; the model prognosticated 63.6% accuracy.

Univariate and multiple logistic regression analysis revealed that none of the factors had impact on the opinion of dental assistants that gloves may be washed.

Out of 96 dental hygienists who do not change disposable personal protective equipment between patients, 43 (44.8%) replied that they save the equipment, 5 (5.3%) get a limited number of them, and 48 (50.0%) replied that masks do not get contaminated; therefore they should not be changed after each patient. Statistically significant differences were not identified among dental hygienists working in private and public institutions as well as those working in major Lithuanian cities and other regions and in groups of various duration of professional activity. Applying univariate and multiple logistic regression, none of the factors had impact on the decision of dental hygienists not to change disposable personal protective equipment between patients.

Allergy to latex gloves was pointed out by 152 (10.8%) dentists, 117 (12.2%) dental assistants, 29 (14.1%) dental hygienists and it was not related with not using gloves at work.

Even 80.6% (275) of dentists claimed that the most frequent cause of not using face shields and protective eye glasses is their inconvenience to work with. Other 80 respondents (14.7%) pointed out that they are not provided with these protective measures and 4.7% (16) replied that these measures do not protect against the spread of disease or there is nothing dentists should protect themselves from. Dentists working in public health care institutions pointed out that they do not get this equipment (33.6%) ($\chi^2=53.09$, $df=2$, $p<0.001$). Univariate logistic regression analysis showed that work in a public health care institution increases a possibility not to be provided with these face protection means by 14.0 times (OR = 14.0; 95% CI 5.70-34.42; $p<0.001$). Dentists working in private dental health care institutions pointed out the inconvenience of work with this equipment more often than those working in public health care institutions: 93.0% (160) and 59.7% (71), respectively ($\chi^2=52.18$, $df=2$, $p<0.001$).

Dental assistants pointed out the inconvenience of work with face protection equipment as the most frequent cause of not using eye glasses and face shields (54.3%, $n=287$). 173 (32.7%) respondents claimed that they do not get these measures. 43 (8.1%) stated that there is nothing they should protect themselves from at work, and 26 (4.9%) claimed that this equipment does not protect from the spread of disease. The cause that

they are not provided with this equipment was pointed out more often by dental assistants who worked in public than those who worked in private dental health care institutions: 39.3% (112) and 24.5% (49), respectively ($\chi^2=12.34$, $df=2$, $p=0.002$). According to the univariate factor analysis, work in a public health care institution increased a possibility not to be provided with this equipment by almost twice (OR = 0.50, $p=0.001$).

84.4% (54) of dental hygienists pointed out they do not use face shields and protective eye glasses because they are inconvenient to work with. 12.5% (8) pointed out that they are not provided with them, and 3.1% (2) replied that they do not protect from the spread of disease. Having applied univariate and multiple logistic regression, none of the factors (working place localization, the status of ownership of the institution, duration of professional activity) had impact on the decision of dental hygienists not to use protective face shields or eye glasses.

3.6. Injury with sharp instruments. Immunoprophylaxis

Only 506 (35.9%) of the surveyed dentists have been vaccinated against hepatitis B virus according to the approved scheme (second dose: 1 month after the first dose, the third dose: in 6 months after the first dose). Even 50.8% (717) of respondents have not completed the whole set of vaccination. 4.3% (60) of the surveyed had had hepatitis B. 2.3% (32) responded that they had positive serological evidence of hepatitis B. Even 78.4% (1,113) of dentists have had at least one injury with a sharp instrument or a needlestick.

Dentists with shorter duration of professional activity have been vaccinated against hepatitis B more often: in group A: 63.7%, in group B: 42.9%, in group C: 27.3%, in group D: 14.7%, ($\chi^2=231.7$; $df=12$; $p<0.001$). It was also found out that respondents with longer duration of professional activity more often had hepatitis than in groups A and B: in group A: 0.6%, in group B: 3.8%, in group C: 6.2%, in group D: 5.9%. Statistically significant difference among vaccinated dentists who worked in private and public health care institutions was identified ($\chi^2=27.4$; $df=8$; $p=0.001$). By comparison of respondents who worked in major Lithuanian cities and other regions, statistically significant difference in the number of dentists vaccinated against hepatitis B was

estimated (in major Lithuanian cities: 41.7%, in other regions: 25.5%) ($\chi^2=37.1$; $df=4$; $p<0.001$) (Table 25).

Table 25. Vaccination against hepatitis B status among dentists according to the duration of professional activity, ownership status of the working place and working place localization

	Vaccination status					
	Not vaccinated	Incomplete vaccination	Complete vaccination	Positive serological markers	Has a history of hepatitis	
Groups of the duration of professional activity						
A group, n (%)	78 (24.8)	26 (8.3)	200 (63.7)	8 (2.5)	2 (0.6)	$\chi^2=231.73$; $df=12$; $p<0.001$
B group, n (%)	161 (43.8)	29 (7.9)	158 (42.9)	6 (1.6)	14 (3.8)	
C group, n (%)	193 (59.9)	13 (4.0)	88 (27.3)	8 (2.5)	20 (6.2)	
D group, n (%)	285 (70.0)	28 (6.9)	60 (14.7)	10 (2.5)	24 (5.9)	
Ownership status of the working place						
Public institution, n (%)	195 (58.2)	27 (8.1)	89 (26.6)	4 (1.2)	20 (6.0)	$\chi^2=27.36$; $df=8$; $p=0.001$
Public and private institution, n (%)	101 (46.5)	17 (7.8)	91 (41.9)	2 (0.9)	6 (2.8)	
Private institution, n (%)	421 (49.0)	52 (6.1)	326 (38.0)	26 (3.0)	34 (4.0)	
Working place localization						
Major cities, n (%)	418 (46.2)	57 (6.3)	377 (41.7)	18 (2.0)	34 (3.8)	$\chi^2=37.1$; $df=4$; $p<0.001$
Other regions, n (%)	299 (59.0)	39 (7.7)	129 (25.4)	14 (2.8)	26 (5.1)	
Total, n (%)	717 (50.8)	96 (6.8)	506 (35.9)	32 (2.3)	60 (4.3)	

The number of vaccinated dental assistants was even smaller. They made up only 25.0% (230) of all surveyed dental assistants. 3.2% (31) are immunized and 1.3% (13) had hepatitis B. Statistically significant difference was not identified in the groups of respondents according to the duration of professional activity, working place localization and the status of ownership of the institution. 21.4% (201) replied that they have had injury with a sharp instrument, and even 72.0% (677) of dental assistants did not know if they had ever had injury with a sharp instrument.

There were 90 (42.3%) dental hygienists vaccinated against hepatitis B. Statistically significantly more of them worked in private than in a public health care institutions: 65 (47.1%) and 9 (21.4%), respectively, ($\chi^2=24.69$; $df=6$; $p<0.001$). According to the univariate logistic regression analysis, work in a private health care institution had positive impact on the frequency of vaccination against hepatitis B (OR –

3.51; 95% CI 1.56-7.89; $p=0.002$). 22.4% (46) responded that they had had injury with a sharp instrument, and even 67.3% (138) of dental hygienists did not know if they had ever had injury with a sharp instrument.

3.7. Collection of medical records according to infectious diseases

All participants of the survey were asked how often they ask their patients about infectious diseases they could carry. Only 30.9% of the dentists pointed out that they always ask and 35.5% pointed out that they often ask about it. Having compared the answers of dentists working in major Lithuanian cities and other regions, it was identified that their answers differed statistically significantly: 34.4% of those working in major Lithuanian cities and 24.8% of those working in other regions always thoroughly collect medical records about their patients' infection ($p<0.001$) (Table 26). 35.5% of the dentists working in private clinics and only 18.6% of those working in public health care institutions always thoroughly collect medical records about the diseases ($p<0.001$) (Table 26). Dentists with shorter duration of professional activity tend to always collect medical records about the diseases thoroughly more often than their older colleagues with longer duration of professional activity (Table 26).

With the model of multiple logistic regression, it was identified that greater possibility to collect medical records of infection is positively related with shorter work experience, working place localization in major Lithuanian cities and work in private clinics (Table 27).

Table 26. Obtaining of medical history about HBV, HCV and HIV from patients according to the duration of professional activity, working place localization, ownership status of the working place

	Reply options				
	Never	When suspected infection carrier	Often	Always	
Groups of the duration of professional activity					
A group, n (%)	8 (2.5)	70 (22.3)	112 (35.7)	124 (39.5)	$\chi^2=42.04$; df=9; p<0.001
B group, n (%)	21 (5.7)	91 (24.7)	134 (36.4)	122 (33.2)	
C group, n (%)	6 (1.9)	104 (33.0)	117 (37.1)	88 (27.9)	
D group, n (%)	17 (4.1)	156 (37.8)	138 (33.4)	102 (24.7)	
Ownership status of the working place					
Public institution, n (%)	15 (4.4)	149 (44.1)	111 (32.8)	63 (18.6)	$\chi^2=54.654$; df=6; p<0.001
Public and private institution, n (%)	7 (3.3)	60 (27.9)	79 (36.7)	69 (32.1)	
Private institution, n (%)	30 (3.5)	212 (24.7)	311 (36.3)	304 (35.5)	
Working place localization					
Major cities, n (%)	38 (4.2)	236 (26.1)	320 (35.4)	311 (34.4)	$\chi^2=23.59$; df=3; p<0.001
Other regions, n (%)	14 (2.8)	185 (36.6)	181 (35.8)	125 (24.8)	
Total, n (%)	52 (3.7)	421 (29.9)	501 (35.5)	436 (30.9)	

Table 27. The probability of dentists obtaining of medical history about HBV, HCV and HIV from patients in relationship to the duration of professional activity, working place localization, ownership status of the working place (multiple logistic regression)

Attribute	OR ^a	95% CI	p
Groups of the duration of professional activity			
A group	1.57	1.11-2.23	0.010
B group	1.28	0.93-1.75	0.119
C group	1.15	0.84-1.57	0.378
D group	1		
Working place localization			
Major cities	1.42	0.99-2.00	0.05
Other regions	1		
Ownership status of the working place			
Public institution	1		
Public and private institution	1.76	1.21-2.55	0.003
Private institution	2.06	1.57-2.72	<0.001
a – estimating all others attributes in the table, OR – odds ratio, CI – confidence interval, p – level of significance. The compatibility of the model with the data $\chi^2=52.22$, df=6, p<0.001; the suitability of the model – the determination coefficient Nagelkerke $R^2=0.055$; the model prognosticated 65.4% accuracy.			

3.8. Maintenance of surfaces and instruments, control of dental equipment water contamination and the use of rubber dam system

The surfaces which are touched by hands in a dental setting are always thoroughly cleaned after each patient by 80.6% (776) of dental assistants. 74.1% of dentists pointed out that their assistants thoroughly clean surfaces after each patient. Others make it in haste or once in a shift. Comparison of the answers of dental assistants by the duration of their professional activity, the status of ownership of the institution, working place localization did not identified statistically significant differences.

When asked about the sterilization of handpieces, only 6.6% of dentists replied that in their workplaces all handpieces are sterilized after each patient. 84.2% only disinfect them after each patient, 2.7% of respondents sterilize them only once in a shift. According to the answers of dental assistants, 17.5% (167) of respondents sterilize handpieces, 74.6% (713) only disinfect them, 1.8% (17) sterilize them only for surgical operations, and the rest sterilize them once in a shift. Dental hygienists answered as follows: 9.9% (21) sterilize them after each patient, 86.5% (122) only disinfect them after each patient, and the rest sterilize them once in a shift.

The main cause pointed out by 71.4% of dentists, 86.5% of dental hygienists and 69.9% of dental assistants why they do not sterilize handpieces was lack of items and time between the visits of patients to carry out sterilization. 15.0% of dentists, 14.4% of dental assistants and 14.7% of dental hygienists pointed out that the sterilized handpieces get damaged; whereas 10.2% of dentists, 11.0% of dental assistants and 13.7% of dental hygienists consider that handpieces are not a source of infection. Comparison of the answers of respondents working in private and public health care institutions did not identified statistically significant difference.

Several answers to the question about dental equipment water contamination were submitted. Respondents' answers differed significantly. The most frequent answer selected by dentists was the use of demineralized water reservoir: 34.7%. The second answer by frequency was (24.2%) that they disinfect the water system. 10.8% of respondents replied that they use filters and this way carry out water system disinfection.

7.6% of the surveyed use the reservoir of demineralized water and disinfect the system. The range of answers of dental assistants and dental hygienists varied even more. As several answers were circled, 12 answer variations were obtained. Most of them were illogical. Due to this, the analysis of the answers was not conducted.

Our investigation showed that even 66.0% (955) of Lithuanian dentists never use the system of dental dam and only 12% of dentists always and often use this system in endodontic treatment. Younger dentists (groups A and B) with work experience under 19 years, use the system of dental dam more often than their older colleagues with work experience of more than 20 years. 84.2% of Lithuanian dentists with work experience over 30 years never use the system of dental dam ($\chi^2=294.2$; $df=6$; $p<0.001$) (Table 28).

28 Table. Use of rubber dam according to the duration of professional activity

	Use of rubber dam			
	Always/often	Sometimes/occasionally	Never	
Groups of the duration of professional activity				
A group, n (%)	115 (35.8)	85 (26.6)	120 (37.7)	$\chi^2=294.2$; $df=6$; $p<0.001$
B group, n (%)	38 (10.0)	99 (26.0)	243 (63.9)	
C group, n (%)	6 (1.9)	82 (25.2)	237 (73.0)	
D group, n (%)	11 (2.7)	55 (13.1)	355 (84.2)	
Total, n (%)	170 (11.8)	321 (22.2)	955 (66.0)	

17.4% (153) of dentists working in private clinics used the system of dental dam more frequently, and even 92.0% (320) of dentists working in public health care institutions never used the system of dental dam ($\chi^2=27.36$; $df=4$; $p<0.001$).

4. CONCLUSIONS

1. Majority of Lithuanian dentists (95.3%), dental assistants (96.0%), and dental hygienists (93.4%) correctly pointed out the importance of infection control and take care of infection control procedures in their working places themselves (90.7%, 96.9%, 90.1%, respectively).
2. The attitude of dental health care professionals towards infection control and carried out procedures frequently differed among those working in private and public health care institutions, major Lithuanian cities and other regions, and those with different duration of their professional activity. Appropriate procedures and correct attitude towards infection control were pointed out more frequently by those dental health care professionals who work in major Lithuanian cities, private health care institutions and with shorter duration of their professional activity.
3. Most infection control procedures (hand hygiene, the use of personal protection equipment, change of disposable protective equipment (face masks and gloves), vaccination against hepatitis B, dental setting surface disinfection, handpieces sterilization) in dental health care institutions does not comply with the requirements set in the standard documentation.
4. Professionals working in public dental health care institutions are insufficiently provided with personal protective equipment. Insufficient knowledge about infection control of dentists with longer duration of their professional activity may be related with deficiencies of previous educational programmes or former attitude towards infection control.
5. Few Lithuanian dental health care professionals are vaccinated against hepatitis B virus (35.9% of dentists, 25.0% of dental assistants, 42.3% of dental hygienists). More dentists with the shorter duration of professional activity were vaccinated against hepatitis B compare to dentists with longer duration of professional activity. More dental hygienists vaccinated against hepatitis B virus were working in private dental health care institutions.

5. PRACTICAL RECOMMENDATIONS

Based on the findings of the investigation, the following practical recommendations may be presented:

1. To modify and improve students' education of infection control competency. The discipline of infection control should be taught as a separate subject.
2. To encourage in-service training of dental health care professionals dentists (lectures, seminars, informative publications), by paying special attention to infection control elements: the use personal protective equipment, proper hand hygiene, sterilization of handpieces.
3. To educate and motivate dental health care professionals to take care of their own health. To encourage vaccination against hepatitis B.
4. To provide continuous postgraduate practical training on infection control for dental health care professionals.
5. To improve legal acts regulating infection control, to specify requirements for personal dental health care professionals' protection.

PUBLICATIONS ON THE TOPIC OF DISERTATION

Scientific Journals

1. Pečiuliene V, **Rimkuviene J**, Aleksejuniene J, Haapasalo M, Drukteinis S, Maneliene R. Technical aspects of endodontic treatment procedures among Lithuanian general dental practitioners. *Stomatologija, Baltic Dental and Maxillofacial Journal*. 2010; 12:42-50.
2. **Rimkuvienė J**, Pūrienė A, Pečiulienė V, Zaleckas L. Darbuotojų asmeninių apsaugos priemonių naudojimas odontologinėje praktikoje. *Sveikatos mokslai*. 2011; 21:29-36.
3. **Rimkuvienė J**, Pūrienė A, Pečiulienė V, Zaleckas L. Percutaneous injuries and hepatitis B vaccination among Lithuanian dentists. *Stomatologija, Baltic Dental and Maxillofacial Journal*. 2011; 13:2-7.

Other Journals

1. **Rimkuvienė J**, Pūrienė A, Pečiulienė V. Infekcijų kontrolė: gydytojų odontologų požiūris. *Odontologų rūmų žinios*. 2010; 22:20-21.

SANTRAUKA

Burna yra viena labiausiai infekuotų žmogaus organizmo sričių [1]. Burnos mikroorganizmų sudėtis ir skaičius gyvenimo eigoje kinta. Apskaičiuota, kad 1g burnos gleivinės mikroorganizmų ląstelių skaičius gali siekti net 10^{11} (įskaitant pastovius ir laikinus burnos mikroorganizmus ir patogenus) [2]. Dauguma jų yra nepavojingi ir būdami burnoje ilgą laiką gali nesukelti jokių ligų, tačiau patekę į kitas to paties organizmo sritis arba į kito žmogaus organizmą gali tapti ligų sukėlėjais. Seilės ir kraujas – dvi pagal savo savybes puikios terpės mikroorganizmams daugintis, augti ir plisti [3]. Odontologinio gydymo metu susiduriama su abiem šiomis terpėmis, kurios susijusios su infekcijų plitimo rizika: iš paciento gydytojui, iš paciento pacientui, iš gydytojo pacientui. Įrodyta, kad bet kuri odontologinė intervencija – dantų preparavimas, profesionali burnos higiena, dantų šalinimas, įprastinė profilaktinė paciento burnos apžiūra – yra susijusi su galimu infekcijų plitimu [4, 5]. Burnos ir kvėpavimo takų mikroorganizmai odontologinių procedūrų metu užteršia darbu naudojamus mažesnius ir didesnius instrumentus, patenka į aplinką [6]. Nesilaikant privalomų darbuotojų asmeninių apsaugos priemonių, patenka į personalo kvėpavimo takus, akis, nusėda ant plaukų, drabužių, užteršia darbo aplinkos paviršius, gali būti perduodami kitiems žmonėms ar sukelti ligas [3]. Todėl vienas iš svarbiausių odontologine praktika besiverčiančių asmenų uždavinių yra užkirsti kelią infekcijų plitimui ir sudaryti saugią aplinką pacientui, gydytojui odontologui ir kitam personalui [7].

Odontologinės sveikatos priežiūros specialistų ir pacientų sveikatos saugumas priklauso nuo individualiai įgyvendinamų infekcijų kontrolės programos reikalavimų. Šios programos tikslas yra užtikrinti odontologinių gydymo procedūrų saugumą, siekiant išvengti ligų, plintančių per kraują ir seiles. Programos reikalavimų būtina laikytis kasdienėje odontologijos praktikoje [8]. Lietuvos Respublikoje infekcijų kontrolės procedūras reglamentuoja Lietuvos teisės aktai, higienos normos, kurių kiekvienas odontologinės sveikatos priežiūros specialistas privalo laikytis (duomenų rinkimo metu galiojo LHN 45; LHN 47) [9, 10]. Gydytojas odontologas labai dažnai dirba mažame darbuotojų kolektyve ir dažniausiai yra tos komandos (gydytojo odontologo padėjėjo, burnos higienisto ar jaunesnio kolegos) lyderis, privalantis atsakyti už infekcijų kontrolės

procedūras tame kolektyve. Pagrindinių infekcijų kontrolės principų mokoma universitetinių studijų metais, o praktiniai įgūdžiai įgyjami dirbant.

Infekcijų kontrolės kokybę odontologinės sveikatos priežiūros įstaigose tikrina Valstybinės visuomenės sveikatos priežiūros tarnybos prie Sveikatos apsaugos ministerijos Visuomenės sveikatos centras. Pateikiamos pastabos po patikrinimų rodo, kad infekcijų kontrolės principai kasdienėje odontologo praktikoje ne visada kruopščiai įgyvendinami. Odontologinės sveikatos priežiūros specialistų požiūrio į infekcijų kontrolę ir jų pačių atliekamas procedūras tyrimas yra svarbus, nes gali padėti išsiaiškinti pačių specialistų nuomonę, realią infekcijų kontrolės situaciją odontologinėje praktikoje, galimas infekcijų kontrolės procedūrų neatitikimų norminiams dokumentams priežastis.

Darbo tikslas – nustatyti ir įvertinti Lietuvos odontologinės sveikatos priežiūros specialistų požiūrį į infekcijų kontrolę ir atliekamas infekcijų kontrolės procedūras, išsiaiškinti vakcinacijos nuo hepatito B apimtį tarp Lietuvos odontologinės sveikatos priežiūros specialistų.

Darbo uždaviniai

1. Išanalizuoti odontologinės sveikatos priežiūros specialistų požiūrį į infekcijų kontrolę ir jos procedūras.
2. Palyginti odontologinės sveikatos priežiūros specialistų požiūrį į infekcijų kontrolę ir atliekamas procedūras pagal darbo stažą, darbovietės nuosavybės formą (viešoji, privati įstaiga) ir lokalizaciją (didysis Lietuvos miestas, kiti Lietuvos regionai).
3. Įvertinti galimus infekcijų kontrolės procedūrų neatitikimus odontologinės sveikatos priežiūros įstaigose, lyginant su norminiais dokumentais.
4. Nustatyti infekcijų kontrolės procedūrų neatitikimų odontologinės sveikatos priežiūros įstaigose, lyginant su norminiais dokumentais, priežastis.
5. Nustatyti vakcinacijos nuo hepatito B viruso apimtį tarp Lietuvos odontologinės sveikatos priežiūros specialistų.

Odontologinės sveikatos priežiūros specialistų požiūrio į infekcijų kontrolę, atliekamas infekcijų kontrolės procedūras, infekcijų kontrolės procedūrų neatitikimus

galiojantiems norminiams dokumentams tyrimas atliktas 2008 – 2010 metais Vilniaus universiteto Medicinos fakulteto Odontologijos institute. Tyrime buvo pakviesti dalyvauti visi 2235 Lietuvos gydytojai odontologai, 2008 metais registruoti Lietuvos odontologų rūmuose ir turintys bendros praktikos gydytojo odontologo licenciją ir visi 1814 gydytojų odontologų padėjėjai bei visi 370 burnos higienistai, registruoti 2010 metais (pagal Lietuvos odontologų rūmų duomenų bazę).

Klausimynas sudarytas remiantis tyrimo metu Lietuvos respublikoje galiojančiomis higienos normomis, bei pasaulyje priimtomis infekcijų kontrolės odontologinėse įstaigose rekomendacijomis. Klausimyne buvo pateikti 9 bendrieji klausimai, 30 klausimų apie infekcijų kontrolę: infekcijų kontrolės svarba odontologo darbe, rankų higiena, rūpinimasis darbuotojų asmenine apsauga (pirštinės, veido kaukės, apsauginiai akiniai, veido skydai); paviršių priežiūra; požiūris į per seiles ir kraują plintančią infekciją, vakcinacija nuo hepatito B; vandens užterštumo kontrolė; sterilizacijos priežiūra; stambiųjų instrumentų dezinfekcija ir sterilizacija, koferdamo sistemos naudojimas. Klausimai buvo pateikti su pasirenkamaisiais atsakymais. Respondentai turėjo atsakyti pasirinkdami labiausiai tinkantį atsakymą.

Tyrimo dalyviams buvo išsiųsti klausimynai su paaiškinamuoju laišku. Klausimynas buvo siunčiamas paštu. Į voką įdėtas kitas vokas su atgaliniu adresu ir apmokėta siuntimo paslauga. Anketos buvo anoniminės. Klausimynai buvo siunčiami vieną kartą. Gydytojų odontologų bendras gautas atsakas buvo 64,7 proc. (1446 gydytojai odontologai), odontologų padėjėjų – 53,3 proc. (971 odontologo padėjėjas) ir burnos higienistų – 57,6 proc. (213 burnos higienistų).

Visiems sugrąžintiems klausimynams buvo suteikti numeriai, pagal kuriuos duomenys buvo sutvarkyti ir analizuojami naudojant *SPSS 15.0 for Windows* programą.

Visi gauti duomenys buvo analizuojami ir lyginami atsižvelgiant į respondentų darbo stažą, darbo vietą (didysis Lietuvos miestas, kiti Lietuvos regionai), darbo įstaigos nuosavybės formą (privati, viešoji įstaiga), gydytojai odontologai pagal baigtą universitetą (Vilniaus universitetas, Lietuvos sveikatos mokslų universitetas (buvęs Kauno medicinos institutas, Kauno medicinos akademija, Kauno medicinos universitetas), kiti universitetai. Didiesiems miestams buvo priskirti Lietuvos miestai, kuriuose gyvena daugiau nei 100 000 gyventojų :Vilnius, Kaunas, Klaipėda, Šiauliai, Panevėžys (110).

Pagal darbo stažą respondentai buvo suskirstyti į 4 grupes: A grupė (darbo stažas iki 9 metų), B grupė (darbo stažas 10-19 metų), C grupė (darbo stažas 20-29 metų) ir D grupė (darbo stažas daugiau kaip 30 metų).

Statistinė tyrimo duomenų analizė atlikta naudojant *SPSS 15.0 for Windows (Statistical Package for Social Sciences)*. Statistinių ryšių stiprumas tarp kokybinių požymių buvo įvertintas naudojant susijusių požymių Chi kvadrato (χ^2) kriterijų. Kokybinių požymių statistinis ryšys buvo tirtas susietų lentelių metodu.

Reiškinio (teisingo ar neteisingo infekcijų kontrolės reikalavimų laikymosi) galimybė buvo vertinta skaičiuojant galimybių santykį panaudojant vienaveiksnių bei daugiaveiksnių logistinės regresijos analizę. Įvairių veiksnių galima nepriklausoma įtaka taikant infekcijų kontrolės priemones vertinta įtraukimo į modelį daugiaveiksnių logistinės regresijos metodu, skaičiuojant galimybių santykį ir 95 proc. pasikliautinąjį intervalą. Daugiaveiksnių logistinė regresija buvo skaičiuojama tik tiems atvejams, kuriems taikant vienaveiksnių logistinę regresiją buvo gauti statistiškai reikšmingi rezultatai. Priklausomas kintamasis perkoduotas: netinkamos infekcijų kontrolės priemonės – 0, tinkamos infekcijų kontrolės priemonės – 1. Visi veiksniai į modelį įtraukti kaip kategoriniai. Lyginamąja (ataskaitine grupe), skaičiuojant galimybių santykį, pasirinkta sąlyginai prastesnioji. Logistinės regresijos modelio suderinamumui su duomenimis buvo skaičiuojamas χ^2 kriterijus. Kintamųjų priklausomybės dydžiui įvertinti buvo skaičiuojamas *Nagelkerke* koeficientas). Teisingų prognozių procentas skaičiuotas modelio prognozės tinkamumui įvertinti (klasifikavimo lentelė).

Vertinant tirtuosius Odontologinės sveikatos priežiūros specialistus respondentus pagal lytį, buvo nustatyta, kad tiek tarp gydytojų odontologų, tiek tarp gydytojų odontologų padėjėjų bei burnos higienistų vyravo moterys, atitinkamai – 87,4 proc., 100 proc. ir 98,6 proc. Gydytojų odontologų amžiaus vidurkis buvo 44,8 ($\pm 12,4$) metai (23-74), odontologų padėjėjų – 42,5 ($\pm 10,6$) metai (22-67), burnos higienistų – 30,6 ($\pm 5,8$) metai (22-52). Dauguma atsakiusių respondentų dirbo didžiuosiuose Lietuvos miestuose. Daugiau nei pusė gydytojų odontologų ir burnos higienistų dirbo privačioje praktikoje, atitinkamai – 60,8 proc. ir 64,8 proc., o gydytojų odontologų padėjėjai dažniau dirbo viešojoje nei privačioje praktikoje. Mažesnę darbo stažą turintys gydytojai odontologai, jų padėjėjai ir burnos higienistai dažniau nei didesnę darbo stažą turintys dirbo didžiuosiuose Lietuvos miestuose ir privačiose klinikose.

Tarp atsakiusių į klausimus gydytojų odontologų nuo 2000 metų 265 (83,1 proc.) buvo baigę Kauno medicinos universitetą ir 54 (16,9 proc.) buvo baigę Vilniaus universitetą.

Tyrime dalyvavę burnos sveikatos priežiūros specialistai buvo paklausti, ar infekcijų kontrolė yra svarbi jų darbe ir kokios galimos infekcijų plitimo pasekmės. Net 95,3 proc. apklaustųjų gydytojų odontologų, 96,0 proc. odontologų padėjėjų ir 93,4 proc. burnos higienistų atsakė, kad infekcijų kontrolė yra svarbi, nes jos principų nesilaikant galima užkrėsti tiek pacientą, tiek personalą. Palyginus šį požiūrį pagal darbo stažo grupes nustatyta, kad taip mano statistiškai reikšmingai daugiau gydytojų odontologų ir gydytojų odontologų padėjėjų, turinčių mažesnę darbo stažą nei dirbančių ilgesnį laiką. Burnos higienistų nuomonė lyginant pagal darbo stažą statistiškai reikšmingai nesiskyrė. Savo darbo vietose infekcijų kontrole rūpinasi 90,7 proc. gydytojų odontologų. Kiti atsakė, kad nesirūpina arba, kad yra tam skirtas personalas. Mažesnę nei 9 metai darbo stažą turintys gydytojai odontologai dažniau, nei vyresni respondentai atsakė, kad nesirūpina infekcijų kontrole darbo vietoje patys, nes tam yra paskirtas kitas personalas. Privačioje praktikoje dirbantys gydytojai odontologai dažniau infekcijų kontrole rūpinasi patys nei viešojoje įstaigoje dirbantys gydytojai odontologai.

Gydytojų odontologų padėjėjai vienodai dažnai rūpinasi infekcijų kontrole tiek privačiose klinikose, tiek dirbantys viešosiose įstaigose bei dirbantys abiejų nuosavybės formų įstaigose, atitinkamai 97,8 proc., 97,7 proc. ir 95,1 proc. ($\chi^2=5,274$; IIs=4; $p=0,260$). Buvo nustatytas statistiškai reikšmingas skirtumas šio požiūrio tarp burnos higienistų, dirbančių privačioje, viešojoje ir derinančių darbą abiejose įstaigose, atitinkamai 133 (96,4 proc.), 40 (95,2 proc.) ir 26 (78,8 proc.) ($\chi^2=10,599$; IIs=2; $p=0,005$). Kiti atsakė, kad nesirūpina infekcijų kontrole arba jų įstaigoje yra paskirtas už infekcijų kontrolę atsakingas personalas. Palyginus atsakymus apie rūpinimąsi infekcijų kontrole pagal darbo stažą, statistiškai reikšmingo skirtumo tarp mažesnę ir didesnę darbo stažą turinčių burnos higienistų ir odontologų padėjėjų nebuvo nustatyta.

Tik 83,0 proc. (1113) apklaustų gydytojų odontologų plaunasi rankas prieš apsimaunant ir nusimovus pirštines po darbo. Tuo tarpu 6,5 proc. (87) ir 5,4 proc. (73) respondentų rankas plauna tik prieš apsimaunant ar tik nusimovus pirštines (atitinkamai). 5,1 (68) proc. respondentų atžymėjo, kad visai neplauna rankų tarp pacientų arba jas

plauna nereguliariai. 82,2 proc. (787) odontologų padėjėjų rankas plaunasi pagal reikalavimus, kiti – 59 (6,2 proc.) plauna prieš apsimaunant pirštines, 43 (4,5 proc.) nusimovus pirštines ir 68 (7,1 proc.) – nereguliariai arba neplauna. Burnos higienistai taip paruošia rankas: 179 (86,1 proc.) rankas plauna pagal reikalavimus, 20 (9,6 proc.) prieš apsimaunant pirštines, 3 (1,4 proc.) po pirštinių nusimovimo, o 6 (2,8 proc.) rankas plauna nereguliariai arba neplauna. Rankų sausinimui po plovimo 97,7 proc. (1363) apklaustų gydytojų odontologų, 95,0 proc. (918) gydytojų odontologų padėjėjų ir 96,2 proc. (205) burnos higienistų naudojo popierinius vienkartinius rankšluosčius arba rankas sausino oro džiovintuvais. Kiti respondentai nurodė, kad naudoja daugkartinius rankšluosčius. Tik 85,3 proc. gydytojų odontologų visada dirba su pirštinėmis, 10,7 proc. jas naudoja kartais, o 3,6 proc. – tik, kai dirba chirurginį darbą. 0,3 proc. respondentų atsakė, kad visada dirba be pirštinių. 92,8 proc. (1296) gydytojų odontologų jas keičia prieš kiekvieną pacientą, o 5,7 proc. jas keičia tik kartais. Nemano, kad pirštines reikia keisti tarp pacientų ir jas dezinfekuoja 1,4 proc. atsakiusiųjų. Visada pirštines darbo metu naudoja 76,5 proc. odontologų padėjėjų. Palyginus pirštinių naudojimo dažnumą pagal darbo stažą, įstaigos, kurioje jie dirba nuosavybės formą ir darbo vietos lokalizaciją, nustatyta, kad mažesnę darbo stažą turintys odontologų padėjėjai, taip pat dirbantys privačiose odontologinės sveikatos priežiūros įstaigose ir didžiuosiuose Lietuvos miestuose dažniau naudoja pirštines. 205 (97,2 proc.) atsakiusiųjų burnos higienistų pirštines naudoja visada ir tik 6 (2,8 proc.) kartais. Statistiškai reikšmingo skirtumo tarp amžiaus grupių, dirbančių skirtingų nuosavybės formų įstaigose ir skirtingos lokalizacijos darbo vietose nebuvo nustatyta.

Tik 1057 (75,1 proc.) odontologai visada naudoja kaukes dirbant su pacientu, 317 (22,5 proc.) tik kartais, o 34 (2,4 proc.) – visai nenaudoja kaukių. Po kiekvieno paciento kaukes keičia tik 377 (28,0 proc.) gydytojų, 454 (33,7 proc.) – jas keičia kartais, o 143 (10,6 proc.) – kai susidėvi ir 374 (27,7 proc.) jas keičia vieną kartą per darbo dieną. Pagal daugiaveiksnės logistinės regresijos modelį, kaukių keitimui po kiekvieno paciento neturėjo įtakos nei vienas veiksnys (darbo lokalizacija, darbo įstaigos nuosavybės forma, darbo stažas, požiūris į infekcijų kontrolės svarbą) (viso modelio $p=0,064$). Veido kaukes rečiau visada naudoja gydytojai odontologai dirbantys privačiose įstaigose ir derinantys darbą abiejų nuosavybės formų įstaigose, negu tie, kurie dirba tik viešojoje įstaigoje. Veido kaukių naudojimas turi tendenciją mažėti didėjant respondentų darbo stažui

($p < 0,001$). Tik 423 (44,1 proc.) odontologų padėjėjų atsakė, kad veido kaukes naudoja visada. Statistiškai reikšmingai daugiau odontologų padėjėjų visada kaukes naudoja privačiose odontologinėse sveikatos priežiūros įstaigose, dirbantys didžiuosiuose Lietuvos miestuose ir turintys mažesnę darbo stažą. Medicines veido kaukes visada darbo metu dėvi 173 (81,2 proc.) burnos higienistų. Kiti 40 (18,8 proc.) jas dėvi kartais. Kaukių naudojimas statistiškai reikšmingai skyrėsi tarp dirbančių didžiuosiuose Lietuvos miestuose – 117 (86,0 proc.) ir kituose regionuose 56 (72,7 proc.) ($\chi^2 = 5,704$; $lfs = 1$; $p = 0,017$), tarp dirbančių privačiose įstaigose 117 (84,8 proc.) bei derinančių darbą abiejų nuosavybės formų įstaigose 33 (100 proc.) ir dirbančių viešosiose įstaigose 23 (54,8 proc.) ($\chi^2 = 28,055$; $lfs = 2$; $p < 0,001$). Tačiau tik darbas privačiose įstaigose 3,85 karto padidino galimybę visada naudoti veido kaukes darbo metu (iš daugiaveiksnės logistinės regresijos modelio išėmus kitus statistiškai nereikšmingus veiksnius ir palikus tik darbo lokalizaciją bei skirtingas įstaigų nuosavybės formas) ($\chi^2 = 31,86$, $p < 0,001$; *Nagelkerke* $R^2 = 0,244$, modelis prognozavo 81,2 proc. tikslumu). 51,5 proc. gydytojų odontologų, nekeičiančių kaukių po kiekvieno paciento nurodė, kad jų nereikia keisti, nes kaukės neužsiteršia. 35,3 proc. apklaustųjų kaukių ir pirštinių nekeičia, nes taupo. Net 8,9 proc. odontologų atsakė, kad gauna ribotą apsauginių priemonių skaičių. Odontologų padėjėjai (nekeičiantys vienkartinį apsaugos priemonių po kiekvieno paciento) dažniausia priežastimi, kodėl nekeičia vienkartinį asmeninių apsaugos priemonių, nurodė taupymą (40,6 proc.). Taip pat 36 proc. nurodė, kad kaukės neužsiteršia, 13 proc. – kad pirštines galima plauti ir 10,4 proc. – išduodamą ribotą vienkartinį priemonių skaičių. Statistiškai reikšmingi skirtumai rasti palyginus respondentų atsakymus pagal skirtingas stažo grupes ir darbą skirtingų nuosavybių formų įstaigose. Iš 96 burnos higienistų, nekeičiančių vienkartinį priemonių tarp pacientų, 43 (44,8 proc.) atsakė, kad priemonės taupo, 5 (5,3 proc.) gauna ribotą priemonių skaičių, 48 (50,0 proc.) atsakė, kad kaukės neužsiteršia, todėl jų nereikia keisti po kiekvieno paciento. Nenustatyta statistiškai reikšmingų skirtumų, tarp burnos higienistų, dirbančių privačioje bei viešojoje įstaigose, taip pat didžiuosiuose Lietuvos miestuose ir kituose regionuose, tarp skirtingų stažo grupių. Pritaikius vienaveiksnę ir daugiaveiksnę logistinę regresiją, nei vienas veiksnys neturėjo lemiamos įtakos burnos higienistų sprendimui nekeisti vienkartinį asmeninių apsaugos priemonių tarp pacientų.

Tik 506 (35,9 proc.) apklausti gydytojai odontologai yra atlikę imunizaciją dėl hepatito B viruso pagal schemą (antroji dozė – 1 mėnuo po pirmos dozės, trečioji – 6 mėn. nuo pirmosios dozės). Net 50,8 proc. (717) respondentų nebuvo visai pasiskiepiję. 4,3 proc. (60) apklaustųjų buvo sirgę hepatitu. 2,3 proc. (32) atsakė, kad jiems yra nustatyti teigiami serologiniai hepatito B žymenys. Net 78,4 proc. (1113) gydytojų odontologų buvo nors kartą susižeidę aštriu instrumentu ar adata. Dar mažiau atlikusių pilną vakcinaciją prieš hepatitą B buvo odontologų padėjėjų tarpe. Jie sudarė tik 25,0 proc. (230) visų atsakiusiųjų gydytojų padėjėjų. Imunitetą turi 3,2 proc. (31), persirgę – 1,3 proc. (13). Tik 30,9 proc. gydytojų odontologų atsakė, kad visada ir 35,5 proc., kad dažnai apie tai paklausia pacientų. Palyginus gydytojų odontologų, dirbančių didžiuosiuose miestuose ir kituose regionuose atsakymus, nustatyta, kad jų atsakymai skyrėsi statistiškai reikšmingai: visada kruopščiai surenka infektologinę anamnezę 34,4 proc. didžiuosiuose miestuose dirbančiųjų ir 24,8 proc. kituose regionuose dirbančių respondentų ($p < 0,001$).

Tuos paviršius, kurie darbo metu yra liečiami rankomis visada po kiekvieno paciento kruopščiai nuvalo 80,6 proc. (776) gydytojų odontologų padėjėjų. 74,1 proc. gydytojų odontologai atsakė, kad jų asistentai kruopščiai nuvalo paviršius po kiekvieno paciento. Kiti tai daro paskubomis arba vieną kartą per pamainą. Tik 6,6 proc. gydytojų odontologų atsakė, kad jų darbo vietose antgaliai sterilizuojami po kiekvieno paciento. 84,2 proc. juos tik dezinfekuoja po kiekvieno paciento. 2,7 proc. respondentų juos sterilizuoja vieną kartą per pamainą. Net 3,2 proc. apklaustųjų antgalių nesterilizuoja net ir operacijoms. Remiantis odontologų padėjėjų atsakymais, 17,5 proc. (167) respondentų antgalius sterilizuoja, 74,6 proc. (713) juos tik dezinfekuoja, 1,8 proc. (17) juos sterilizuoja tik operacijoms, o likusieji sterilizuoja vieną kartą per pamainą. Burnos higienistų atsakymai į šį klausimą pasiskirstė taip: 9,9 proc. (21) sterilizuoja po kiekvieno paciento, 86,5 proc. (122) juos tik dezinfekuoja po kiekvieno paciento, o likusieji juos sterilizuoja vieną kartą per pamainą.

Net 66,0 proc. (955) Lietuvos gydytojų odontologų niekada nenaudoja koferdamo sistemos ir tik apie 12 proc. gydytojų odontologų šią sistemą endodontinio gydymo metu naudoja visada ir dažnai. Jaunesni odontologai, kurių stažas mažesnis nei 19 metų, dažniau naudoja koferdamo sistemą negu didesni kaip 20 metų stažą turintys

respondentai. 84,2 proc. Lietuvos odontologų, kurių darbo stažas didesnis nei 30 metų, niekada nenaudoja koferdamo sistemos ($\chi^2=294,2$; IIs=6; $p<0,001$).

Išvados

1. Dauguma Lietuvos gydytojų odontologų (95,3 proc.), odontologų padėjėjų (96,0 proc.), burnos higienistų (93,4 proc.) teisingai nurodė infekcijų kontrolės svarbą ir patys savo darbo vietose rūpinasi infekcijų kontrolės procedūromis (atitinkamai 90,7 proc., 96,9 proc., 90,1 proc.).
2. Odontologinės sveikatos priežiūros specialistų požiūris į infekcijų kontrolę, atliekamas procedūras ir įpročiai dažniausiai skyrėsi tarp dirbančių privačiose ir viešosiose įstaigose, didžiuosiuose Lietuvos miestuose ir kituose regionuose, turinčių skirtingą darbo stažą. Tinkamas procedūras ir teisingą požiūrį į infekcijų kontrolę dažniau įvardino dirbantys didžiuosiuose miestuose, privačiose įstaigose ir turintys mažesnę darbo stažą.
3. Dauguma infekcijų kontrolės procedūrų (rankų higiena, darbuotojų asmeninių apsaugos priemonių naudojimas, vienkartinį priemonių (veido kaukių ir pirštinių) keitimas, vakcinacija nuo hepatito B, darbo aplinkos paviršių dezinfekcija, antgalių sterilizavimas) odontologinėse sveikatos priežiūros įstaigose neatitinka norminės dokumentacijos reikalavimų.
4. Viešųjų odontologinės sveikatos priežiūros įstaigų darbuotojai nepakankamai aprūpinami individualios apsaugos priemonėmis. Ilgesnį darbo stažą turinčių gydytojų odontologų nepakankami infekcijų kontrolės įpročiai gali būti susiję su ankstesnių mokymo programų spragomis arba tuometiniu požiūriu į infekcijų kontrolę. Neteisingas požiūris į kaukių dėvėjimą (jas dėvi tik 51,4 proc. gydytojų odontologų, 36,0 proc. odontologų padėjėjų ir 50,0 proc. burnos higienistų) rodo odontologinės sveikatos priežiūros specialistų infekcijų kontrolės žinių stoką, taip pat nepakankamai aiškius norminių dokumentų reikalavimus.
5. Nedaug Lietuvos odontologinės sveikatos priežiūros specialistų yra vakcinuotų nuo hepatito B (35,9 proc. gydytojų odontologų, 25,0 odontologų padėjėjų, 42,3 proc. burnos higienistų). Dirbantys privačiose odontologinės sveikatos priežiūros įstaigose, didžiuosiuose Lietuvos miestuose ir mažesnę darbo stažą turintys gydytojai odontologai, buvo dažniau pasiskiepiję nuo hepatito B, nei didesnę darbo stažą

turintys kolegos. Daugiau pasiskiepijusių nuo hepatito B viruso burnos higienistų buvo privačiose gydymo įstaigose.

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