

## ESTIMATION OF KNOWLEDGE OF PRIMARY HEALTH CARE MEDICAL WORKERS RELATED TO HIV INFECTION IN MUNICIPALITY OF RAŽANJ

Irena Mihajlović<sup>1</sup>, Biljana Kocić<sup>2</sup> i Tatjana Cagulović<sup>3</sup>

Ever since recognized to the present day, AIDS has reached pandemic proportions and become great social and medical problem. The aim of this paper was to estimate the level of knowledge of primary health care medical workers related to HIV infection, in the Municipality of Ražanj. The research involved 74 health workers employed in the Primary Health Care Center Ražanj. The research participants were health workers of all profiles. Data collection was done by specially designed questionnaire. A high turnout of health workers (100%) in the conducted research shows that health workers express great interest in the HIV and AIDS-related issues. The research shows that every second examinee, in everyday practice, comes into direct contact with blood and other body fluids of patients, however, having insufficient knowledge about various aspects of HIV infection. Only 3/5 of health workers reach the intermediate level of knowledge. Self-estimation of knowledge confirms that examinees are aware of their insufficient knowledge from this field (mean grade:  $3.14 \pm 0.85$ ). High percent (85.1%) of health workers has never had HIV and AIDS-related education. It can be concluded that the level of knowledge of health workers employed in the Primary Health Care Center Ražanj about various aspects HIV infection is insufficient; the HIV/AIDS-related education is also missing. *Acta Medica Medianae* 2009;48(4):32-39.

**Key words:** knowledge, health workers, HIV infection

Primary Health Care Center Ražanj<sup>1</sup>  
Faculty of Medicine in Niš<sup>2</sup>  
Health Care Center Kladovo<sup>3</sup>

Kontakt: Irena Mihajlović  
Koste Stamenkovića 11/40, 18000 Niš  
e-mail: irena.mihajlovic@gmail.com

### Introduction

Morbus HIV or AIDS (eng. Acquired Immuno Deficiency Syndrome) or SIDA (French - Syndrome d'Immunodeficiencet Acquisa) is the syndrome of the immunity loss which represents the ultimate and most severe stage of the infection caused by virus of human immunodeficiency (HIV), which always ends lethally (1). It is estimated that ever since 1981 to the present day, over 70 millions people have been infected worldwide, which makes this epidemic one of the most destructive to humans (2).

The appearance of human immunodeficiency virus (HIV) has brought numerous problems to health workers when working with patients - they run the risk of being infected.

Therefore, health workers can be classified into the group of those exposed to occupational, accidental risk of HIV infection transmitted via blood or body liquids of a person infected by HIV or the patients suffering from AIDS.

The facts that AIDS is incurable disease which can end lethally in shorter or longer period

of time, that occupationally infected health workers share the destiny of all the infected, which brings the possibility that they infect others ( their spouses and partners), cause fear, sometimes even panic, unprofessional reactions of health workers when having a patient infected with HIV or suffering from AIDS.

There is a need that health workers, with the aim of being protected against this infection, undertake in their everyday practice all the necessary protective measures which require appropriate information, knowledge, behavior, as well as additional efforts and discomfort in work.

There is one more problem, and that is the transmission of HIV in the occupational setting.

Therefore, the knowledge of health workers about HIV and AIDS-related issues is of extreme importance for the efficacy of their work in the future. Supplementing the knowledge and gaining new skills would help health workers to give support to those living with HIV infection, and also, to professionally protect themselves from accidental infections.

Having in mind the influence of HIV/AIDS on health workers, numerous authors have estimated their knowledge of this issues, both in the first decade of epidemic appearance (3-8), and later (9-18). The most frequent groups of health workers included into this research were those employed in hospitals, or health workers of certain profiles: doctors, dentists, nurses (19).

There have not been much data on the knowledge of the primary health care protection medical workers whose services are needed by a growing number of those infected by HIV.

### Aims

The aim of this paper was to estimate the level of knowledge of health workers about HIV infection, employed in the Primary Health Care Center Ražanj.

### Examinees and methods

The research was conducted among the health workers employed in the Primary Health Care Center Ražanj, in the period from November to December, 2008.

The research involved all primary health care protection medical workers (74), which made 100% coverage. The health workers included into this research worked in the following services: General medicine, Care and protection of children, Women's Health Protection, Dental protection, Laboratory diagnostics, and support staff.

Data collection was performed by specially designed and structured anonymous questionnaire.

Data were processed by SPSS program (version 10.0). In the analysis, proportions and significant difference tests ( $\chi^2$  test) were used, with probability  $p < 0.05$ .

### Results

The research involved all health workers of Primary Health Care Center Ražanj (100 % coverage). Out of 74 health workers, there were 53 (71.6%) females, and 21 (28.4) males. Mean age was 45.64 years. The majority of examinees had secondary school qualifications (68.9%); 28.4 % had university qualifications; 2.7% of examinees had two-year post-secondary qualifications. Among the examinees, there were 39.2% of nurses/technicians, 8.1% of medical doctors, 13.5% of specialists, 2.7% of dentists, 1.4% of registered nurses, dental nurses and lab technicians 4.1% respectively; 27% denoted other profiles. Mean length of service in the health sector was 18.84 years and at the current work post 14.18 years (Table 1).

The greatest percentage of examinees worked with patients in doctor's offices (39%); 39% of patients worked in wound treatment rooms, and emergency rooms (Graph 1).

The majority of patients (67.6%) stated that HIV and AIDS denote one and the same manifestation; 16.2% negated this statement; the same percentage of examinees (16.2%) did not know the answer to this question. (Graph 2).

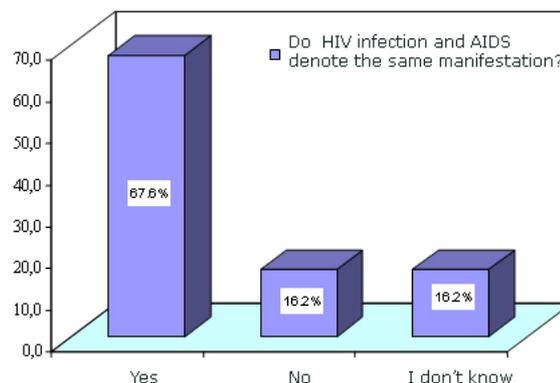
Almost the same percentage of examinees knew that the window period for HIV infection is the period during which serological test is negative and a person is infected with HIV (43.2%); 41.9 of examinees did not know the answer. 14.9% of examinees denied this statement (Table 2).

Tabela 1. Basic characteristics of examinees

| Characteristic                                       | Value       |
|--|-------------|
| Age (years)  | 45,64±10,30 |
| Gender   |             |
| Men  | 21 (28,4%)  |
| Women  | 53 (71,6%)  |
| Qualifications                                       |             |
| Secondary school qualifications                      | 51 (68,9%)  |
| Two-years post-secondary school qualifications       | 2 (2,7%)    |
| University qualifications                            | 21 (28,4%)  |
| Profession   |             |
| Doctor   | 6 (8,1%)    |
| Specialist   | 10 (13,5%)  |
| Specialist in dentistry                              | 2 (2,7%)    |
| Registered nurse                                     | 1 (1,4%)    |
| Nurse/technician                                     | 29 (39,2%)  |
| Dental nurse   | 3 (4,1%)    |
| Lab technician                                       | 3 (4,1%)    |
| Others   | 20 (27,0%)  |
| Years of employment in the healthcare sector (years) | 18,84±10,44 |
| Years of employment at the current job               | 14,18±10,63 |



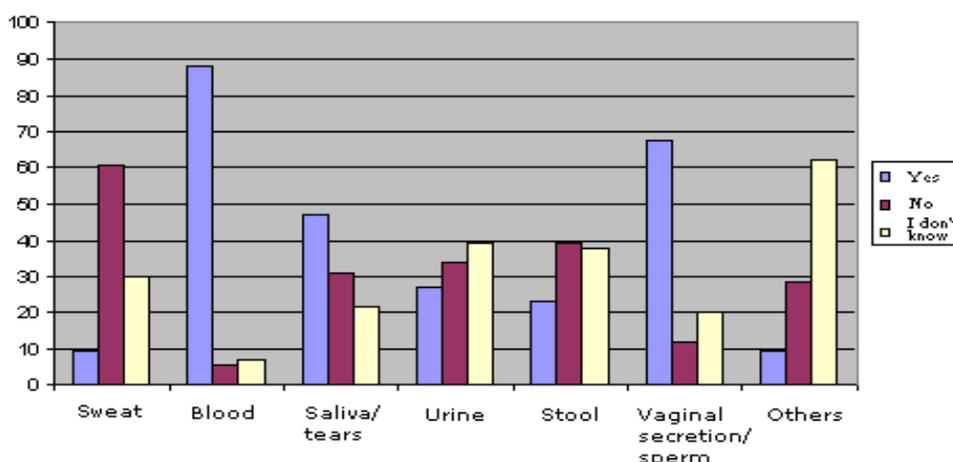
Graph 1. Work post of the healthcare personnel



Graph 2. Do HIV infection and AIDS denote the same manifestation

Table 2. Do HIV infection and AIDS denote the same manifestation?

| Given answer   | Answer       | Number of examinees (%) |
|--|--------------|-------------------------|
| Period during which serological test is negative, yet the person is HIV-infected | Yes          | 32 (43,2%)              |
|  | No           | 11 (14,9%)              |
|  | I don't know | 31 (41,9%)              |



Graph 3. Knowledge of health care personnel about HIV-transmission

Tabela 3. Rizik za transmisiju HIV-a pri različitim medicinskim procedurama

| Occasion  | Answer       | Number of examinees (%) |
|---|--------------|-------------------------|
| Standard clinical examination                                 | Yes          | 1 (1,4%)                |
|   | No           | 59 (79,7%)              |
|   | I don't know | 14 (18,9%)              |
| Clinical examination involving contact with different mucosas | Yes          | 28 (37,8%)              |
|   | No           | 31 (41,9%)              |
|   | I don't know | 15 (20,3%)              |
| Giving first aid for closed injuries                          | Yes          | 1 (1,4%)                |
|   | No           | 56 (75,7%)              |
|   | I don't know | 17 (23,0%)              |
| Reanimation of patients with artificial breathing             | Yes          | 38 (51,4%)              |
|   | No           | 23 (31,1%)              |
|   | I don't know | 13 (17,6%)              |
| Administration of parenteral therapy (infusion solution)      | Yes          | 44 (59,5%)              |
|   | No           | 17 (23,0%)              |
|   | I don't know | 13 (17,6%)              |
| Sampling material for laboratory                              | Yes          | 65 (87,8%)              |
|   | No           | 5 (6,8%)                |
|   | I don't know | 4 (5,4%)                |
| Open wound treatment  | Yes          | 66 (89,2%)              |
|   | No           | 5 (6,8%)                |
|   | I don't know | 3 (4,1%)                |
| Counseling work and talking to patients                       | Yes          | 69 (93,2%)              |
|   | No           | 5 (6,8%)                |
|   | I don't know | -                       |

Table 7. HIV-related knowledge in respect to the age of the examined health care personnel

| Age        | Level of knowledge |            |             |
|------------|--------------------|------------|-------------|
|            | I                  | II         | III         |
| 20-29      | -                  | 5 (100,0%) | -           |
| 30-39      | -                  | 3 (23,1%)* | 10 (76,9%)* |
| 40-49      | 3 (11,5%)          | 17 (65,4%) | 6 (23,1%)   |
| 50-59      | -                  | 15 (60,0%) | 10 (40,0%)  |
| 60-65      | -                  | 5 (100,0%) | -           |
| Comparison | n.s.               | <0,05      | <0,05       |

Table 4. HIV/AIDS-related education

| Question   | Answer                          | Number of examinees (%) |
|--|---------------------------------|-------------------------|
| Have you ever had any HIV/AIDS-related education                 | Yes, during the past year       | 3 (4,1%)                |
|  | Yes, during the past five years | 8 (10,8%)               |
|  | No                              | 63 (85,1%)              |
| Do you think that such education would be useful                 | Yes                             | 41 (55,4%)              |
|  | No                              | 23 (31,1%)              |
|  | No answer                       | 10 (13,5%)              |
| Do you think that you need additional HIV/AIDS-related education | Yes                             | 62 (83,8%)              |
|  | No                              | 11 (14,9%)              |
|  | No answer                       | 1 (1,4%)                |

Table 5. Distribution of examinees in respect to the level of knowledge

| Level of knowledge   | Number of examinees (%) |
|--|-------------------------|
| Poor knowledge – up to 33,3% of correct answers              | 3 (4,4%)                |
| Intermediate knowledge – 33,4 up to 66,6% of correct answers | 45 (60,8%)              |
| Satisfactory knowledge – over 66,7% of correct answers       | 26 (35,1%)              |

Table 6. HIV-related knowledge in respect to qualifications of the examined health care personnel

| Qualifications   | Level of knowledge |            |            |
|--|--------------------|------------|------------|
|  | I                  | II         | III        |
| Secondary school and two-year post secondary school qualifications | 3 (5,7%)           | 36 (67,9%) | 14 (26,4%) |
| University qualifications  | -                  | 9 (42,9%)  | 12 (57,1%) |
| Comparison   | n.s.               | 0,048      | 0,013      |

Table 8. Self-estimation of HIV-related knowledge i

| Parameter | Grade     |
|-----------|-----------|
| Xsr±SD    | 3,14±0,85 |

The majority of examinees (93.2%) thought that there is a risk of HIV infection during consulting patients, wound treatment (89.2%), sampling material for laboratory (87.8%), administration of parenteral therapy (59.5%), while the smallest number of examinees thought that the smallest risk of HIV infection exists during standard clinical examination (1.4%) and giving first aid (1.4%). (Table 3).

The examinees thought that biological material of greatest potential for transmission of HIV infection include: blood (87.8%), vaginal secretion/sperm (67.6%), saliva/tears (47.3%), urine (27.0%), stool (23.0%), sweat and other biological material (9.5%, respectively) (Graph 3).

Even 85.1% of examinees had never had HIV/AIDS-related education; 83.8% thought that they needed additional education, while 55.4% declared that it would be useful (Table 4).

The largest number of examinees – 45 (60.8%) reached the intermediate level of knowledge, followed by the examinees with satisfactory knowledge (26 examinees – 35.1%, while poor knowledge was displayed by three examinees (4.4%) (Table 5).

The intermediate level of knowledge was more frequently documented in the examinees with secondary school qualifications and two-year post-secondary school qualifications (67.9 %; 42.9 %;  $p=0.048$ ), while satisfactory level of knowledge was more frequently noted in health workers with university qualifications (57.1%: 26.4%;  $p= 0.013$ ) (Table 6).

Satisfactory level of knowledge was noted in 10 health workers (76.9) aged 30-39 years, which is statistically significantly higher percentage compared to other age groups. In the age group 20-29 years, all 5 examinees had the intermediate level of knowledge ( $p=0.048$ ), while the satisfactory level of knowledge was reported in age group 40-49 years (23%) (Table 7).

Mean grade of the self-estimation of knowledge about HIV infection was  $3.14 \pm 0.85$  (Table 8).

## Discussion

High turnout of examinees in this research can indicate that health workers express an interest in these issues, but also the appropriateness of anonymous questionnaire for data collection.

The results of majority of researches are inhomogeneous in respect to socio-demographic features of examinees. There are differences in the investigated groups of health workers regarding gender, age, years of employment and profession.

In our research, 71.6% of examinees were females, while 28.4% were of male sex. The study conducted among primary health protection medical workers in Belgrade (20) involved 88.8% of female examinees and 11.2% of male ones. In the majority of studies conducted among health workers, female examinees prevail with 53-68% (14-16, 21, 22), while some others involved only female subjects – nurses (17).

In our research, mean age of examinees was  $45.64 \pm 10.30$  years. In the study by Žakula

(20), the polled health workers were aged 41-42 years and more frequently 40-49 years (36.8%). In the study by Hossini et al. (23), the mean age of the polled was 32.7 years, with 83% of subjects under the age of 40. In the recent study (21) conducted among 1.021 health workers from 11 health institutions in Nigeria, the mean age of the polled was 36 years. Aisien and Shobowale conducted the study among health workers in Nigeria (Benin) with mean age  $39.8 \pm 8.0$  years (24). In some other countries, the participants are usually under the age of 30 (48.9%- 65%) (16,25).

In our research, mean length of service is  $18.84 \pm 10.44$  years, and  $14.18 \pm 10.63$  at the current position. In the study by Žakula (20), conducted in 2003, mean length of service in the health care sector was 18.18 years, i.e. over 20 years in 51.8% of examinees. In the study by Hossini et al. (23), conducted in 2000, one half of the polled had less than ten years of employment, which was conditioned by the participation of younger subjects. In the study conducted among health workers in Nigeria (Benin), Aisien and Shobowale showed that mean length of service was  $14.0 \pm 8.2$  years (24). In the recent study conducted in Nigeria (21), the mean length of service of the polled health workers was 12 years, i.e. six years at the current job.

In our research, 49% of the polled were nurses/technicians, 25% doctors of medicine and dentistry, and 27% were other profiles. In the study by Žakula, the same percentage of nurses/technicians was recorded, which corresponds to the staff of the primary health care institutions (20). In the study conducted among health workers in Nigeria, 56% of the polled were nurses, 31% were doctors, and 12% were midwives (21). Certain studies have involved only particular profiles in the health care (dentists, nurses), while some others have comprised, besides the aforesaid, surgeons, dermatovenerologists, internists, laboratory technicians, midwives and other health workers (11, 14, 15, 17, 21, 24), as well as the students of medicine (17).

In the Primary Health Care Center Ražanj, the greatest percentage of health workers have worked with patients in doctor's offices (39%), wound treatment rooms (39%), and laboratories (7%). It can be concluded that every second health worker comes into direct contact with blood and other body liquids of patients, being thus directly exposed to the risk of HIV infection. In the study conducted by Kocić et al. in 2008, there are data that 87.4% of health workers, in everyday practice, comes into direct contact with blood (26).

In this study, 67.6% of the polled health workers said that HIV and AIDS denote the same manifestation; 16.2% negated this statement; the same percentage of examinees (16.2%) did not know the answer to this question. Wu et al. found that 1/3 of examinees (27.5%) did not know what the acronym HIV mean, while 21.4% did not know what AIDS stood for (15).

In our research, 43.2% of the polled confirmed that the window period for HIV infection is the period during which serological

test is negative, yet the person is infected, while 14.9% claims the opposite; 41.9% do not know what the meaning of this acronym is. In the study by Žakula, 44.9% of the polled do not know the answer to this question (27). Wu et al. showed that 55.1% of the polled health workers gave correct answer to the question «What is the window period» (15).

In our research, the largest number of examinees (93.2%) finds that counseling work and talking to patients pose the risk of acquiring HIV infection, which is surprising, and can be possibly explained by the fact that majority of health workers is not acquainted with the basics of voluntary counseling and HIV testing, where clients need quite a different approach which stands for one of the key components of the current HIV infection prevention. Unlike certain authors, we did not assess in detail the knowledge and skills of health workers regarding voluntary counseling and HIV testing. Thus Hentgen et al. published that 61% of the polled health workers had never recommended to their patients to undergo HIV testing, while less than 10 % did the counseling related to HIV testing, which again stresses the need for education from the fields of counseling and HIV testing. In this way, health workers could gain necessary counseling skills, particularly those related to the estimations of need for HIV testing (18). Mungherera et al. in their research showed that 26% of examinees had never referred patients to counseling, while 31% had never recommended HIV testing, though there were doubts for HIV infection (13).

That there is a risk of HIV infection during wound treatment was confirmed by 89.2% of examinees; 87.8% of examinees think that such risk exists during material sampling for laboratory analysis, while 59.5% mention the administration of parenteral therapy. The smallest number of examinees think that standard clinical examination and management of closed injuries are potentially risky. Pilyugina et al. conducted the research among health workers in 12 hospitals in Odessa: 85% of examinees were familiar with the main risks of HIV infection; 33 % mentioned kissing as a risk factor, 9 mentioned coughing; 28% said that everyday work with a colleague infected with HIV poses a risk factor (28).

Such answers indirectly show that health workers do not have sufficient knowledge on the kinds of exposition considered risky. Estimation of the risk for infection transmitted by blood as well as a possibility of HIV transmission in the health care environment is directly associated with knowing different procedures and body liquids considered potentially infective. That is why the knowledge of health workers related to these aspects of HIV infection is of great importance (29).

Nurses involved by the research conducted by Araujo et al. in the Institute of Mother and Child in Brasil (Pernambuco) mention the following procedures carrying high risk of acquiring HIV infection: blood drawing, intravenous injection administration, normal delivery, as well as cesarean-section delivery (30).

As the most risky biological material for transmission of HIV infection the examinees state: blood (87,8%), vaginal secretion/sperm (67,6%), saliva/tears (47,3%), urine (27,0%), stool (23,0%), sweat and other biological material (9,5%, respectively).

Hentgen et al. found a low level of knowledge about HIV transmission among health workers of the Center of antenatal protection within hospital in Tomatava (Madagascar): 7% of examinees believe that HIV can be transmitted by "joint living with a person infected with HIV even without sexual activities", 13 % - "by use of toilet after HIV-infected individual", 76%- "by voluntary blood donation". Even 73% of the polled think that a child of a HIV-positive mother must be born infected with HIV, and that measures to reduce this risk have been unknown yet (18). Sadob et al. (have) conducted the investigation among health workers in Nigeria and published that 77.1% of the polled identified breastfeeding as a way of HIV transmission, while 5.2% mentioned mosquito bites, and 2.6% mentioned hand shaking; 10% of health workers did not know that HIV could be transmitted vertically (31). The results of the study conducted among the surgery staff in a hospital in Gana show that the examinees lack the relevant knowledge about HIV transmission: 32% of examinees think that the contact between intact skin with the blood of HIV-infected patient or his body liquids poses the risk for HIV infection; 42% finds that contact with genital, oral, and nasal mucosas carries such risk, while 32% of examinees had no answer (32).

In our investigation, 81.5% of the polled health workers answered that they had never had any HIV/AIDS-related education, while 83.8% said they needed additional education, and 55.4% said that it would be useful. Wu et al. investigated the effects of education conducted in China, in the prefecture Fuyang (33). The results of this study pointed that the level of knowledge was much higher in the districts where education had been conducted (88.5% -99.8%) compared to the districts not covered by such educational activities (37%-53.3%). The education managed, as authors stress, to change the public opinion towards positive attitudes to HIV-infected individuals (33). According to the results of the study conducted among primary health protection medical workers in Belgrade, the education course on HIV infection was attended by 51.6% of the polled, while 52.7% of examinees have followed the innovations related to this issue for the last three years (20).

In the study by Massiah et al., 74% of the polled health workers attended the courses on HIV and AIDS for five years prior to the investigation (22). Reis et al. published that 87% of the polled health workers thought that the education should be conducted among health workers with the aim of preventing the discrimination of patients with HIV and AIDS (21). Health workers are often aware that the education they attended was insufficient to provide adequate knowledge and skills for work with such patients (20, 30, 32).

Even though many health workers and managers warn about dangers related to HIV epidemics, they have neither time nor motives to conduct the appropriate training. However, experiences from numerous countries have shown that the training programs have considerably influenced not only the level of knowledge and skills of health workers but also the change in attitudes towards people having HIV/AIDS. In addition, the education should provide health workers with counseling skills, especially those related to the estimation of the necessity of HIV testing. The assessment of effects achieved by the education is a necessary and key component of all training programs intended for health workers (34).

The total level of knowledge of the health workers involved in this research was estimated according to the percentage of correct answers per 15 questions with 70 subquestions. Regarding the total level of knowledge and the analysis of the answers obtained, three groups of health workers were defined:

- I group – «poor knowledge» - up to 33% of correct answers
- II group – «intermediate level of knowledge» - from 33.4% to 66.6%
- III group – «satisfactory knowledge» - the percentage of correct answers more than 66.7%.

The largest number of examinees (60.8%) has intermediate level of knowledge, followed then by the examinees with satisfactory knowledge, i.e. 35.2%. Poor knowledge was shown by 4.4% of health workers.

According to the literature data, the percentage of health workers with satisfactory or even high level of knowledge of HIV/AIDS differ across various studies. In the study by Žakula, it was determined that 59.3% of health workers possessed satisfactory level of knowledge of HIV infection, while intermediate level of knowledge was shown by 42.4%; 3.7% of health workers displayed poor knowledge of HIV (27). Thus, Kohi and Horrocks, in the examination conducted among nurses of four Tanzanian hospitals (two of which are the teaching bases, two are regional hospitals) determined that even 96% of the polled had satisfactory knowledge of HIV/AIDS (11). Fusilier et al. have estimated the knowledge about AIDS as well as the attitudes of health workers in Mexico. The participants of this study gave 82% of correct answers (14).

In our research, an intermediate level of knowledge was considerably more frequently displayed by the examinees with secondary school qualifications and two-year post-secondary school qualifications, while satisfactory level of knowledge was more frequent in health workers with university qualifications. The results showed that there were statistically significant differences in respect to the educational background, which was not reported in the studies by Žakula (27) and Kocić et al. (26).

In the study by Žakula, the largest number of examinees had, in respect to the total number of the polled as well as the gender, satisfactory

knowledge. In this study, the examinees with university qualifications have better knowledge compared to other two groups (with secondary school qualifications and two-year post-secondary school qualifications). Health workers with secondary school qualifications had higher level of knowledge compared to those with two-year post-secondary school qualifications. In respect to the educational background, there were no statistically significant differences in the knowledge of health workers (26). Kocić et al. obtained the same results (26).

In our research, a satisfactory level of knowledge was found in 76.9% of health workers aged 30-39 years which was statistically significantly higher percentage than in all other age groups. In the age group 20-29 years, all five examinees had an intermediate level of knowledge, while the distribution of satisfactory level of knowledge in the age group 40-49 years was 23.1%. Žakula reports that the best knowledge of HIV infection was shown by younger health workers aged 20-29 years, among whom the largest number of examinees had satisfactory level of knowledge (27).

In this research, the mean grade of self-knowledge is  $3.14 \pm 0.85$ , which is in keeping with the data in the study by Žakula, in which this grade is 3.46 (27). The fact that only 14.9% of examinees had the education about HIV and AIDS in the last five years shows that examinees are aware of their insufficient knowledge, and that they need further education.

## Conclusion

Excellent turnout of health workers in the conducted research indicates that health workers express an interest in the HIV/AIDS-related issues. The research shows that high percent of health workers comes into direct contact with blood and other body liquids in their everyday practices, however, having insufficient knowledge of various aspects of HIV infection. Only 3/5 of health workers reach the intermediate level of knowledge. Self-estimation of knowledge confirms that examinees are aware of their insufficient knowledge of this issue. High percent of health workers has never had any HIV and AIDS-related education.

Considering the fact that majority of health workers will have patients suffering from a HIV-related diseases, their knowledge of HIV and AIDS is of extreme importance for the efficacy of their future work. Supplement to knowledge and gaining new skills will help health workers to give support to people living with HIV and AIDS, but also to professionally and personally protect themselves against accidental infection.

Planned and continuous education of health workers is the activity which influences, both at the level of healthcare institution and at the level of the whole healthcare system, the level of knowledge of health workers, increase of personal safety during performing medical procedures, and the changes in negative attitudes towards patients living with HIV/AIDS.

## References

1. Acute HIV infection - New York City, 2008. Centers for Disease Control and Prevention (CDC). *MMWR Morb Mortal Wkly Rep* 2009; 58(46):1296-9.
2. UNAIDS, WHO. AIDS epidemic update, December 2007.
3. Picerno I, Spataro P, Cannavò G, Sturiale I, Di Nola A, Sidoti S, Calisto ML. Evaluation of the AIDS risk perception among healthcare workers in the Hospital University Unit of Messina (Italy). *J Prev Med Hyg* 2008; 49(3):97-100.
4. Delobelle P, Rawlinson JL, Ntuli S, Malatsi I, Decock R, Depoorter AM. HIV/AIDS knowledge, attitudes, practices and perceptions of rural nurses in South Africa. *J Adv Nurs* 2009; 65(5):1061-73.
5. Umeh CN, Essien EJ, Ezedinachi EN, Ross MW. Knowledge, beliefs and attitudes about HIV/AIDS-related issues, and the sources of knowledge among health care professionals in southern Nigeria. *J R Soc Promot Health* 2008; 128(5):233-9.
6. Hsieh NK, Herzig K, Gansky SA, Danley D, Gerbert B. Changing dentists' knowledge, attitudes and behavior regarding domestic violence through an interactive multimedia tutorial. *J Am Dent Assoc* 2006; 137(5):596-603.
7. Uebel KE, Nash J, Avalos A. Caring for the caregivers: models of HIV/AIDS care and treatment provision for health care workers in Southern Africa. *J Infect Dis* 2007; 196(Suppl 3): S500-4.
8. Ezedinachi EN, Ross MW, Meremiku M, Essien EJ, Edem CB, Ekure E, Ita O. The impact of an intervention to change health workers' HIV/AIDS attitudes and knowledge in Nigeria: a controlled trial. *Public Health* 2002; 116 (2):106-12.
9. Reis C, Heisler M, Amowitz LL, Moreland RS, Mafeni JO, Anyamele C, Iacopino V. Discriminatory attitudes and practices by health workers toward patients with HIV/AIDS in Nigeria. *PLoS Med* 2005; 2(8):e246.
10. Marco L, Bermejillo I, Garayalde N, Sarrate I, Margall MA, Asiain MC. Intensive care nurses' beliefs and attitudes towards the effect of open visiting on patients, family and nurses. *Nurs Crit Care* 2006; 11(1):33-41.
11. Rotheram-Borus MJ, Cantwell S, Newman PA. HIV prevention programs with heterosexuals. *AIDS* 2000; 14(Suppl 2):S59-67.
12. Greeff M, Phetlhu R. The meaning and effect of HIV/AIDS stigma for people living with AIDS and nurses involved in their care in the North West Province, South Africa. *Curatationis* 2007; 30(2):12-23.
13. Mungherera M, Van Der Straten A, Hall TL, Faigles B, Fowier G, Madel JS. HIV/AIDS-related attitudes and practices of hospital-based health workers in Kampala, Uganda. *AIDS* 1997; 11 (Suppl 1): S79-S85.
14. Infante C, Zarco A, Cuadra SM, Morrison K, Caballero M, Bronfman M, Magis C. HIV/AIDS-related stigma and discrimination: the case of health care providers in México. *Salud Publica Mex* 2006; 48(2):141-50.
15. Wu Z, Detels R, Ji G, Xu C, Rou K, Ding H, Li V. Diffusion of HIV/AIDS knowledge, positive attitudes, and behaviors through training of health professionals in China. *AIDS Educ Prev* 2002; 14 (5):379-90.
16. Maupome G, Acosta-Gio E, Borges-Yanez SA, Diez-de-Bonilla FJ. Survey on attitudes toward HIV-infected individuals and infection control practices among dentists in Mexico City. *Am J Infect Control* 2000; 28:21-4.
17. Wilson WO. Infection control issue: understanding and addressing the prevalence of unsafe injection practices in healthcare. *AANA J* 2008; 76(4):251-3.
18. Hentgen V, Jaureguiberry S, Ramilariosoa A, Andrianantoandro V, Belec M. Knowledge, attitudes and practices of health personnel with regard to HIV/AIDS in Tamatave (Madagascar). *Bull Soc Pathol Exot* 2002; 95:103-8.
19. Kitaura H, Adachi N, Kobayashi K, Yamada T. Knowledge and attitudes of Japanese dental health care workers towards HIV-related disease. *J Dent* 1997; 25(3-4):279-83.
20. Žakula N. Znanje, stavovi i praksa zdravstvenih radnika primarne zdravstvene zaštite u Beogradu u odnosu na HIV infekciju. Univerzitet u Beogradu. Magistarska teza, Beograd, 2003.
21. Reis C, Heisler M, Amowitz LL, Moreland RS, Mafeni JO, Anyamele C, Iacopino V. Discriminatory attitudes and practices by health workers toward patients with HIV/AIDS in Nigeria. *PLoS Med* 2005; 2:e246.
22. Massiah E, Roach TC, Jacobs C, et al. Stigma, discrimination, and HIV/AIDS knowledge among physicians in Barbados. *Rev Panam Salud Publica* 2004; 16:295-401.
23. Hossini CH, Tripodi D, Rahhali AE, et al. Knowledge and attitudes of health care professionals with respect to AIDS and risk of occupational transmission of HIV in 2 Moroccan hospitals. *Sante* 2000; 10:315-21.
24. Aisien AO, Shobowale MO. Health care workers knowledge on HIV and AIDS: universal precautions and attitude towards PLWHA in Benin-City, Nigeria. *Niger J Clin Pract* 2005; 8:74-82.
25. Li L, Rotheram-Borus MJ, Lu Y, Wu Z, Lin C, Guan J. Mass media and HIV/AIDS in China. *J Health Commun* 2009; 14(5):424-38.
26. Kocić B, Petrović B, Bogdanović D, Jovanović J, Nikić D, Nikolić M. Professional risk, knowledge, attitudes and practice of health care personnel in Serbia with regard to HIV and AIDS. *Cent Eur J Public Health* 2008; 16(3):134-7.
27. Žakula N. Zdravstveni radnici i HIV infekcija. Beograd: Gradski zavod za zaštitu zdravlja Beograd, 2004: 43-4.
28. Burruano L, Kruglov Y. HIV/AIDS epidemic in Eastern Europe: recent developments in the Russian Federation and Ukraine among women. *Gend Med* 2009; 6(1):277-89.
29. U.S. Public Health Service. Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis. *MMWR Recomm Rep* 2001; 50(RR-11):1-52.
30. Pita-Fernández S, Rodríguez-Vázquez B, Pertega - Diaz S. Attitudes of nursing and auxiliary hospital staff toward HIV infection and AIDS in Spain. *J Assoc Nurses AIDS Care* 2004; 15(3):62-9.
31. Sadob AE, Fawole AO, Sadoh WE, Oladimeji AO, Sotiloye OS. Attitude of health-care workers to HIV/AIDS. *Afr J Reprod Health* 2006; 10(1):39-46.
32. Hesse A, Adu-Aryee N, Entsua-Mensah K, Wu L. Knowledge, attitude and practice universal basic precautions by medical personnel in a teaching hospital. *Ghana Med J* 2006; 40(2):61-4.
33. Wu Z, Detels R, Ji G, Xu C, Rou K, Ding H, Li V. Diffusion of HIV/AIDS knowledge, positive attitudes and behaviours through training of health professionals in China. *AIDS Educ Prev* 2002; 14:379-90.
34. UNAIDS/WHO: Health system personnel and training, summary booklet of best practices. 2003. [www.unaids.org/bestpractice/summary/hsp/](http://www.unaids.org/bestpractice/summary/hsp/)

## PROCENA ZNANJA ZDRAVSTVENIH RADNIKA PRIMARNE ZDRAVSTVENE ZAŠTITE U OPŠTINI RAŽANJ U VEZI SA HIV INFEKCIJOM

*Irena Mihajlović, Biljana Kocić i Tatjana Cagulović*

Od kada je prvi put prepoznat pa do danas, AIDS je dostigao pandemijske razmere i postao veliki socijalno-medicinski problem.

Cilj ovog rada bio je utvrđivanje znanja zdravstvenih radnika primarne zdravstvene zaštite u opštini Ražanj iz oblasti HIV infekcije.

Istraživanje je obuhvatilo 74 zdravstvena radnika zaposlena u Domu zdravlja Ražanj. Učesnici ispitivanja bili su zdravstveni radnici svih profila. Prikupljanje podataka obavljeno je posebno konstruisanim anketnim upitnikom.

Odličan odziv zdravstvenih radnika (100%) u sprovedenom istraživanju ukazuje na zainteresovanost za problematiku iz oblasti HIV-a i AIDS-a. Ispitivanje pokazuje da svaki drugi ispitanik u svakodnevnom radu dolazi u direktni kontakt sa krvlju i drugim telesnim tečnostima bolesnika ali i da postoji insuficijentno znanje u različitim aspektima HIV infekcije. Svega tri petine zdravstvenih radnika ima srednji nivo znanja. Samoprocena sopstvenog znanja potvrđuje da su ispitanici svesni toga da imaju nedovoljno znanja iz ove oblasti (srednja ocena:  $3,14 \pm 0,85$ ). Visok procenat (85,1%) zdravstvenih radnika nikada nije imalo edukaciju iz oblasti HIV-a i AIDS-a.

Zaključuje se da je znanje zdravstvenih radnika u DZ Ražanj nedovoljno u različitim aspektima HIV infekcije, kao i da nedostaje edukacija iz oblasti HIV/AIDS problematike. *Acta Medica Medianae 2009;48(4):32-39.*

**Ključne reči:** znanje, zdravstveni radnici, HIV infekcija