

Evaluation of knowledge and practice of hairdressers in men's beauty salons in Isfahan about hepatitis B, hepatitis C, and AIDS in 2010 and 2011

Behrooz Ataei, Kiana Shirani¹

Infectious Diseases and Tropical Medicine Research Center, ¹Department of Infectious and Tropical Medicine, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran.

Abstract

Background: Blood-borne viruses such as hepatitis B, hepatitis C, and human immunodeficiency virus (HIV) have infected millions of people worldwide. During haircut or shaving, barbers may accidentally expose to their clients' blood, transmit their own infection to them, or transmit the infection from one client to another. So the knowledge of barbers toward topics related to AIDS, hepatitis B, and C are of great importance.

Materials and Methods: This cross-sectional descriptive study was performed in 2010–2011 in men's beauty salons in Isfahan town. A multistage sampling was performed. The knowledge assessment questionnaire and the checklist of practice regarding hepatitis B, C, and AIDS were completed by trained interviewers.

Results: In our study, 240 hairdressers participated. There was a statistically significant relationship between the education level and knowledge score of the hairdressers ($P = 0.048$). We found a statistically significant relationship between the knowledge level and the working history of hairdressers according to the Pearson's correlation coefficient ($P = 0.02$). The results show significant relationship between the education level and the practice scores ($P = 0.005$). Also the working history of hairdressers and their practice score had a significant relationship ($P = 0.005$). The results did not show significant relationship between the age of the hairdressers and the practice scores ($P = 0.12$).

Conclusions: We obtained promising results about the knowledge and practice levels of the staff of men's beauty shop in Isfahan about AIDS, hepatitis B, and C. However, but because of the important role of barbers in virus transmission, we should provide the best program for control, evaluation, continuous teaching programs.

Key Words: Acquired immunodeficiency syndrome, barber, hairdresser, hepatitis B virus, hepatitis C virus, human immunodeficiency virus, knowledge, practice

Address for correspondence:

Dr. Kiana Shirani, 3, Baghe Jennat St., Shams Abadi Ave, Isfahan, Iran. E-mail: kianashirani@yahoo.com

Received: 12.02.2012, Accepted: 03.06.2012

Access this article online

Quick Response Code:



Website:

www.advbiores.net

DOI:

10.4103/2277-9175.102981

INTRODUCTION

At least seven types of viruses can lead to viral hepatitis. Acquired immunodeficiency syndrome (AIDS) appears in people that their humoral and cellular immune system is infected with HIV. Blood-borne viruses such as hepatitis B, hepatitis C, and human immunodeficiency virus (HIV) have some

Copyright: © 2012 Ataei. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

How to cite this article: Ataei B, Shirani K. Evaluation of knowledge and practice of hairdressers in men's beauty salons in Isfahan about hepatitis B, hepatitis C, and AIDS in 2010 and 2011. Adv Biomed Res 2012;1:75.

common epidemiological characteristics, and have infected millions of people throughout the world.^[1] The prevalence of these diseases in beauty salons and barbershops in countries such as Ethiopia, Pakistan, and Bangladesh has been reported to be 34%–49%.^[2,3] The prevalence of hepatitis B is higher in Asia, Africa, South America, Middle East, Pacific Islands, and East Europe; such that the rate in Sub-Saharan and Southeast Asian countries and Alaska is high (8%–20%) and the rate is in the medium level in Mediterranean countries, Japan, Central Asia, Middle East, and South America. Moreover, the prevalence rate is low (1%–2%) in the USA, Canada, West Europe, Australia, and New Zealand. The Center for Disease Control and Prevention (CDC) estimates that almost 1.25 million people are infected with hepatitis B, and approximately 5% of the world populations are carriers of hepatitis B. Annually, 5000–6000 death occurs due to chronic hepatitis B. The prevalence rate of carriers of hepatitis B in different parts of Iran has been reported to be 0%–3.9%, with the average of 1.7%. Most patients with acute hepatitis B completely cure within 4–6 weeks, and only a small number of the cases (almost 1 per 300 cases) may end in hepatic failure and death. Moreover, 1/20 of the cases progress into chronic hepatitis. In general, the major complications of chronic hepatitis B are cirrhosis and hepatic cancer.^[4–6]

With regard to hepatitis C, the World Health Organization (WHO) estimates that 170 million individuals around the world are chronically infected by hepatitis C virus (HCV) and almost 3–4 million new cases of the infection occur annually. In Iran, it seems that prevalence of the infection in general population is less than 1%. In approximately 80% of acute hepatitis C patients, the infection develop into chronic hepatitis C, among which 10%–20% leads to cirrhosis and 1%–1.5% of them end in hepatic cancer within 20–30 years.^[7,8]

Currently, hepatitis C is the major cause of post-transfusion hepatitis. HCV is a main reason for hepatitis in IV drug abusers. Moreover, the virus is responsible for at least 50% of the cases of community acquired sporadic hepatitis, and in many cases the route of virus transmission is unknown.^[9,10] The risk of transmitting HIV is high in the barbershops in some area, for instance Nigeria.^[11] So far, appropriate treatments for these infections have not been introduced, and clinical presentations of acute hepatitis B and C cannot be differentiated. Furthermore, more than 50% of the infections are subclinical, and are not usually reported. HIV infected individuals also may remain asymptomatic for years. Thus, patients with

acute hepatitis or HIV infection may not be aware of the infection, and cause transmission of the infection to others. However the prevalence of HBsAg positive and anti-HCV are similar to general population,^[12,13] these infections are transmitted through body fluids such as saliva, urine, sweat, semen, and vaginal secretions, as well as blood and blood products.^[14] It appears that poor occupational factors in barbers' salons bring about health problems of the hairdressers.^[15]

During haircut, shave, or pedicure, barbers may accidentally expose to their clients' blood,^[16] transmit their own infection to them, or transmit the infection from one client to another. Also there are some unsafe practices that may lead to infections due to blood-borne viruses.^[17]

Beauty salons and barbershops are considered permanent public spaces for youths (at least once a month), and in the space, the young generation exchange information, and communicate with their peers outside the educational environment (schools and universities). Therefore, the knowledge and awareness of barbers and hairdressers toward topics related to AIDS, and hepatitis B and C are of great importance. It highlights the need to improve specific health messages in media campaigns carried out to general population, diffusing more appropriate educational materials for salons and organizing obligatory refresher courses for the hairdressing sector.^[12] In contrast, they can lead to expansion of misconception and incorrect beliefs about the diseases. Furthermore, negligence in using beauty instruments for shaving can make these tools important factors in transmission of the infection from one client to another. Thus, if not following the health measures, the beauty salon staff has a potential role in expansion of infections such as AIDS, and hepatitis B and C. Considering this and also as no study has been performed in Isfahan on evaluation of knowledge and practice of the staff of men's beauty salons about AIDS, and hepatitis B and C, the current study was performed. In the study, we evaluated the knowledge and practice of staff of men's beauty salons in Isfahan about the disease. The results would be helpful in determination of the knowledge and practice levels of the staff, according to the working history and education level. A pattern for educational intervention can then be prepared for the staff. This would decrease the risk of transmission and expansion of the three infections in the staff and in the general population. This study was performed to evaluate the knowledge level and practice of the men's beauty salon staff in Isfahan about hepatitis B and C, and AIDS in 2010–2011.

MATERIALS AND METHODS

This cross-sectional descriptive study was performed in 2010–2011 in men's beauty salons in Isfahan town, which were registered in the hairdressers' syndicate and were willing to participate in the study. Those who were not willing to attend the study were excluded.

A multistage sampling was performed and 240 male hairdressers were selected. To select the participants, the names and addresses of men's beauty salons in Isfahan were taken from the syndicate, and proportionate to the number of salons, some salons were selected using the computer-based random number table. Finally, 240 hairdressers were included in the study.

The knowledge assessment questionnaire and the checklist of practice regarding hepatitis B and C, and AIDS were completed by trained interviewers. The questionnaire included items on the transmission routes, prevention, vaccination, and treatment of the infections. The test-retest reliability of the questionnaire was determined to be 0.83 in a pilot study on 30 participants.

The knowledge scores were determined in a 0–20 scale, and then ranked as follows: desirable knowledge level (score 16–20), intermediate knowledge level (score 11–15), weak knowledge level (score 6–10), and very weak knowledge level (score 0–5).

The practice score was determined in a 0–10 scale and then ranked as follows: very desirable practice level (score 9–10), desirable practice level (score 7–8), intermediate practice level (score 5–6), inappropriate practice level (score 3–4), and very inappropriate practice level (score 0–2).

The data were collected in the salons by completing the checklist and the questionnaire. Then, the data were analyzed using SPSS software, version 18.

RESULTS

In the study, 240 hairdressers participated. The mean working history of the participants was $2/9 \pm 4/10$ years, with the maximum and minimum values of 45 years and one year, respectively. With regard to their education level, 35.9%, 53.3%, and 10.8% hairdressers had the education level below high school diploma, high school diploma, and academic, respectively.

The mean knowledge score obtained by the participants was 15.7 ± 3 (in the 0–20 scale), with the minimum and maximum of 6 and 20, respectively. In this respect, 156 (65%), 66 (27.5%), and 18 (7.5%) hairdressers had desirable, intermediate, and weak knowledge level [Figure 1]. Table 1 shows frequency distribution of knowledge level of hairdressers about AIDS and hepatitis B and C with regard to their age. The mean knowledge level about AIDS, and hepatitis B and C with regard to the education level of the participants is provided in Table 2. According to the

Table 1: Frequency distribution of knowledge level of hairdressers about AIDS and hepatitis B and C with regard to their age

Age group	Knowledge level							
	Desirable		Intermediate		Weak		Total	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Below 25	54	34.6	21	31.8	2	11.1	77	32.1
25–34	63	40.4	32	48.5	5	27.8	100	41.7
35–44	32	20.5	5	7.6	5	25.8	42	17.5
45 and above	7	4.5	8	12.1	6	33.3	21	8.8
Total	156	100	66	100	18	100	240	100

$P < 0.001$

Table 2: Frequency distribution of knowledge level of hairdressers about AIDS and hepatitis B and C with regard to their education level

Education level	Knowledge level							
	Desirable		Intermediate		Weak		Total	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Illiterate	0	0	5	100	0	0	5	100
Primary school	5	41.7	3	25	4	33.3	12	100
Guidance school	45	65.2	17	24.6	7	10.1	69	100
High school	82	64.1	39	30.5	7	5.5	128	100
Academic	24	92.3	2	7.7	0	0	26	100
Total	156	65	66	27.5	18	7.5	240	100

$P < 0.001$

one-way ANOVA results, there was a statistically significant relationship between the education level and knowledge score of the hairdressers ($P = 0.048$).

We found a statistically significant relationship between the knowledge level and the working history of hairdressers according to the Pearson's correlation coefficient ($P = 0.02$). It is provided in Table 3.

The mean score obtained by the participants about AIDS, hepatitis B and C were $2/1 \pm 7/18$, 18.9 ± 1.3 and 18.2 ± 1.1 , respectively [Figure 2].

The mean score obtained by the participants in the practice was 16.6 ± 1.7 , with the minimum and maximum scores of 12 and 20, respectively. According to the results, the practice of none of the participants lied within the very desirable level. Moreover, the practice of 73 (30.41%), 135 (56.25%), and 32 (13.3%) hairdressers were desirable, intermediate, inappropriate, respectively [Figure 3]. In Table 4, the mean and standard deviation of practice scores obtained by the hairdressers according to their education level is provided. The results show significant relationship between the education level and the practice scores ($P = 0.005$). Furthermore, the working history of hairdressers and their practice score did not have a significant relationship ($P = 0.77$). The results did not show significant relationship between the age of the hairdressers and the practice scores ($P = 0.12$). The response rate was under 20%.

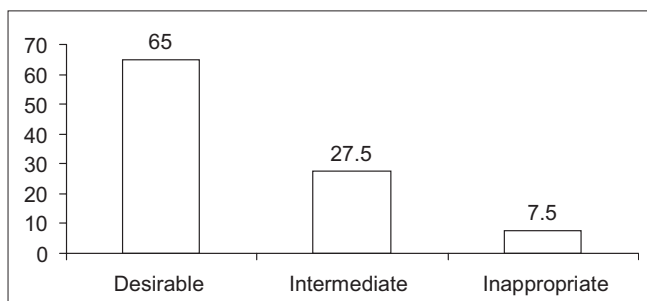


Figure 1: Percentage frequency of knowledge level of the participants about AIDS and hepatitis B and C

DISCUSSION

The general aim of this study was to evaluate the knowledge and practice levels of staff of men's beauty salons in Isfahan about the transmission routes and prevention of AIDS, and hepatitis B and C in 2010–2011. Moreover, we analyzed the relationship between the knowledge and practice levels on the one hand, with the working history, education level, on the other hand. Although hairdressers comprise a small portion of the Isfahan citizens, they belong to the young and dynamic class of the community. Therefore, they are considered as one of the most important group with regard to their knowledge and practice about communicable diseases. The mean working history of the participants was 10.4 ± 9.2 years. If we consider the minimum working history required for retirement in Iran as 25 years, it is necessary to improve the knowledge and practice levels of the target population about these three diseases.

With respect to the education level, 35.9%, 53.3%, and 10.8% had below high school diploma, high school diploma, and academic education level, respectively. Since in Iran, high school diploma is considered as the end of nonacademic education, it seems that the participants were in a good education level.

The mean score obtained on knowledge about the

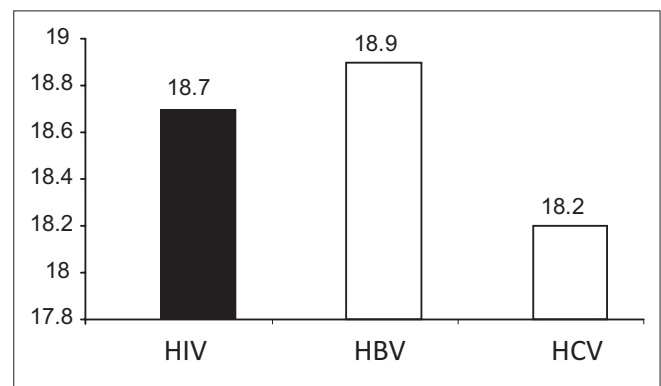


Figure 2: Comparison of mean of the scores obtained for the three diseases studied

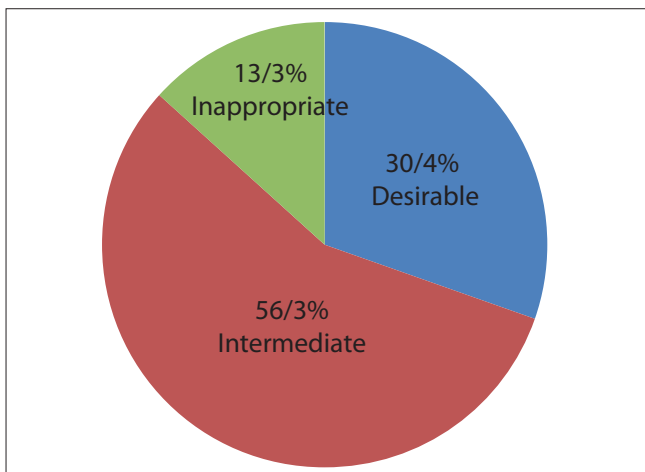
Table 3: Frequency distribution of knowledge level of hairdressers about AIDS and hepatitis B and C with regard to their working history

Working history	Knowledge level						Total	
	Desirable		Intermediate		Weak			
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Less than 5 years	62	75.6	20	24.4	0	0	82	100
5–9 years	26	46.4	24	42.9	6	10.7	56	100
10–14 years	34	68	12	24	4	8	50	100
More than 14 years	34	65.4	10	19.2	5	15.4	52	100
Total	156	65	66	27.5	18	7.5	240	100

$P = 0.02$

Table 4: Frequency distribution of items of practice in hairdressers evaluated

	Yes		No	
	Number	(%)	Number	(%)
Having alcohol burner in the beauty salon	222	92.5	18	7.5
Using alcohol burner for disinfection of the tools	73	30.4	167	69.6
Using alcohol for disinfection of the tools	194	80.8	46	19.2
Do all clients have their personal cosmetic suit?	25	10.4	215	89.6
Using single-used razor for each client	237	98.8	3	1.3
Using fresh towel or tissue for each client	144	60	96	40
Caution of the beautician not to harm the clients' skin	204	85	36	15
Does the hairdresser clean up and disinfect the tools after each use?	119	49.6	121	50.4
Is there any risk for the hairdresser while removing the razor?	173	72.1	67	27.9
Hairdressers' interest in getting more about the three mentioned disease	215	89.6	25	10.4

**Figure 3:** Percentage frequency of practice level of the hairdressers about the three diseases studied

three diseases was 15.7 ± 3 . Thus, the target group had an intermediate level of knowledge about the diseases, which was not unexpected with regard to education level, working history, and particularly the type of their job. In a study carried out in 2005 on 240 soldiers who entered a military training center in southeast of Iran for passing preliminary military trainings, it was reported that the mean knowledge level of the soldiers was intermediate.^[17] Also in a study that was done by Amodio and his colleagues in Italy, the level of awareness among hairdressers about HIV, hepatitis and risk of transmission was good.^[12] In contrast in Turkey, hairdressers'

knowledge of HBV, HCV, and health hazards associated with their profession was inadequate in study of Kose *et al.*^[18]

In another study carried out in Vietnam in 2005 on the knowledge level of people about hepatitis B, among 345 men, only 46% knew that the virus is not transmitted through foods.^[19] In our study, from among 240 hairdressers studied, only 47.5% knew that common eating tools and food are not the transmission routes of HIV. Therefore, it can be concluded that the knowledge level in our country is almost similar to that in Vietnam in this regard.

In a study carried out in Isfahan high schools to determine the knowledge level of students about AIDS and its prevention methods, the knowledge level of high school students was intermediate.^[20] If we suppose that the future hairdressers of the city came from these students, the future hairdressers had the same knowledge level. So, we must carry out programs to improve their knowledge.

In a study fulfilled in Kerman about HIV in 2004–2005, the knowledge and attitude of 164 male and female hairdressers of the city toward HIV and AIDS were evaluated. The mean knowledge score of the hairdressers was determined to be 11.1 ± 2.9 .^[21] Their mean working history was 11.7 ± 9.7 years and 47.6% of the participants had high school diploma. Moreover, according to the responses of the hairdressers, 84.1% of people had their personal shaving and hairdressing tools. The rate in our study was 10.4%. In the study mentioned above, 66.8% of the participants considered using razors in the barbershops as the most important way of AIDS transmission. The rate in our study was obtained to be 97.1%. Moreover, they reported that the hairdressers' knowledge level was intermediate, which was not desirable. In the study performed in Yazd on 140 hairdressers, 24% of the target group (hairdressers) and 19% of the control group (the clients) had good level of knowledge about hepatitis B in the pretest.^[22]

In recent years, the interest in getting knowledge about AIDS and other infectious disease have increased, and people are eager to get more appropriate information about the diseases. Since hepatitis B and C, and AIDS are considered as more critical diseases, the population is more willing to learn more about them, and this is the responsibility of the health system and mass media to promote the population's knowledge level.

CONCLUSION

We obtained promising results about the knowledge

and practice levels of the staff of men's beauty salon in Isfahan about AIDS, and hepatitis B and C. However, the results should be carefully analyzed. Presence of confounding variables such as unnatural behaviors of the hairdressers due to the presence of the raters, the high number of unregistered hairdressers working in men's beauty salons of Isfahan, and the high number of hairdressers who were not willing to attend the study without mentioning any particular reason are the items which should be considered in interpretation of the results. However, in spite of all the limitations and confounding factors, we are optimistic about the findings, but because the important role of barbers in virus transmission, we should provide the best program for control, evaluation, continuous teaching programs, and prepare more appropriate educational materials for salons and organizing obligatory refresher courses for the hairdressing sector. Although the level of awareness among hairdressers about HIV, hepatitis and risk of transmission was good, there were some unsafe practices that may lead to infections due to blood-borne viruses. The present article highlights the need to improve specific health messages in media campaigns carried out to general population.

REFERENCES

1. Kane M. Unsafe injections. *Bull World Health Organ* 1998;76:99-100.
2. Bari A, Akhtar S, Rahbar MH, Luby SP. Risk factors for hepatitis C virus infection in male adults in Rawalpindi-Islamabad, Pakistan. *Trop Med Int Health* 2001;6:732-8.
3. Kefenie H, Desta B, Mengesha S, Zewide D, Kebede T. Prevalence of HIV-1 antibodies patients with sexually transmitted disease. *Ethiop Med* 1991;29:63-9.
4. Merat S, Malekzadeh R, Rezvan H, Khatibian M. Hepatitis B in Iran (Review). *Arch Iran Med* 2000; 3: 192-201.
5. UROTODAY. Hepatitis B. Available from: http://www.urotoday.com/browse-categories/hepatitis_b/1220. [Last accessed on 2006 Apr 13].
6. Khaliq AA, Smego RA. Barber shaving and blood-borne disease transmission in developing countries. *S Afr Med J* 2005;95:94,96.
7. Alavian M, Adibi P, Zali M. Hepatitis C virus in Iran: Epidemiology of an emerging infection. *Arch Iran Med* 2005;8:84-90.
8. World Health Organization. Weekly Epidemiological Record N 49. Available from: http://www.who.int/mediacentre/factsheets/fs_164. [Last accessed on 1999 Dec 10].
9. Chakravarti A, Verma V, Jain M, Kar P. Characteristics of dual infection of hepatitis B, C among patients with chronic liver disease: A study from tertiary care hospital. *Trop Gastroenterol* 2005;26:183-7.
10. Aguilera Guriao A, Romero Y, Reguerio BJ. Epidemiology and clinical manifestations of viral hepatitis. *Enferm Infecc Microbiol Clin* 2006;24:264-76.
11. Arulogun OS, Adesoro MO. Potential risk of HIV transmission in barbering practice among professional barbers in Ibadan, Nigeria. *Afr Health Sci* 2009;9:19-25.
12. Amodio E, Di Benedetto MA, Gennaro L, Maida CM, Romano N. Knowledge, attitudes and risk of HIV, HBV and HCV infections in hairdressers of Palermo city (south Italy). *Eur J Public Health* 2010;20:433-7.
13. Zahraoui-Mehadji M, Baakrim MZ, Laraqui S, Laraqui O, El Kabouss Y, Verger C, *et al*. Infectious risks associated with blood exposure for traditional barbers and their customers in Morocco. *Sante* 2004;14:211-6.
14. Koziel MJ, Siddi Qui A. Hepatitis B virus and hepatitis D virus. In: Mandell GL, Bennett JE, Dolin R, editors. *Principles and practice of infectious disease*, 6th ed. New York: Churchill, Livingstone; 2005. p. 1864,1431,1433.
15. Mandiracioglu A, Kose S, Gozaydin A, Turken M, Kuzucu L. Occupational health risks of barbers and coiffeurs in Izmir. *Indian J Occup Environ Med* 2009;13:92-6.
16. Nakuno I, Imato M, Fu Kuda Y. Hepatitis C virus RNA in urine, saliva, and sweat. *Am J Gastroenterol* 1992;87:1522.
17. Kose S, Mandiracioglu A, Oral AM, Emek M, Gozaydin A, Kuzucu L, *et al*. Seroprevalence of hepatitis B and C viruses: Awareness and safe practices of hairdressers in Izmir: A survey. *Int J Occup Med Environ Health* 2011;24:275-82.
18. Mazloomi M, Mohammadpour MA, Ehrampoush M. The survey of knowledge and attitude of a training unit soldiers about HIV/AIDS in a central district of Iran. *J Mil Med* 2005;7:101-7.
19. UNICEF, Islamic Republic of Iran, HIV/AIDS in Iran. Available from: <http://www.unicef.org/iran/media>. [Last cited in 2006].
20. Ataei B. The assessment of knowledge about AIDS and its prevention on Isfahan high school students. 17th European Congress of Clinical Microbiology and Infectious Diseases, MUnchen, 2007. <http://idrc.mui.ac.ir>.
21. Evaluation of knowledge of Kerman citizens about HIV. Research project, Kerman University of Medical Science; 2004. <http://www.hivhub.ir/en/cv/haghdoost>
22. Baghiani M, Mazloomi S, Ehrampoush M. The effect of health education in promoting health of hairdressers about hepatitis B based on health belief model: A field trial in Yazd, Iran. *Acta Med Iran*. 2005;43:342-6.

Source of Support: Nil, **Conflict of Interest:** None declared.