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Opinion

# Knowledge and attitudes of pharmacy students towards human immunodeficiency virus (HIV)

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## Abstract

Knowledge about human immunodeficiency virus (HIV) can impact attitude towards patients with HIV by health care providers and the level of confidence the provider has in their ability to care for patients with HIV. A survey of general knowledge of HIV and feelings about providing care to patients with HIV was administered to pharmacy students at the McWhorter School of Pharmacy (MSOP) at Samford University. The survey was re-administered to the third-year students after the HIV lecture series in their Therapeutics course. There were misconceptions among students regarding routes of transmission of HIV. Those students who had these misconceptions also thought that patients with HIV should be treated separately from others. MOP students also report a lack of confidence in treating HIV patients and worried that they would contract the virus from a patient. Third-year students reported they had a better ability to provide care to a patient with HIV after their lecture series. Even among pharmacy students, there is some lack of knowledge and misconceptions about HIV. Further education is warranted to develop knowledge and change attitudes.

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Human immunodeficiency virus (HIV) causes acquired immunodeficiency syndrome (AIDS) and is characterized by profound immunosuppression, leading to opportunistic infections and associated complications.<sup>1</sup> Since AIDS was first recognized by the medical community in 1981, researchers and clinicians have been diligently working on new or improved pharmacological therapies and ways to reduce transmission rates of HIV.<sup>2</sup> From 1984 to 2006, the transmission rate of HIV in the United States has significantly declined by approximately 89% (from 44 transmissions per 100 people to five transmissions per 100 people). During this same time, the annual number of new HIV infections has also decreased from 130,000 new

infections per year to roughly 56,300. In addition, transmission of HIV from mother to child has decreased from 1000 to 2000 per year in the early 1990s to 138 per year in 2004. Between 1988 and 2006, HIV infections among injection drug users have declined by approximately 80%. This dramatic decline in incidence is likely due to increased knowledge of the disease and how it is transmitted, both by those living with HIV and those who care for HIV-infected patients. The CDC acknowledges that health care professionals are responsible for ensuring people have the information, motivation, and skills necessary to reduce their risk of either acquiring or transmitting HIV.

Previous studies have shown that a lack of knowledge of HIV in health care professionals may lead to lack of confidence in treating this patient population, and therefore, somewhat of an unwillingness to treat.<sup>3,4</sup> A lack of knowledge about HIV has also been associated with negative attitudes towards the treatment of those infected. We wanted

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Table 1  
Demographics of respondents [number (%)]<sup>a</sup>

	First-year students (n = 44)	Second-year students (n = 27)	Third-year students (n = 66)	Fourth-year students (n = 64)
Age				
<22	14 (31.8)	1 (3.7)	0	2 (3.1)
22–28	26 (59.1)	23 (85.2)	59 (89.4)	57 (89.1)
29–35	3 (6.8)	3 (11.1)	4 (6.1)	5 (7.8)
≥35	0	0	2 (3)	0
Gender				
Male	9 (20.5)	8 (29.6)	20 (30.3)	15 (23.4)
Female	35 (79.5)	18 (66.7)	46 (69.7)	48 (75)

<sup>a</sup> Some surveys not answered completely, so percentages may not total 100%.

to determine students' knowledge and attitudes about HIV and their willingness to treat patients with HIV infection. We surveyed students in all four years of the McWhorter School of Pharmacy (MSOP) curriculum at Samford University using a 17-question online survey. Survey questions included their general knowledge of the virus, thoughts and attitudes towards treating patients with HIV, and were similar to those asked in other published studies.<sup>3–5</sup> Third-year students were re-assessed following a five-day HIV/AIDS Therapeutics lecture series that is part of the required pharmacy curriculum to further evaluate whether a better understanding of the disease state changes attitudes, risk perception, or willingness and confidence to treat. We had an overall response rate of 40.6% with the initial survey and a 31.5% response rate from the third-year students after their HIV/AIDS lecture series. Demographic information by class is presented in Table 1.

Results for questions about knowledge of HIV and attitudes towards HIV are presented in Tables 2 and 3, respectively. The results for third-year students' knowledge of HIV and attitudes towards HIV before and after the lecture series are presented in Tables 4 and 5, respectively.

We found that students who believed that HIV can be transmitted through feces, urine, or saliva also thought that patients with HIV infection should be treated separately from other patients. These students also reported that they did not feel confident in safely providing patient care to those infected with HIV and worried that they will contract HIV from an infected patient. Students who did not believe that patients infected with HIV look unhealthy also did not feel that patients with HIV infection should be treated separately.

Previous studies have linked a lack of knowledge of HIV among health care professionals to an unwillingness to treat these patients. Although we did not find an unwillingness to treat in MSOP students, it did uncover some areas where pharmacy students were less knowledgeable. Specifically, 41.3% of students surveyed believed that HIV can be transmitted through feces, urine,

Table 2  
Responses to questions pertaining to knowledge about human immunodeficiency virus (HIV) [number (%)]<sup>a</sup>

Survey question	First-year students (n = 44)			Second-year students (n = 27)			Third-year students (n = 66)			Fourth-year students (n = 64)		
	Yes	No	I don't know	Yes	No	I don't know	Yes	No	I don't know	Yes	No	I don't know
Do you know your HIV status?	40 (90.9)	4 (9.1)	0	20 (74.1)	7 (25.9)	0	50 (75.8)	15 (22.7)	0	49 (76.6)	15 (23.4)	0
Can HIV be transmitted from infected mother to child?	<b>41 (93.2)</b>	1 (2.3)	2 (4.5)	<b>25 (92.6)</b>	0	2 (7.4)	<b>63 (95.5)</b>	2 (3)	1 (1.5)	<b>63 (98.4)</b>	0	0
Can HIV be transmitted via air and contact with water?	0	<b>41 (93.2)</b>	3 (6.8)	0	<b>27 (100)</b>	0	0	<b>65 (98.5)</b>	1 (1.5)	0	<b>63 (98.4)</b>	0
Can HIV be transferred through social contacts such as sharing cups/tutensils/shaking hands/kissing?	3 (6.8)	<b>37 (84.1)</b>	3 (6.8)	3 (11.1)	<b>24 (88.9)</b>	0	6 (9.1)	<b>58 (87.9)</b>	1 (1.5)	7 (10.9)	<b>56 (87.5)</b>	0
Can HIV be transmitted through contact with feces, urine, or saliva?	19 (43.2)	<b>20 (45.5)</b>	5 (11.4)	13 (48.1)	<b>13 (48.1)</b>	1 (3.7)	28 (42.4)	<b>30 (45.5)</b>	8 (12.1)	23 (35.9)	<b>36 (56.3)</b>	5 (7.8)
Can HIV be completely cured with antiretroviral therapy?	1 (2.3)	<b>43 (97.7)</b>	0	0	<b>25 (92.6)</b>	2 (7.4)	0	<b>66 (100)</b>	0	0	<b>63 (98.4)</b>	1 (1.6)

Bold values represent correct responses.

<sup>a</sup> Some surveys not answered completely, so percentages may not total 100%.

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