

Emergency Prophylaxis Following Needle-Stick Injuries and Sexual Exposures:

Results from a Survey Comparing New York Emergency Department Practitioners with their National Colleagues

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Abstract

Background: Emergency prophylaxis following needle-stick and sexual exposures includes HIV post-exposure prophylaxis, hepatitis B prophylaxis and emergency contraception. The Centers for Disease Control and Prevention endorse HIV post-exposure and hepatitis B prophylaxis for health care workers, and hepatitis B prophylaxis and emergency contraception after sexual assault. The New York State Department of Health advocates HIV post-exposure prophylaxis after sexual assault. This study compares emergency department practitioners in New York State (NYS) with those from other states in their willingness to offer emergency prophylaxis after needle-stick and sexual exposures, and their self-reported history of prescribing and using HIV post-exposure prophylaxis.

Methods: The authors surveyed emergency department practitioners from across the US at the American College of Emergency Physicians 2000 Scientific Assembly. The questionnaire included clinical scenarios describing different patients who present to the emergency department within one hour of a needle-stick injury, sexual assault or consensual sexual encounter, and had questions on the practitioners' self-reported prescribing and usage of HIV post-exposure prophylaxis. For each scenario the practitioners were asked to indicate if they would offer emergency prophylaxis to different patients at varied HIV risk levels. The data were processed through SPSS 10.0.

Results: Of the 600 respondents, 100 were from NYS. In the clinical scenarios, NYS practitioners were more likely than other US practitioners to offer HIV post-exposure prophylaxis for exposures to unknown and low HIV risk sources ($p < 0.05$) and to offer hepatitis B prophylaxis in most of the sexual exposure scenarios ($p < 0.01$). All practitioners offered HIV post-exposure and hepatitis B prophylaxis less often after consensual sexual encounters than after sexual assault and needle-stick injuries. In most cases, NYS practitioners were more willing to offer emergency contraception after sexual assault and consensual sexual encounters than were other practitioners ($p < 0.05$). In terms of self-reported prescribing of HIV post-exposure prophylaxis, NYS practitioners had prescribed HIV post-exposure prophylaxis after sexual assault ($p < 0.001$) and non-health-care-worker needle-stick injuries ($p < 0.05$) much more often than did other practitioners.

Conclusions: Compared to their national colleagues, NYS emergency department practitioners were generally more willing to offer all forms of emergency prophylaxis after sexual assault. They also reported having had more experience than other practitioners in prescribing HIV post-exposure prophylaxis. Although most practitioners were clearly willing to offer HIV post-exposure prophylaxis for nonoccupational exposures, NYS practitioners were less willing to offer emergency prophylaxis following consensual sex than after sexual assault. These findings suggest that the NYS guidelines for HIV post-exposure prophylaxis after sexual assault may have influenced emergency practitioners' willingness to offer and prescribe prophylaxis.

Key Words: HIV post-exposure prophylaxis, hepatitis B prophylaxis, emergency contraception, post-exposure prophylaxis, sexual assault, needle-stick injuries.

Introduction

EMERGENCY PROPHYLAXIS following needle-stick injuries and sexual exposures includes HIV post-exposure prophylaxis (HIV PEP), he-

patitis B prophylaxis, and emergency contraception. These procedures are recommended by various authorities under certain conditions.

There are two types of HIV PEP: occupational and nonoccupational. Occupational HIV PEP is given to health care workers who have possibly been exposed to HIV while on the job; nonoccupational HIV PEP is for all other patients who have possibly been exposed to HIV due to needle-stick injuries, drug injections, sexual assault or consensual sex. The Centers for Disease Control and Prevention (CDC) first established guidelines on occupational HIV PEP in 1996; these were updated in 2001 (1). However, the CDC has not issued guidelines for nonoccupational HIV PEP. In 1998, New York became the first state to issue guidelines for

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HIV PEP following adult and adolescent sexual assault, and was the only state with such guidelines at the time of this survey (2). The impact of these guidelines on medical practice in New York has not been studied.

The CDC endorses the use of hepatitis B prophylaxis for non-immune, uninfected patients who have had possible needle-stick or sexual exposures to hepatitis B (1, 3), and recommends emergency prophylaxis following sexual assault. The American College of Obstetricians and Gynecologists encourages the use of emergency contraception to prevent unwanted pregnancy after sexual assault and consensual sex (4). The American College of Emergency Physicians recommends its use after sexual assault (5).

Emergency departments (EDs) are locations where emergency prophylaxis is likely to be considered, given the immediate need for evaluation and treatment of patients who sustained needle-stick and sexual exposures. Through a national survey, we compared both New York State (NYS) and national ED practitioners' willingness to offer emergency prophylaxis, as well as their self-reported experience with prescribing and using HIV PEP. The survey was designed to determine if, as a result of NYS HIV PEP guidelines for sexual assault, NYS practitioners were more likely to prescribe all forms of emergency prophylaxis.

Materials and Methods

The authors created an anonymous, voluntary, written questionnaire regarding emergency prophylaxis, for use at a national emergency medicine conference of ED practitioners. The questionnaire was initially tested on a small cohort of practitioners at The Mount Sinai Hospital. The questionnaire included: (a) practitioner demographic questions; (b) clinical scenarios describing seven different patients who present to the ED within one hour of a needle-stick injury, sexual assault, or consensual sexual encounter; and (c) questions on the practitioners' self-reported prescribing and use of HIV PEP for themselves. (The Mount Sinai School of Medicine Institutional Review Board had approved the study.)

For each clinical scenario, the practitioners were asked to indicate if they would offer emergency prophylaxis (HIV PEP, hepatitis B prophylaxis, and emergency contraception) to different patients (health care worker or non-health-care worker adult or child) after specific expo-

sure (needle stick, sexual assault or consensual sex) and varied HIV risk levels (unknown, HIV infected, high HIV risk factors — defined as injecting drug use, male-male sex, prostitution — or low HIV risk factors). In order to mimic the information typically known on initial ED presentation, the questionnaire specified that no further information was available (i.e., the source could not be tested or queried). The questionnaire also stated that each exposure was significant (e.g., bloody needle-stick or unprotected sexual intercourse) and each patient was an ideal prophylaxis candidate (not pregnant, not HIV infected, and not hepatitis B immune or infected). Patient presentation within one hour was specified for all exposures, so that prophylaxis decisions would not be made regarding time elapsed from exposure to ED presentation.

The full survey was conducted at the American College of Emergency Physicians 2000 Scientific Assembly in Philadelphia, Pennsylvania. More than 4,000 health care practitioners attended the meeting. All ED practitioners who could prescribe medications (physicians, nurse practitioners, and physician assistants) and who visited the survey booth in the exhibition hall were asked to complete a questionnaire. ED practitioners were offered the chance to enter a \$100 gift certificate lottery if they completed a questionnaire. One of the authors was available to answer or clarify questions.

The data were abstracted from the questionnaires and entered into SPSS 10.0 (SPSS Corporation, Chicago, IL, 1999). Only surveys which were more than 90% complete were used. The statistical analyses in SPSS 10.0 included generation of point estimates of proportions and comparisons of proportions between NYS and national ED practitioners, using the Pearson's Chi square test.

Results

There were 600 respondents. An additional 15 surveys were not used because of marking errors and incomplete responses. One hundred of the respondents were from NYS: 63% male, 37% female (vs. 71% and 29%, respectively, nationally); 32% academic attending, 17% community, and 41% resident physicians (vs. 33% nationally); and 11% nurse practitioners and physician assistants. Of the academic and community physicians, 54% were board certified or eligible in emergency medicine.

Table 1 summarizes practitioner responses to the clinical scenarios. Table 2 displays the

TABLE 1
Comparison of the Use of Emergency Prophylaxis by NYS ED and Those from Other States

Needle-Stick Injuries							
Summary of 600 responses to survey question: "A (health care worker, adult, or 5-year-old child) is stuck by a bloody needle from (an unknown source, an HIV-positive source, a source with high-HIV-risk factors, or a source with low-HIV-risk factors). Indicate the kind of prophylaxis you would offer, if any."							
	HIV Risk of the Exposure Source	NYS ED Practitioners Offering HIV PEP (n=100)	Other US ED Practitioners Offering HIV PEP (n=500)	p-value	NYS ED Practitioners Offering Hepatitis B Prophylaxis (n=100)	Other US ED Practitioners Offering Hepatitis B Prophylaxis (n=500)	p-value
Health Care Worker	unknown	89%	68%	0.007	94%	87%	0.052
	HIV infected	96%	98%	0.170	94%	86%	0.030
	high risk	96%	95%	0.670	93%	87%	0.092
	low risk	59%	38%	0.001	82%	67%	0.003
Non-Health Care Adult	unknown	87%	76%	0.017	92%	99%	0.241
	HIV infected	96%	97%	0.437	94%	91%	0.331
	high risk	97%	94%	0.257	95%	89%	0.055
	low risk	51%	38%	0.014	81%	67%	0.006
5-year-old	unknown	83%	73%	0.041	90%	84%	0.157
	HIV infected	93%	95%	0.377	91%	86%	0.215
	high risk	92%	92%	0.869	92%	86%	0.093
	low risk	52%	35%	0.002	78%	63%	0.006

Sexual Assault

Summary of 600 responses to survey question: "An adult/a 5-year-old child is sexually assaulted with unprotected intercourse from (an unknown assailant, an HIV-positive assailant, an assailant with high-HIV-risk factors, or an assailant with low-HIV-risk factors). Indicate the kind of prophylaxis you would offer, if any."

	HIV Risk of the Exposure Source	NYS ED Practitioners Offering HIV PEP (n=100)	Other US ED Practitioners Offering HIV PEP (n=500)	p-value	NYS ED Practitioners Offering Hepatitis B Prophylaxis (n=100)	Other US ED Practitioners Offering Hepatitis B Prophylaxis (n=500)	p-value	NYS ED Practitioners Offering Emergency Contraception (n=100)	Other US ED Practitioners Offering Emergency Contraception (n=500)	p-value
Adult	unknown	87%	70%	0.001	92%	75%	0.000	96%	87%	0.009
	HIV infected	96%	96%	0.846	93%	82%	0.007	96%	89%	0.032
	high risk	96%	93%	0.275	93%	82%	0.006	96%	88%	0.019
	low risk	67%	89%	0.001	80%	61%	0.000	87%	78%	0.059
5-year-old	unknown	87%	72%	0.002	88%	77%	0.017			
	HIV infected	92%	95%	0.280	88%	80%	0.056			
	high risk	91%	91%	0.972	93%	80%	0.002			
	low risk	54%	36%	0.001	76%	58%	0.001			

continued

self-reported prescribing experience with HIV PEP of practitioners from NYS and other states.

HIV Post-exposure Prophylaxis

Willingness to prescribe HIV PEP. In the clinical scenarios describing needle-stick injuries, sexual assault and consensual sexual en-

counters, NYS and other US ED practitioners said that they would offer HIV PEP equally as often for exposures to HIV-infected and high-HIV-risk individuals. NYS ED practitioners were more likely to offer HIV PEP for exposures to unknown and low-HIV-risk sources. There was a trend among NYS ED practitioners toward offering HIV PEP more often after sexual

TABLE 1 Continued from previous page

Consensual Sex										
Summary of 600 responses to survey question: “An adult / a 15-year-old engaged in unprotected intercourse (NOT an assault) with (an unknown person, an HIV-positive person, a person with high-HIV-risk factors, or a person with low-HIV-risk factors). Indicate the kind of prophylaxis you would offer, if any.”										
	HIV Risk of the Exposure Source	NYS ED Practitioners Offering HIV PEP	Other US ED Practitioners Offering HIV PEP	p-value	NYS ED Practitioners Offering Hepatitis B Prophylaxis	Other US ED Practitioners Offering Hepatitis B Prophylaxis	p-value	NYS ED Practitioners Offering Emergency Contraception	Other US ED Practitioners Offering Emergency Contraception	p-value
		(n=100)	(n=500)		(n=100)	(n=500)		(n=100)	(n=500)	
Adult	unknown	68%	41%	0.001	73%	47%	0.000	87%	68%	0.000
	HIV infected	92%	88%	0.288	83%	70%	0.007	93%	76%	0.000
	high risk	89%	83%	0.141	84%	69%	0.003	91%	73%	0.000
	low risk	41%	18%	0.001	57%	37%	0.000	74%	58%	0.003
15-year-old	unknown	66%	43%	0.001	69%	50%	0.001	84%	71%	0.009
	HIV infected	87%	87%	0.918	82%	70%	0.021	90%	76%	0.002
	high risk	85%	82%	0.523	83%	69%	0.006	89%	74%	0.001
	low risk	33%	19%	0.001	54%	37%	0.002	79%	59%	0.000

TABLE 2

HIV PEP Prescribing Patterns of ED Practitioners from New York State versus Those from Other States

	New York	Other States	p-value
ED practitioners reporting ever having prescribed HIV PEP	86%	54%	0.000
Exposures for which ED practitioners report having prescribed HIV PEP			
Sexual assault	69%	43%	0.000
Health care worker needle-sticks	89%	92%	0.384
Non-health-care-person needle-sticks	60%	46%	0.022
Consensual sex	12%	6%	0.098
ED practitioners who have prescribed HIV PEP for patients under age 18	26%	17%	0.073
Exposures for which HIV PEP was given			
Sexual assault	64%	72%	0.491
Health care worker needle-sticks	9%	8%	0.822
Non-health-care-person needle-sticks	46%	25%	0.074
Consensual sex	5%	2%	0.517
ED practitioners who have used HIV PEP for themselves	16%	9%	0.078
Exposures for which HIV PEP was taken			
Sexual assault	6%	6%	0.957
Occupational needle-stick	94%	90%	0.650

encounters with these two sources than after needle-stick injuries. All practitioners offered HIV PEP more often after exposures to known HIV-infected and high-risk sources than to unknown and low-risk sources for all patients and exposures. All practitioners also offered HIV PEP less often after consensual sexual encoun-

ters than after sexual assault and needle-stick injuries.

Self-reported prescribing of HIV PEP. NYS ED practitioners prescribed HIV PEP after sexual assault and non-health-care worker needle-stick injuries much more often than did other US ED practitioners. The difference was

even greater for sexual assault survivors. NYS ED practitioners reported equal experience with HIV PEP in all other areas: needle-stick injuries among health care workers, sexual and needle-stick exposures among adolescents and children, and self-use of HIV PEP.

Hepatitis B Prophylaxis

For the clinical scenarios describing needle-stick injuries, both groups offered hepatitis B prophylaxis to all patients equally often for exposures involving HIV-infected and high-HIV-risk sources. NYS ED practitioners offered hepatitis B prophylaxis more often than other US practitioners for unknown and low-risk sources. NYS ED practitioners generally offered hepatitis B prophylaxis more often for individuals after sexual exposure. As was true for HIV PEP, all practitioners offered hepatitis B prophylaxis more often after needle-stick injuries and sexual assault than after consensual sex, and more often after exposures to known HIV-infected and high-risk sources than to unknown and low-risk sources.

Emergency Contraception

NYS ED practitioners were more willing to offer emergency contraception after sexual assault and consensual sexual encounters than were other US ED practitioners, particularly after consensual sex. All practitioners appeared to offer emergency contraception less often after exposures to low-HIV-risk sources than to all other sources.

Discussion

NYS ED practitioners surveyed were more likely to use HIV PEP and in some cases more willing to prescribe it than were respondents from other states. This difference could be due to several factors, including: (a) the existence of NYS guidelines on sexual assault HIV PEP; (b) provider recognition of the high prevalence of HIV in certain parts of NYS; and (c) the large percentage of resident physicians in our study who may be more inclined to use newer therapies or who have received more recent instructions on HIV PEP. The greater use of HIV PEP following sexual assault by NYS practitioners may attest to their knowledge and acceptance of the state guidelines.

HIV PEP following consensual sex is not yet endorsed by either the CDC (6) or the NYS

Department of Health. It is anticipated that the NYS Department of Health will support its provision in an updated version of their HIV PEP guidelines (personal communication with the New York AIDS Institute). However, prior to and since this survey, multiple groups worldwide have advocated its usage (7–10). In brief, these groups recommend HIV PEP following consensual sexual assault if the potential recipient: (a) presents within 36–72 hours of the exposure; (b) the sexual exposure could result in HIV transmission (e.g., unprotected penile-vaginal intercourse with a male infected with HIV or at risk of HIV infection); and (c) the recipient commits to reducing further HIV risk-taking behavior.

Despite the existence of these recommendations, NYS ED practitioners were less inclined to offer HIV PEP for consensual sex exposures than for sexual assault. The reasons for this could include: (a) belief that HIV transmission is more likely following sexual assault; (b) greater awareness of NYS sexual assault guidelines; (c) local or hospital ED policies that endorse or dictate offering HIV PEP to sexual assault victims; (d) less awareness of HIV PEP recommendations for consensual sexual encounters; and (e) lack of state or national guidelines on HIV PEP after consensual sex. Additionally, some may still believe that seroconversion following consensual sex, unlike sexual assault, was “voluntary,” and therefore “not worthy” of prophylaxis.

NYS ED practitioners were more willing to offer hepatitis B prophylaxis for sexual assault than were their national counterparts, especially in comparison to needle-stick injuries. Since hepatitis B prophylaxis is recommended in the NYS HIV PEP sexual assault guidelines, it is possible that the guidelines may have increased the willingness of NYS ED practitioner to offer hepatitis B prophylaxis in the clinical scenarios (2).

Although emergency contraception is not mentioned in the NYS HIV PEP guidelines, NYS ED practitioners were much more willing to offer emergency contraception than were ED practitioners from other states. This distinction was even greater for the consensual sex scenarios. The reason for this difference is unclear, but may be due to matters of local practice or be an indirect effect of the guidelines. NYS ED practitioners, like other state practitioners, were more willing to offer emergency contraception based on HIV risk. This may reflect a viewpoint that sexual encounters that pose higher HIV risk are more deserving of contraception.

Our study had several limitations, including: (a) small sample size, which may have reduced our ability to show differences among practitioners; (b) a possibility that the survey did not reflect the composition of NYS or other emergency department (e.g., the large percentage of resident physicians, the convenience sample format, and the lack of an accounting of the respondent's practice location within the state); and (c) a reliance upon the respondents' recall of therapies employed, which may not be accurate. We hope that further studies may expand on our work and overcome these limitations. Furthermore, we recognize that actual practice may differ from the practitioners' expressed willingness to offer emergency prophylaxis.

Conclusion

We found that a very high percentage of NYS ED practitioners surveyed had prescribed HIV PEP—a percentage higher than the national average. Possibly because of the NYS Department of Health HIV PEP sexual assault guidelines, NYS ED practitioners were generally more likely than their national counterparts to offer all forms of emergency prophylaxis after sexual assault. Like their national colleagues, fewer NYS ED practitioners were willing to consider consensual sexual exposures as equal to sexual assault as a valid reason for emergency prophylaxis. We therefore recommend that the NYS Department of Health expand their guidelines to include consensual sexual exposures for at-risk persons and reinforce the need for hepatitis B prophylaxis and emergency

contraception. We also advocate more training for all practitioners on these issues.

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