

Caring for survivors of sexual violence: A guide for primary care NPs



By Laurie L. Ray, WHNP and
Mary-Jane McEaney, WHNP

Sexual violence (SV) affects hundreds of thousands of females each year in the United States and many more throughout the world. Although most primary care practitioners, including nurse practitioners, do not attend to the immediate needs of females following a sexual assault, they see these patients for follow-up and routine care. Familiarity with the basics of the forensic and physical examinations, including post-exposure prophylaxis provided in acute care settings, is important so that NPs can plan follow-up care and educate patients. Because SV affects survivors' short- and long-term physical and mental health, as well as the way in which they tolerate future pelvic examinations, screening for a history of SV is essential at each visit. By screening female patients for this history, NPs can provide more competent and individualized care. The purpose of this article is to familiarize primary care NPs with the acute and long-term management of SV survivors, including the necessity of screening all patients for a history of SV, in order to improve care and health outcomes for this population.

KEY WORDS: sexual violence, sexual violence survivor, forensic examination, post-exposure prophylaxis

Improving care for survivors of sexual violence

Sexual violence (SV) is a common event, affecting millions of females across the globe. In the United States, 1 in 6 females experiences a rape or attempted rape over the course of a lifetime and about 300,000 females are so victimized each year.¹ However, estimates of SV may represent only a fraction of the true number of sexual assaults. Few survivors seek physical evaluation following an assault and even fewer report the crime to law enforcement or seek prosecution.² About 26% of women undergo a physical examination following a sexual assault and only 19% of incidents are re-

ported to police.³ SV survivors may not seek care or report the attack out of shame, humiliation, denial of need, fear of retaliation, lack of faith in the system, or a myriad of other reasons. As a result, the true prevalence of SV is difficult to ascertain.

The World Health Organization defines *rape* as sexual intercourse forced physically or psychologically and involving vaginal and/or anal penetration.⁴ *Sexual violence* is a broader term that includes rape but also incorporates unwanted sexual contact such as oral sex, touching, fondling, kissing, or threats.⁴ Eighty percent to 90% of SV survivors are females, with rates being highest for those

aged 16-24 years.^{5,6} About 65% of survivors know their attacker,⁶ who may be an acquaintance, a friend, a partner, a spouse, or a relative.

Survivors of SV deserve individualized, compassionate, competent care immediately following an assault and in the weeks, months, and years thereafter to prevent detrimental health effects. Nurse practitioners who encounter these patients in primary care must be at least familiar with physical and forensic examination protocols immediately following an assault, even if they do not perform these exams themselves. In addition, they must be aware of the physical and mental health sequelae of SV and how such a history affects the way in which females tolerate pelvic exams during routine gynecologic care.

For these reasons, and for the sake of the approximately 300,000 U.S. females who experience a rape or attempted rape each year and the many more who experience a sexual assault of any kind, NPs need to screen all female patients for this history. By comparison, 202,964 females are diagnosed with breast cancer each year and 12,280 with cervical cancer—two conditions for which NPs screen routinely.^{7,8} Familiarity with proper history-taking and screening, as well as the ability to provide a patient-centered exam and sensitive care, is essential to better serve this population and ensure future engagement with healthcare.

Immediate care

A female who has recently experienced a sexual assault is most likely to seek care at a rape crisis center or emergency department (ED). After life-threatening in-

juries have been ruled out and the SV survivor's safety ensured, the sexual assault response team is activated. The team typically includes a sexual assault nurse examiner (SANE)/sexual assault forensic examiner (SAFE)/forensic nurse examiner (FNE), a sexual assault advocate, and a law enforcement member if the survivor plans to report the assault to police. This multidisciplinary approach improves outcomes.^{9,10} All SV survivors need an advocate—someone who provides emotional support, has knowledge about the physical/forensic exams and legal proceedings (but does not perform any of these exams), and serves as a liaison to community resources.^{11,12}

Physical and forensic examinations—Examination of SV survivors is performed only by clinicians qualified to do so. These clinicians must know the legalities of their jurisdiction, the proper techniques of physical evaluation/treatment, and the process of evidence collection and chain of custody; be willing to testify in court; and be able to perform the exam in a compassionate, patient-centered manner.^{12,13} SANEs/SAFEs/FNEs are clinicians who have received additional didactic and clinical training in caring for SV survivors and are often utilized in these situations, although other clinicians may be authorized to perform these exams at their institutions.^{11,13}

As with any encounter, the examiner begins by taking a detailed history. Care is taken to prevent re-traumatizing the survivor as she recounts the history, which is taken in a quiet, private area.¹² The health history includes chronic and acute conditions, surgeries, history of inter-

personal violence, the date of the most recent menstrual period, and the date of the most recent consensual sexual encounter.^{11,12,14} The assault history covers (1) details of the incident such as date, time, and location; (2) the identity of the perpetrator(s) if known or a description of the perpetrator(s) if unknown; (3) the types of sex acts performed; (4) whether restraints, objects, or weapons were used; (5) whether drugs or alcohol was consumed; and (6) whether a condom was

Care is taken
to prevent
re-traumatizing
the survivor as she
recounts the
history, which is
taken in a quiet,
private area.

used or whether the perpetrator ejaculated inside or on the woman.^{11,12} The examiner documents the SV survivor's history of bathing, showering, douching, urinating, defecating, inserting tampons, and brushing, flossing and rinsing the teeth since the time of the assault.^{11,12}

Although the forensic and physical examinations are performed concurrently, they have different goals. The purpose of the forensic exam is to collect evidence in case the SV survivor chooses to report the sexual assault to police and pursue prosecution. Most jurisdictions use 72

hours as the cut-off to collect forensic evidence following an assault, although some jurisdictions have lengthened this time to 5 or 7 days as DNA technology improves.^{12,15} The aim of the physical exam is to assess and treat injuries and provide prophylaxis against sexually transmitted infections (STIs) and pregnancy.

Consent must be obtained from the SV survivor for each step of the physical and forensic examinations. Each step is explained, including its nature and rationale, before proceeding to the next step.¹² The survivor needs to understand that she can stop the exam at any time or have only certain steps performed.^{11,12} Consent enables the survivor to begin to regain control after an assault has occurred.^{12,16}

The examiner notes the SV survivor's behavior, appearance, and orientation as she presents for care.¹² Upon arrival, a survivor may appear to be calm, indifferent, distraught, fearful, in disbelief, angry, or combative.^{12,16} All these responses are normal. Reassurance is essential. The forensic examination begins with the survivor undressing over a sheet covered by a piece of white paper spread on the ground.¹² She is properly draped as the clothing is collected for evidence. Consideration is given to how much clothing to collect; some SV survivors may not have expendable clothing. Coats and shoes are generally not taken unless they are strongly suspected of containing evidence. Facilities providing sexual assault forensic examinations should be equipped with seasonally appropriate replacement clothing in a range of sizes.

The examiner assesses for in-

juries and documents them with photography, bearing in mind that absence of injury does not mean absence of an assault.¹² One study showed that 17% of premenopausal women and 37% of postmenopausal women sustained a genital injury from a sexual assault.¹⁷ The anogenital examination can be enhanced through the use of a colposcope and toluidine dye to elucidate small lacerations.¹² Specimen swabs are collected from any orifices or areas that may contain evidence of the assault, including areas where the SV survivor indicates the perpetrator may have kissed, licked, or ejaculated. If the survivor reports having scratched the perpetrator, fingernail scrapings or clippings may be collected. Combing of head and pubic hair may uncover stray hairs of the perpetrator.

STI, HIV, and pregnancy prophylaxis—Testing for STIs immediately after an assault is typically not done because of SV survivors' poor follow-up rates.^{11,12,18} Instead, STI prophylaxis is offered for gonorrhea, chlamydia, and trichomoniasis—the most common post-assault infections.^{11,12,18} Recommended prophylaxis regimens are listed in *Table 1*.¹⁸⁻²¹ Cultures are collected if the SV survivor refuses prophylaxis.¹² The importance of follow-up is emphasized. Hepatitis B vaccine for survivors previously unvaccinated is indicated.^{11,18} If pregnancy is a concern, emergency contraception needs to be offered (*Table 1*).¹⁸

The risk of HIV transmission from a known positive male to a female during a single consensual sexual episode is 0.1%-0.2% for vaginal intercourse and 0.5%-3% for anal intercourse.^{4,18} Therefore,

Table 1. Prophylaxis regimens¹⁸⁻²¹

Gonorrhea

Ceftriaxone 250 mg intramuscularly in a single dose

Trichomoniasis

Metronidazole 2 g orally in a single dose*

Chlamydia

Azithromycin 1 g orally in a single dose

OR

Doxycycline 100 mg orally BID x 7 days

Hepatitis B

Initiate vaccination series if previously unvaccinated

Pregnancy

Levonorgestrel 1.5 mg orally in a single dose

HIV[†]

Three-drug HAART regimen x 28 days

*Avoid alcohol intake for 3 days.

[†]Patient should be referred to an HIV specialist.

HAART, highly active antiretroviral therapy.

the risk of acquiring HIV from a single sexual assault is low. Certain factors could increase HIV transmission risk during an act of SV (eg, presence of vaginal lacerations and lesions, lack of condom use, multiple assailants).^{4,12,18,19} The utility of universal HIV prophylaxis is debatable; therefore, the risk is assessed considering all factors.^{12,18,19} If risk is high, the Centers for Disease Control and Prevention recommends a 28-day course of a highly active antiretroviral therapy regimen initiated no later than 72 hours post-assault (*Table 1*).^{18,20} Survivors must agree to take the full course of medication, with strict adherence to follow-up. Referral to an HIV specialist is indicated for patients accepting HIV prophylaxis.^{19,20}

Follow-up care

Follow-up care for SV survivors should last at least 6 months.²² If STI prophylaxis was not provided

post-assault, testing is done 1-2 weeks later.^{12,18} If the survivor did receive prophylaxis, she needs to return for follow-up 2-4 weeks after her initial visit. Depending on the patient's history, the NP rules out pregnancy, assesses adherence to therapy, re-evaluates injuries, and schedules hepatitis B vaccinations for 1 and 6 months after the initial dose.^{11,12,22} Follow-up serology for syphilis and HIV is performed at 6 weeks, 3 months, and 6 months post-assault.^{16,18} Each visit provides an opportunity to determine which services the survivor may need, such as counseling or social work, and to provide education in order to promote self-care, reduce risky behaviors, and provide reassurance and support.

Physical sequelae—Although the immediate physical concerns following SV are well known (e.g., injury, STIs, pregnancy), certain physical sequelae can develop af-

Table 2. Health consequences of sexual violence^{5,22-24}

Physical

- Abdominal pain
- Abnormal vaginal bleeding
- Chronic pelvic pain
- Digestive problems
- Dyspareunia
- Headache
- HIV infection
- Immune system depression
- Pregnancy
- Sexually transmitted infections
- Symptomatic fibroids
- Traumatic injury to vagina, anus, and urethra
- Urinary tract infections

Mental

- Anxiety
- Change in appetite
- Change in sexual function
- Depression
- Nightmares
- Post-traumatic stress disorder
- Sleep disturbances
- Stress
- Substance abuse
- Suicidality

ter the initial period (*Table 2*).^{5,22-24} Forced penetrative sex that causes traumatic injury to the vagina, anus, and/or urethra may lead to persistent complications.²³ SV survivors are more likely than females in the general population to develop urogynecologic problems such as urinary tract infections, vaginal bleeding, vaginal infection, pelvic pain, symptomatic fibroids, and dyspareunia.²⁴ In addition, SV survivors report significantly more non-gynecologic concerns such as headache, back pain, digestive problems,

loss of appetite, and abdominal pain.²⁴ Immune suppression secondary to stress may lead to an increased incidence of colds and influenza.²³ Because health problems may persist long after the SV has ended, survivors may not associate their symptoms with past episodes of violence, which is why universal screening for this history is important. Presence of physical complaints with no other obvious cause raises suspicion of a possible history of SV.

Mental sequelae—SV survivors may experience lasting mental health effects that require attention (*Table 2*). Rape trauma syndrome, post-traumatic stress disorder (PTSD), depression, anxiety, substance abuse, and suicidality are of concern.^{22,23} Rape trauma syndrome consists of two phases. The acute phase is marked by shock and disbelief that may present as outward emotional lability or as stoic, well-controlled behavior.²² Sleep and appetite disturbances, anxiety, and depression are common during the acute phase but may persist into the long-term phase, during which the survivor begins to restructure her life and return to normal routines. Because each survivor reacts to trauma differently, she must be reassured that emotional reactions vary and that counseling is available if she needs it.

About one-third of SV survivors develop PTSD or depression.^{5,23} PTSD is characterized by flashbacks, nightmares, and preoccupation with the assault, resulting in repeatedly reliving the experience.²² Many survivors attempt to cope with these disorders through the use of drugs and alcohol.²³ Survivors are 13 times more likely than females

with no history of SV to attempt suicide.⁵ Other psychological disturbances such as stress, fatigue, sleep/appetite problems, nightmares, and sexual dysfunction may be more vague, but they are common and warrant just as much attention as major disorders.²² In the absence of other causes, these subtle changes in function suggest the need for screening for an SV history. Mental health referrals are indicated for the management of survivors experiencing psychological sequelae of SV.

Screening for sexual violence history

Given the high prevalence of SV, NPs are likely to encounter patients with this history. Most female patients do not disclose a history of SV unless specifically asked.¹⁶ In a study by Hilden et al,²⁵ 20.7% of patients presenting for a gynecologic examination had a history of SV, but only 7.6% reported it to their clinician. A history of SV can significantly affect a survivor's physical and mental health, as well as increase the anxiety she feels about gynecologic exams. All female patients need to be screened for a history of SV, which can be done as NPs ask about other forms of interpersonal violence. In 2011, the Institute of Medicine recommended that all women be screened for interpersonal violence, which includes SV, at every visit in an effort to identify current abuse, prevent it in the future, and decrease adverse effects of it.²⁶ Some NPs may hesitate to ask questions about SV because of concern about offending the patient, not knowing the right action to take if the patient does disclose SV, or having adequate

time to handle the disclosure.

To overcome practitioners' hesitation or concern about screening for SV, the National Sexual Violence Resource Center recommends approaching the interaction by (1) normalizing it by stating that it is part of a routine health history and that these questions are posed to all female patients; (2) providing context for the questions by acknowledging that SV is widespread; (3) connecting SV to health status by informing the patient that this violence can affect her health; and (4) asking about any unwanted sexual experiences (Table 3).²⁷

NPs can ask simply, "Have you ever experienced unwanted sexual activities with a partner, acquaintance, or stranger?" This question is posed when the patient is alone, without judgment. Terms such as *rape*, *sexual assault*, *abuse*, and *sexual violence* are avoided; many SV survivors may not describe their experience with these terms.²⁷ The New York State Coalition Against Sexual Assault developed the **SAVE** screening tool, which stands for **S**creen all patients for sexual assault, **A**sk direct questions in a non-judgmental way, **V**alidate the patient's response, and **E**valuate, educate, and refer (Table 3).²⁸ If a patient does disclose a history of SV, NPs assess her immediate safety, ask her what help she needs, and refer her to appropriate counseling or community resources.²⁸

Pelvic examination of sexual violence survivors

Many female patients experience anxiety before and during pelvic examinations because of embarrassment about exposing intimate body parts, concern about hygiene, fear of pain, and worry

Table 3. Sexual violence screening methods^{27,28}

National Sexual Violence Resource Center

1. Normalize the topic.
 - State that you ask these questions of all patients.
 - Articulate that it is part of a routine health history.
2. Provide context.
 - Acknowledge that sexual violence is widespread.
3. Connect sexual violence with physical health and wellness.
 - Inform the woman that sexual violence can affect her health.
4. Ask about sexual experiences that were unwanted or uncomfortable.
 - Inquire about any unwanted sexual experiences in which the woman felt coerced physically or psychologically.

New York State Coalition Against Sexual Assault

Screen all your patients for sexual assault.

Ask direct questions in a non-judgmental way.

Validate the patient's response.

Evaluate, educate, and refer.

about possible diagnoses.²⁵ SV survivors are even more likely to experience anxiety and discomfort with this type of exam because it can elicit feelings of vulnerability reminiscent of the violence they have experienced.^{16,22,25} This anxiety and discomfort may ultimately lead them to avoid gynecologic care altogether. Simple techniques that increase involvement and education of the patient during the exam may make pelvic examinations more tolerable for SV survivors, as well as for any females presenting for routine care.

The first step is simply developing a rapport with the patient, which is of particular importance in an SV survivor who may feel vulnerability and distrust.²⁹ Acknowledging a patient's anxiety, taking time to listen to her thoughts or worries, and providing information on what she can expect during the exam can attenuate her distress and discomfort.^{25,30-32} The patient begins to

understand that she is in control of the exam and can end or modify it at any time. A pelvic exam should never be forced. If the patient requests that the exam end, reassure her that it is okay and that the exam can be preformed at another time.³²

Her sense of control can be heightened by offering her a mirror (if she feels comfortable using it) so that she can inspect her own genitalia while the clinician explains normal anatomy, thereby demystifying a part of her body over which she may feel she has lost control.³¹ Another way to shift the power differential is to allow the patient to insert the speculum herself.³³ Studies have shown that patients who are examined in modified lithotomy positions without the use of stirrups report less discomfort and vulnerability.³⁴ Compared with simply urging a patient to relax during a pelvic exam, providing information and guidance about what is being performed and

Internet resources

National Sexual Violence Resource Center

Rape, Abuse & Incest National Network

Centers for Disease Control and Prevention, Division of Violence Prevention

International Association of Forensic Nurses

what the patient can expect to experience makes the exam more tolerable.³¹

Conclusion

Many SV survivors present to rape crisis centers or EDs for immediate evaluation and potential evidence collection. NPs need to be familiar with the components of the immediate care offered to SV survivors, including the forensic exam and post-exposure prophylaxis protocols, so that they will know which services have already been provided and will be able to meet patients' ongoing needs for follow-up care. Some patients may present to their NP explicitly for SV-related follow-up. Other patients will be seeking routine care and make no mention of a history of SV. Therefore, NPs must be adept at screening for this history and capable of recognizing the common physical and mental sequelae of SV in order to make proper diagnoses and offer appropriate treatments and referrals. NPs must take the time and effort needed to perform gynecologic exams in a way that decreases anxiety on the part of the patient and promotes future engagement with healthcare practitioners. Internet resources are listed in the sidebar *Internet resources*. ●

Laurie Ray is a recent graduate of the Women's Health Nurse

Practitioner program and Mary-Jane McEaney is the WHNP Program Director, both at Columbia University School of Nursing in New York, New York. The authors state that they do not have a financial interest in or other relationship with any commercial product named in this article.

References

1. Tjaden P, Thoennes N. *Full Report of the Prevalence, Incidence, and Consequences of Violence Against Women*. Washington, DC: U.S. Department of Justice, Office of Justice Programs; 2000.
2. Basile KC, Saltzman LE. *Sexual Violence Surveillance: Uniform Definitions and Recommended Data Elements*. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention; 2002.
3. Resnick HS, Holmes MM, Kilpatrick DG, et al. Predictors of post-rape medical care in a national sample of women. *Am J Prev Med*. 2000; 19(4):214-219.
4. Krug EG, Dahlberg LL, Mercy JA, et al. *World Report on Violence and Health*. Geneva, Switzerland: World Health Organization; 2002.
5. Patel A, Panchal H, Piotrowski ZH, Patel D. Comprehensive medical care for victims of sexual assault: a survey of Illinois hospital emergency departments. *Contraception*. 2008; 77(6):426-430.
6. U.S. Department of Justice. *Criminal Victimization in the United States, 2008 Statistical Tables*. Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics; 2010.
7. Centers for Disease Control and

Prevention. Breast Cancer Statistics. November 23, 2010. www.cdc.gov/cancer/breast/statistics/

8. Centers for Disease Control and Prevention. Cervical Cancer Statistics. November 23, 2010. www.cdc.gov/cancer/cervical/statistics/

9. Lewis-O'Connor A. The evolution of SANE/SART—are there differences? *J Forensic Nurs*. 2009;5(4):220-227.

10. Plichta SB, Clements PT, Houseman C. Why SANEs matter: models of care for sexual violence victims in the emergency department. *J Forensic Nurs*. 2007;3(1):15-23.

11. McConkey TE, Sole ML, Holcomb L. Assessing the female sexual assault survivor. *Nurse Pract*. 2001;26(7):28-40.

12. U.S. Department of Justice. *A National Protocol for Sexual Assault Medical Forensic Examinations: Adults/Adolescents*. 2nd ed. Washington, DC: U.S. Department of Justice, Office on Violence Against Women; 2013.

13. Stermac L, Dunlap H, Bainbridge D. Sexual assault services delivered by SANEs. *J Forensic Nurs*. 2005; 1(3):124-128.

14. Boykins AD. The forensic exam: assessing health characteristics of adult female victims of recent sexual assault. *J Forensic Nurs*. 2005;1(4):166-171.

15. Ledray L. Expanding evidence collection time: Is it time to move beyond the 72-hour rule? How do we decide? *J Forensic Nurs*. 2010;6(1):47-50.

16. Luce H, Schrage S, Gilchrist V. Sexual assault of women. *Am Fam Physician*. 2010;81(4):489-495.

17. Morgan L, Dill A, Welch J. Sexual assault of postmenopausal women: a retrospective review. *BJOG*. 2011; 118(7):832-843.

18. Workowski KA, Berman S. *Sexually Transmitted Disease Treatment Guidelines, 2010*. Atlanta, GA: Office of Surveillance, Epidemiology, and Laboratory Services, Centers for Disease Control and Prevention, U.S. Department of Health and Human Services; 2010.

19. Wiczorek K. A forensic nursing protocol for initiating human immunodeficiency virus post-exposure prophylaxis following sexual assault. *J Forensic Nurs*. 2010;6(1):29-39.

20. Smith DK, Grohskopf LA, Black RJ, et al. *Antiretroviral Postexposure Prophylaxis After Sexual, Injection-Drug Use, or Other Nonoccupational Exposure to HIV in the United States*. Atlanta, GA: Centers for Disease Control and Prevention; 2005.
21. Update to CDC's Sexually transmitted diseases treatment guidelines, 2010: oral cephalosporins no longer a recommended treatment for gonococcal infections. *MMWR Morb Mortal Wkly Rep*. 2012;61(31):590-594.
22. Tavara L. Sexual violence. *Pract Res Clin Obstet Gynaecol*. 2006;20(3):395-408.
23. Campbell JC. Health consequences of intimate partner violence. *Lancet*. 2002;359(9314):1331-1336.
24. Campbell J, Jones AS, Diennemann J, et al. Intimate partner violence and physical health consequences. *Arch Intern Med*. 2002;162(10):1157-1163.
25. Hilden M, Sidenius K, Langhoff-Roos J, et al. Women's experience of the gynecologic examination: factors associated with discomfort. *Acta Obstet Gynecol Scand*. 2003;82(11):1030-1036.
26. IOM (Institute of Medicine). *Clinical Preventive Services for Women: Closing the Gaps*. Washington, DC: Institute of Medicine of the National Academies, Committee on Preventive Services for Women; 2011.
27. National Sexual Violence Resource Center. *Assessing Patients for Sexual Violence: A Guide for Health Care Providers*. Enola, PA: National Sexual Violence Resource Center; 2011.
28. Basile KC, Hertz MF, Back SE. *Intimate Partner Violence and Sexual Violence Victimization Assessment Instruments for Use in Healthcare Settings*. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2007.
29. Murphy SB, Potter SJ, Pierce-Weeks J, et al. Providing context for social workers' response to sexual assault victims. *Affilia*. 2011;26(1):90-94.
30. Fontenot HB, Fantasia HC. Understanding feminism: considerations for nurses working to end violence against women. *J Forensic Nurs*. 2011;7(1):37-31.
31. Huber JD, Pukall CF, Boyer SC, et al. "Just relax": physicians' experiences with women who are difficult or impossible to examine gynecologically. *J Sex Med*. 2009;6(3):791-799.
32. Alison MD, Cromwell PF. How to perform a pelvic exam for the sexually active adolescent. *Nurse Pract*. 2002;27(9):28-43.
33. Wright D, Fenwick J, Stephenson P, Monterosso L. Speculum 'self-insertion': a pilot study. *J Clin Nurs*. 2005;14(9):1098-1111.
34. Seehusen DA, Johnson DR, Earwood JS, et al. Improving women's experience during speculum examinations at routine gynaecological visits: randomised clinical trial. *BMJ*. 2006;333(7560):171.

Osteoporosis

(continued from page 39)

- Inc., North Norwich, NY. Revised 2013. www.wcrx.com/pdfs/pi/pi_atelvia.pdf
18. Boniva® ibandronate sodium tablets. Prescribing information. Roche Laboratories Inc., Nutley, NJ. Revised 2013. www.gene.com/download/pdf/boniva_tablets_prescribing.pdf
19. Boniva® ibandronate injection. Prescribing information. Genentech USA, Inc., South San Francisco, CA. Revised 2013. www.gene.com/download/pdf/boniva_injection_prescribing.pdf
20. Reclast® zoledronic acid injection. Prescribing information. Novartis Pharmaceuticals Corporation, East Hanover, NJ. Revised 2013. www.pharma.us.novartis.com/product/pi/pdf/reclast.pdf
21. Pazianas M, Abrahamson B, Ferrari S, Russell RG. Eliminating the need for fasting with oral administration of bisphosphonates. *Ther Clin Risk Manag*. 2013;9:395-402.
22. Sieber P, Lardelli P, Kraenzlin CA, et al. Intravenous bisphosphonates for postmenopausal osteoporosis: safety profiles of zoledronic acid and ibandronate in clinical practice. *Clin Drug Investig*. 2013;33(2):117-122.
23. Tripto-Shkolnik L. Atypical femoral fractures and their relation to bisphosphonate use. *Isr Med Assoc J*. 2013;15(8):447-450.
24. Shane E, Burr D, Ebeling PR, et al. Atypical subtrochanteric and diaphyseal femoral fractures: report of a task force of the American Society for Bone and Mineral Research. *J Bone Miner Res*. 2010;25(11):2267-2294.
25. Schilcher J, Michaelsson K, Aspenberg P. Bisphosphonate use and atypical fractures of the femoral shaft. *N Engl J Med*. 2011;364(18):1728-1737.
26. Meier RP, Perneger TV, Stern R, et al. Increasing occurrence of atypical femoral fractures associated with bisphosphonate use. *Arch Intern Med*. 2012;172(12):930-936.
27. Edwards BJ, Bunta AD, Lane J, et al. Bisphosphonates and nonhealing femoral fractures: analysis of the FDA Adverse Event Reporting System (FAERS) and international safety efforts: a systematic review from the Research on Adverse Drug Events And Reports (RADAR) project. *J Bone Joint Surg Am*. 2013;95(4):297-307.
28. Saleh A, Hegde VV, Potty AG, Lane JM. Bisphosphonate therapy and atypical fractures. *Orthop Clin North Am*. 2013;44(2):137-151.
29. Eriksen EF, Diez-Perez A, Boonen S. Update on long-term treatment with bisphosphonates for postmenopausal osteoporosis: A systematic review. *Bone*. 2014;58:126-135.
30. Suresh E, Pazianas M, Abrahamson B. Safety issues with bisphosphonate therapy for osteoporosis. *Rheumatology (Oxford)*. 2014;53:19-31.
31. American College of Rheumatology. Osteonecrosis of the jaw (ONJ). [www.rheumatology.org/Practice/Clinical/Patients/Diseases_and_Conditions/Osteonecrosis_of_the_Jaw_\(ONJ\)/](http://www.rheumatology.org/Practice/Clinical/Patients/Diseases_and_Conditions/Osteonecrosis_of_the_Jaw_(ONJ)/)
32. Sharma D, Ivanovski S, Slevin M, et al. Bisphosphonate-related osteonecrosis of jaw (BRONJ): diagnostic criteria and possible pathogenic mechanisms of an unexpected antiangiogenic side effect. *Vasc Cell*. 2013;5(1):1. www.vascularcell.com/content/5/1/1