City Health Information

Volume 35 (2016) | The New York City Department of Health and Mental Hygiene | No. 2; 13-20

Judicious Prescribing of Benzodiazepines

- **Benzodiazepines increase the risk of fatal overdose when taken in combination with opioid analgesics, alcohol, or other central nervous system depressants.**
- **If benzodiazepines are indicated, prescribe the lowest effective dose for the shortest duration—no more than 2 to 4 weeks.***
- **Avoid co-prescribing benzodiazepines and opioid analgesics because of the risk of fatal respiratory depression.**

*The guidance in this document is not intended for end-of-life care.

Benzodiazepines increase the risk of fatal overdose when taken in combination with opioid analgesics, alcohol, or other central nervous system (CNS) depressants,[1,2] and such combined use is a significant public health problem in New York City (NYC). In 2014, there were approximately 1.7 million benzodiazepine prescriptions filled by 440,000 NYC residents.[3] That year, there were 301 benzodiazepine-involved overdose deaths in NYC—almost half (42%) of which also involved alcohol.[4] Benzodiazepines were found in 53% of opioid analgesic-involved overdose deaths and 41% of heroin-involved overdose deaths.[4]

While benzodiazepines are commonly prescribed for anxiety and insomnia, they are not considered first-line treatment for either condition[2,5-9] (**Box 1**[2,5-15]). Guidelines recommend that benzodiazepines be used only for symptomatic relief of severe anxiety[2,5,7,10,11] and short-term treatment of severe insomnia,[2,6-8,11,12] while waiting for the full effect of other treatment modalities.[5-7,10,12] Despite these limited indications, benzodiazepines are often prescribed more broadly and as long-term treatment,[2,5,8] and this overuse contributes to risk of misuse and overdose.

You can reduce the risk of benzodiazepine-involved overdose by providing appropriate first-line treatment for anxiety and insomnia, prescribing benzodiazepines judiciously only when clinically indicated, and tapering patients off long-term benzodiazepine treatment.

INSIDE THIS ISSUE (Click to access)

INTRODUCTION
- Benzodiazepines (box)
- Myths and facts about benzodiazepines and Z-drugs (box)

PROVIDE APPROPRIATE FIRST-LINE TREATMENT
- Nonbenzodiazepine treatments for anxiety (box)
- Nonbenzodiazepine treatments for insomnia (box)

PRESCRIBE BENZODIAZEPINES JUDICIOUSLY
- Interactions between benzodiazepines and select common medications (table)
- Checking the prescription monitoring program (box)
- Commonly used benzodiazepines and Z-drugs (table)
- What to tell patients about benzodiazepine treatment (box)
- Physical dependence, withdrawal, substance use disorder, and misuse (box)

SPECIAL POPULATIONS
- Benzodiazepines in older adults (box)
- Benzodiazepines during pregnancy and lactation (box)

DISCONTINUING BENZODIAZEPINE TREATMENT

LONG-TERM BENZODIAZEPINE TREATMENT

SUMMARY
- How to prescribe benzodiazepines judiciously (box)

RESOURCES FOR PROVIDERS

RESOURCES FOR PATIENTS

REFERENCES

BENZODIAZEPINES[2,16,17]

- Benzodiazepines bind to GABA receptors and depress the central nervous system.
- They are prescribed for their sedative-hypnotic, antianxiety, muscle relaxant, and anticonvulsant effects.

BOX 1. MYTHS AND FACTS ABOUT BENZODIAZEPINES AND Z-DRUGS[2,5-15]

Myth: Benzodiazepines are first-line treatment for anxiety.

Facts: Benzodiazepines

- *May be used for 2 to 4 weeks to treat **severe** symptoms of anxiety disorders,* ideally while waiting for the full effect of other treatment options[5-7,10,12] (**Boxes 2** and **3**).
- Diminish in effectiveness beyond 4-6 weeks.[6,7,9]

Myth: Benzodiazepines are first-line treatment for insomnia.

Facts: Benzodiazepines

- *May provide short-term (1 to 2 weeks) symptomatic relief for **severe** insomnia*[2,6-8,11,12] while other treatment modalities are being implemented.[5-7,10,12]
- May result in rebound insomnia once stopped.[8]
- Do not appear to be effective for chronic insomnia or late-night insomnia,[2,5] experienced more commonly by older adults.[5]

Myth: Low-dose benzodiazepines are not addictive.

Facts:

- Benzodiazepine use can result in physical dependence at any dose with prolonged use.[5,13]
- May be misused to prevent perceived or anticipated withdrawal rather than for their originally intended purpose.[13]

Myth: Z-drugs (eg, zolpidem, zaleplon) are safer than benzodiazepines.

Facts: Z-drugs

- Bind to GABA receptors, similar to benzodiazepines.[5,11,14]
- Are not recommended for long-term use.[11]
- Offer no safety benefit compared with benzodiazepines, especially in older adults.[2,6,11,14]
- Increase risk for falls in older adults.[15]

BOX 2. NONBENZODIAZEPINE TREATMENTS FOR ANXIETY[2,5,8,10-12]

Nonpharmacologic

- Cognitive behavioral therapy[2,5,8,10]
- Relaxation techniques[11,12]
- Yoga, meditation[12]
- Exercise[12]

Long-term pharmacologic

- Selective serotonin reuptake inhibitors (SSRIs)[2,5]
- Serotonin-norepinephrine reuptake inhibitors (SNRIs)[2]

PROVIDE APPROPRIATE FIRST-LINE TREATMENT

Assess for underlying causes of anxiety and insomnia[2] and consider safe, effective nonbenzodiazepine treatments when indicated[11] (**Boxes 2**[2,5,8,10-12] and **3**[2,5,10,12,18-20]).

PRESCRIBE BENZODIAZEPINES JUDICIOUSLY

If short-term benzodiazepine treatment is indicated, fully assess your patient, prescribe the lowest effective dose for the shortest duration and talk with your patient about the benzodiazepine prescription.

Step 1: Fully Assess Your Patient

- Obtain a comprehensive medical history, including any medical comorbidities and mental health conditions, and perform a physical examination.[2,11,12]
- Screen for substance use as part of routine care[11] (**Resources for Providers: Screening and Monitoring Tools**).
- Review all current medications for potential interactions (**Table 1**[2,12,21-23]) and consult with your patient's other prescribers.
- Check the Prescription Monitoring Program (**Box 4**[5,9,10,12,24]), as required before prescribing any schedule IV drug.
- **Avoid co-prescribing benzodiazepines and opioids because of the risk of fatal respiratory depression.**

Step 2: Prescribe the Lowest Effective Dose for the Shortest Duration

- Begin treatment with the lowest recommended dose and adjust as needed based on the patient's response[2,12] (see **Table 2**[21,25-39] for information).

BOX 3. NONBENZODIAZEPINE TREATMENTS FOR INSOMNIA[2,5,10,12,18-20]

Nonpharmacologic

- Cognitive behavioral therapy[2,10]—considered first-line treatment[18]
- Good sleep hygiene[2,5,10,12,19,20]
  - Maintaining a regular sleep schedule
  - Avoiding daytime napping
  - Developing a calming bedtime routine, which may include taking a bath or reading a book
  - Avoiding screen time before bed
  - Keeping your bedroom dark, quiet, and at a comfortable, cool temperature
  - Limiting alcohol, caffeine, and tobacco at night
- Regular exercise[2,12,19]—except heavy exercise within several hours of bedtime
- Relaxation techniques[2,5,12]

Pharmacologic

- Melatonin[2]

BACK TO PAGE 1

TABLE 1. INTERACTIONS BETWEEN BENZODIAZEPINES AND SELECT COMMON MEDICATIONS[2,12,21-23]

Interaction	Medication Class	Examples
Increased serum benzodiazepine levels (CYP450 inhibition)	Antifungals	Ketoconazole Itraconazole
	Macrolides	Clarithromycin Erythromycin
	SSRIs	Fluoxetine Paroxetine
	Histamine-2 blockers	Cimetidine
Increased sedative effects of benzodiazepines	Opioids	Oxycodone
	Antipsychotics	Chlorpromazine Clozapine
	Barbiturates	Phenobarbital Secobarbital
	Sedating antihistamines	Diphenhydramine Hydroxyzine

- Use phased dispensing (prescribing small amounts at regular intervals) where possible.[12]
- **Prescribe for a maximum of 4 weeks.**[7,12]

Step 3: Talk to Your Patients About Their Benzodiazepine Prescription

Educate patients about the benefits and risks of benzodiazepine treatment (**Box 5**[2,6,7,9,11,12]), and remain alert to signs and symptoms of physical dependence, withdrawal, substance use disorder, and benzodiazepine misuse[2,10,11] (**Box 6**[2,40,41]).

TABLE 2. COMMONLY USED BENZODIAZEPINES AND Z-DRUGS[21,25-39]

Generic name	Brand name	Elimination half-life (h)
Benzodiazepines		
Short-Acting		
Triazolam	Halcion®	1.5 to 5.5
Intermediate-Acting		
Alprazolam	Xanax®	11.2 (range: 6.3-26.9)
Clonazepam	Klonopin®	12 to 50
Lorazepam	Ativan®	10 to 20
Oxazepam	Serax®	8.2 (range: 5.7-10.9)
Temazepam	Restoril™	8.8 (range: 3.5-18.4)
Long-Acting		
Chlordiazepoxide	Librium®	24-48
Clorazepate	Tranxene®	48
Diazepam	Valium®	Up to 100
Flurazepam	Dalmane®	47-100
Z-Drugs		
Short-Acting		
Zaleplon	Sonata®	Approx. 1
Zolpidem	Ambien®	5-mg tablets: 2.6 (range: 1.4-4.5) 10-mg tablets: 2.5 (range: 1.4-3.8) 12.5-mg dose: 2.8 (range: 1.62-4.05)
Eszopiclone	Lunesta®	Approx. 6

Consult product prescribing information for detailed warnings, precautions, contraindications, and potential interactions.

BOX 4. CHECKING THE PRESCRIPTION MONITORING PROGRAM[5,9,10,12,24]

The New York State Prescription Monitoring Program (PMP) provides quick, confidential, 24/7 access to your patients' controlled substance prescription history.

1. Consult PMP to determine whether your patient recently filled a prescription for an opioid analgesic, benzodiazepine, or other controlled substance.
2. If the patient has recently filled multiple prescriptions written by different providers and/or filled at different pharmacies:
   - Discuss your concerns with your patient, explaining the risk for overdose when benzodiazepines are used with other agents (especially opioid analgesics and other CNS depressants).
   - Communicate and coordinate with your patient's other controlled substance prescribers.
   - Avoid abruptly discontinuing benzodiazepines.[5,9,10,12,24]
     - Withdrawal can be severe, causing hallucinations, seizures, and in rare cases has been life-threatening (**see page 16**).
     - A taper schedule is strongly recommended and clinically appropriate versus refusing continuation of this medication (**Resources for Providers: Dose Reduction Plans**).
   - Consider that your patient might be misusing controlled substances and/or have a substance use disorder (**see page 16**).
     - If needed, explain that effective treatments for substance use disorder are available, and treat the patient yourself or refer for treatment (**Resources for Providers: Treatment for Substance Use Disorder**).
     - For opioid use disorder, discuss and arrange for medication-assisted treatment (eg, buprenorphine or methadone) (**Resources for Providers: Treatment for Substance Use Disorder**).

As of August 2013, all practitioners are required to review the PMP prior to prescribing any controlled substance listed on schedules II, III, or IV.

See Resources for more information about PMP.

BACK TO PAGE 1

SPECIAL POPULATIONS

Older adults

Use caution when prescribing benzodiazepines for patients aged 65 and older.[2,5-7,9,11,12,15,42,43] Older adults are particularly vulnerable to the adverse effects of benzodiazepines. (**Box 7**[2,5-7,9,11,12,15,42-45]).

Pregnant women

Benzodiazepines should be avoided during pregnancy because of the risk of adverse outcomes for the newborn[2,12] (**Box 8**[2,7,12]).

BOX 5. WHAT TO TELL PATIENTS ABOUT BENZODIAZEPINE TREATMENT[2,6,7,9,11,12]

- You'll be taking this medicine for a short time—no more than 4 weeks.[7,12] If your symptoms don't improve in a few weeks, we'll reevaluate the treatment plan.
- Get your prescriptions for benzodiazepines and other controlled substances only from me.[2,6,9,11]
- Fill your prescription at only one pharmacy.[2]
- Make sure to tell other providers that you're taking this medicine. Some other medications can have a serious interaction with this one.
- Keep the medication in a secure place, preferably locked.
- Do not share your medication with others.
- Take the medication exactly as directed.
  - Dispose of the medicine safely. Mix it with an unpalatable substance like coffee grounds or kitty litter and place in a sealed container before discarding with your trash. Or find a medication disposal event near you (**Resources for Patients: Medication Take-Back Programs**).
- There are some risks when taking this medicine:
  - Overdose: Avoid alcohol, opioids, and sedatives; they increase risk of overdose. Some over-the-counter medicines, such as antihistamines, also increase risk.[2]
  - Tolerance: When you need more medication to get the same effect.[7] Do not increase the dose, even if you think the medicine has stopped working.[2]
  - Physical dependence: If you develop physical dependence, stopping the drug may make you miss it or feel sick (withdrawal).[7] You may get a fast heartbeat, insomnia, anxiety, shaky hands, nausea, have hallucinations, or just feel agitated.[2]
  - Mood or behavior changes, including depression, anxiety, or irritability.
  - Substance use disorder: Some patients who become physically dependent on or misuse the medicine can develop a substance use disorder.
- Seek help right away if you think you may be developing tolerance or dependence or if you experience side effects—especially ones that are new or concern you.

BOX 6. PHYSICAL DEPENDENCE, WITHDRAWAL, SUBSTANCE USE DISORDER, AND MISUSE[2,40,41]

Physical Dependence[40]

- Physiologic adaptation to a substance requiring the person to take more of the substance to achieve a certain effect.
- Can occur with the chronic use of many drugs—including many prescription drugs, even if taken as instructed.
- Causes drug-specific withdrawal symptoms if drug use is abruptly ceased.
- Benzodiazepine withdrawal syndrome symptoms include[2]:
  - Autonomic hyperactivity (eg, sweating, tachycardia)
  - Hand tremor
  - Insomnia
  - Nausea or vomiting
  - Transient visual, tactile, or auditory hallucinations or illusions
  - Psychomotor agitation
  - Anxiety
  - Grand mal seizures

Substance Use Disorder[41]

- Maladaptive pattern of use leading to significant impairment or distress. See DSM-5 diagnostic criteria (**Resources for Providers: Screening and Monitoring Tools**).

Benzodiazepine Misuse[2]

- Using someone else's benzodiazepines or using benzodiazepines in a manner other than prescribed.
- May or may not be associated with physical dependence.
- Signs may include pattern of early refills; prescription problems such as lost, spilled, or stolen medications; and escalating drug use in the absence of a physician's direction.

BOX 7. BENZODIAZEPINES IN OLDER ADULTS[2,5-7,9,11,12,15,42-45]

- Benzodiazepine treatment in patients aged 65 and older can increase risk for[2,5-7,9,11,12,15,42-45]:
  - falls and hip fractures
  - possible cognitive impairment
  - negative interactions with other medications
  - daytime fatigue
  - confusion and delirium
- Initiate treatment at one-half the standard adult starting dose.[6,9]
- Monitor response to treatment and minimize dosage and/or frequency to avoid adverse effects.[12]

In older adults, benzodiazepines should never be used as first-line treatment for insomnia, agitation, or delirium, and long-acting benzodiazepines should not be used for any indication.[42]

BACK TO PAGE 1

BOX 8. BENZODIAZEPINES DURING PREGNANCY AND LACTATION[2,7,12]

- Benzodiazepine use during pregnancy is associated with risks to the newborn[2,12]:
  - o respiratory depression
  - o poor temperature regulation
  - o hypotonicity
  - o neonatal abstinence syndrome
- For patients planning a pregnancy, gradually discontinue benzodiazepine treatment and consider other options.[7]
- If postpartum benzodiazepine treatment is being considered, explain that benzodiazepine metabolites can be found in breast milk.[12]

DISCONTINUING BENZODIAZEPINE TREATMENT

Avoid abrupt discontinuation of benzodiazepines because it can lead to severe and potentially life-threatening withdrawal symptoms, especially among patients who have taken benzodiazepines for a prolonged period.[2,5,9,10,12] Take the following measures to taper the dosage safely:

- Determine and agree on a gradual dose reduction plan with your patient (**Resources for Providers: Dose Reduction Plans**).
- Set realistic goals with the patient,[10] based on the dosage and duration of benzodiazepine use.[2,6,24]
- Closely monitor the patient for signs of withdrawal and adjust the taper schedule as clinically indicated.[24]
- Consider counseling or cognitive behavioral therapy for patients who have a substance use disorder or for whom withdrawal might cause substantial anxiety.[6,11]

LONG-TERM BENZODIAZEPINE TREATMENT

Long-term benzodiazepine treatment—considered here as daily or near-daily use for more than 4 weeks—should generally be avoided.[2,6,11] If you do prescribe long-term benzodiazepine treatment, take the following steps to minimize health risks:

- Develop a treatment plan with your patient.[2,11,12]
- Prescribe small quantities at a time.[12]
- Schedule regular follow-up appointments to assess the need for continued treatment.[2,9]
- Regularly review the treatment plan and offer a benzodiazepine withdrawal plan at regular intervals.[2,7,12]
- Consider monitoring with a urine drug test.[2,10]
- Consider consulting a psychiatrist.[2,12]

SUMMARY

Benzodiazepines used with opioids, alcohol, and other CNS depressants can lead to fatal overdose. Reduce the risk of preventable overdose deaths by using nonbenzodiazepine treatments, prescribing benzodiazepines judiciously only when clinically indicated, and tapering patients off long-term benzodiazepine treatment. ◆

HOW TO PRESCRIBE BENZODIAZEPINES JUDICIOUSLY

- Provide appropriate first-line treatment for anxiety and insomnia.
- If benzodiazepines are clinically indicated:
  - o fully assess your patient,
  - o prescribe the lowest effective dose for the shortest duration—no more than 2 to 4 weeks,
  - o talk to your patient about the benefits and risks of benzodiazepine treatment,
  - o avoid co-prescribing with opioids or other CNS depressants because of the risk of fatal respiratory depression.

BACK TO PAGE 1

RESOURCES FOR PROVIDERS

NYS Prescription Monitoring Program

- Registration: https://commerce.health.state.ny.us/public/hcs_login.html
- FAQs: www.health.ny.gov/professionals/narcotic/prescription_monitoring/docs/pmp_registry_faq.pdf
- NYC Health Department letter to providers (January 2014): www1.nyc.gov/assets/doh/downloads/pdf/mental/comm-ltr-opioids-r7.pdf

Screening and Monitoring Tools

- DAST-10 (Drug Abuse Screening Test): https://www.drugabuse.gov/sites/default/files/files/DAST-10.pdf
- National Institute on Drug Abuse Drug Screening Tool: www.drugabuse.gov/nmassist
- AUDIT-C Alcohol Consumption Questionnaire: www.ewashtenaw.org/government/departments/wcho/ch_auditc.pdf
- American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (DSM-5): www.psychiatry.org/psychiatrists/practice/dsm/dsm-5 *Available for purchase*
- DSM-5 Diagnostic Criteria. DSM-5 Criteria for Substance Use Disorders: Recommendations and Rationale: ajp.psychiatryonline.org/doi/pdf/10.1176/appi.ajp.2013.12060782
- Benzodiazepine Withdrawal Scale (CIWA-B): www.sahealth.sa.gov.au/wps/wcm/connect/0f6337804077201f9318bb222b2948cf/benzodiazepine_withdrawal_scale_ciwab_dassa%5B1%5Dpdf?MOD=AJPERES&CACHEID=0f6337804077201f9318bb222b2948cf

Treatment Agreement Forms

- National Institute on Drug Abuse. Sample Patient Agreement Forms: www.drugabuse.gov/sites/default/files/files/SamplePatientAgreementForms.pdf
- Royal Australian College of General Practitioners. Prescription Plan/Agreement for a Trial of Longer Term Treatment: http://www.racgp.org.au/your-practice/guidelines/drugs-of-dependence-b/resource-e-practice-policies-and-forms/e2-prescription-planagreement-for-a-trial-of-longer-term-treatment/
- County of San Mateo Health System. Benzodiazepine Management Agreement: smchealth.org/sites/default/files/docs/BHS/medical/2013MedicationManagementAgreeBenzodiazepinesR2.pdf

Dose Reduction Plans

- The Ashton Manual (Benzodiazepines: How They Work and How to Withdraw): www.benzo.org.uk/manual
- Royal Australian College of General Practitioners. Tapering Dosing: http://www.racgp.org.au/your-practice/guidelines/drugs-of-dependence-b/5-discontinuing-benzodiazepines/54-tapering-dosing/
- NHS Grampian. Guidance for Prescribing and Withdrawal of Benzodiazepines & Hypnotics in General Practice: www.benzo.org.uk/amisc/bzgrampian.pdf (Appendix)
- JPS Health Network. Prescribing and Tapering Benzodiazepines: www.jpshealthnet.org/sites/default/files/prescribing_and_tapering_benzodiapines.pdf

Treatment for Substance Use Disorder

- Substance Abuse and Mental Health Services Administration. Find Help & Treatment: www.samhsa.gov/treatment/index.aspx
- New York State Office of Alcoholism and Substance Abuse Services. OASAS Provider Directory Search: www.oasas.ny.gov/providerDirectory/index.cfm

City Health Information Archives

www1.nyc.gov/site/doh/providers/resources/chi-archives.page

- *Buprenorphine: An Office-based Treatment for Opioid Use Disorder*
- *Preventing Misuse of Prescription Opioid Drugs*

RESOURCES FOR PATIENTS

Benzodiazepine Information

- Australian Drug Foundation. Fact Sheet. Benzodiazepines: www.druginfo.adf.org.au/attachments/391_ADF_FactSheet_Benzo.pdf
- Patient. Benzodiazepines and Z Drugs: patient.info/pdf/4207.pdf

Healthy Sleep Tips

- Harvard University. Twelve Simple Tips to Improve Your Sleep: healthysleep.med.harvard.edu/healthy/getting/overcoming/tips
- American Academy of Sleep Medicine. Healthy Sleep Habits: www.sleepeducation.org/essentials-in-sleep/healthy-sleep-habits
- Royal Australian College of General Practitioners. Sleep Hygiene and Stimulus Control Fact Sheet for Patients: http://www.racgp.org.au/your-practice/guidelines/drugs-of-dependence-b/resource-d-communication-with-patients/d4-sleep-hygiene-and-stimulus-control-fact-sheet-for-patients/

Tips for Managing Anxiety

- Anxiety and Depression Association of America. Tips to Manage Anxiety and Stress: www.adaa.org/tips-manage-anxiety-and-stress

Medication Take-Back Programs

- US Drug Enforcement Administration. National Take-Back Initiative: www.deadiversion.usdoj.gov/drug_disposal/takeback/
- New York City Department of Sanitation. SAFE Disposal Events: www1.nyc.gov/site/dsny/index.page

Treatment for Substance Use Disorder

- Substance Abuse and Mental Health Services Administration: www.samhsa.gov/treatment/index.aspx
- New York State Office of Alcoholism and Substance Abuse Services. Find Help & Treatment: www.oasas.ny.gov/providerDirectory/index.cfm

BACK TO PAGE 1

REFERENCES

1. Jones CM, Paulozzi LJ, Mack KA. Alcohol involvement in opioid pain reliever and benzodiazepine drug abuse-related emergency department visits and drug-related deaths—United States, 2010. *MMWR Morb Mortal Wkly Rep.* 2014;63(40):881-885. www.cdc.gov/mmwr/preview/mmwrhtml/mm6340a1.htm. Accessed May 3, 2016.
2. Royal Australian College of General Practitioners. Prescribing drugs of dependence in general practice, Part B: benzodiazepines. 2015. www.racgp.org.au/your-practice/guidelines/drugs-of-dependence-b. Accessed January 21, 2016.
3. New York State Prescription Monitoring Program, unpublished data.
4. Paone D, Tauzon E, Nolan M, Mantha S. Unintentional drug poisoning (overdose) deaths involving opioids in New York City, 2000-2014. *Epi Data Brief.* 2015. No. 66. Updated March 2016. www1.nyc.gov/assets/doh/downloads/pdf/epi/databrief66.pdf. Accessed April 8, 2016.
5. Cloos J-M. Benzodiazepines and addiction: myths and realities (Part 1). *Psychiatric Times.* 2010. www.ama.lu/docs/Psytimes_part1.pdf. Accessed March 8, 2016.
6. Maine Benzodiazepine Study Group. Guidelines for the use of benzodiazepines in office practice in the state of Maine. www.benzos.une.edu/documents/prescribingguidelines3-26-08.pdf. Accessed January 21, 2016.
7. The College of Psychiatry of Ireland. A consensus statement on the use of benzodiazepines in specialist mental health services. June 2012. www.benzo.org.uk/amisc/eire12.pdf. Accessed January 21, 2016.
8. Ashton H. Guidelines for the rational use of benzodiazepines. When and what to use. *Drugs.* 1994;48(1):25-40.
9. JPS Health Network. Prescribing and tapering benzodiazepines. Behavioral health virtual resource. 2014. www.jpshealthnet.org/sites/default/files/prescribing_and_tapering_benzodiapines.pdf. Accessed January 21, 2016.
10. Eagles L. Guidance for prescribing and withdrawal of benzodiazepines & hypnotics in general practice. NHS Grampian. 2008. www.benzo.org.uk/amisc/bzgrampian.pdf. Accessed January 21, 2016.
11. GroupHealth. Benzodiazepine and Z-drug safety guideline. 2014. www.ghc.org/all-sites/guidelines/benzo-zdrug.pdf. Accessed January 21, 2016.
12. Ireland Department of Health and Children. Benzodiazepines: good practice guidelines for clinicians. 2002. health.gov.ie/blog/publications/benzodiazepines-good-practice-guidelines-for-clinicians. Accessed January 21, 2016.
13. Ashton CH. Benzodiazepine dependency. 1997. www.benzo.org.uk/bzdep.htm. Accessed May 5, 2016.
14. Liappas IA, Malitas PN, Dimopoulos NP, et al. Zolpidem dependence case series: possible neurobiological mechanisms and clinical management. *J Psychopharmacology.* 2003;17(1):131-135.
15. Diem SJ, Ewing SK, Stone KL, Ancoli-Israel S, Redline S, Ensrud KE. Use of non-benzodiazepine sedative hypnotics and risk of falls in older men. *J Gerontol Geriatr Res.* 2014;3(3):158.
16. Paone D, Bradley O'Brien, D. Benzodiazepines in New York City: misuse, morbidity, and mortality. *Epi Data Brief.* 2012. No. 18. www1.nyc.gov/assets/doh/downloads/pdf/epi/databrief18.pdf. Accessed April 8, 2016.
17. Chen LH, Hedegaard H, Warner M. Drug-poisoning deaths involving opioid analgesics: United States, 1999-2011. *NCHS Data Brief.* 2014(166):1-8. www.cdc.gov/nchs/products/databriefs/db166.htm.
18. Mitchell MD, Gehrman P, Perlis M, Umscheid CA. Comparative effectiveness of cognitive behavioral therapy for insomnia: a systematic review. *BMC Fam Pract.* 2012;13:40. doi:10.1186/1471-2296-13-40.
19. American Academy of Sleep Medicine. Healthy sleep habits. www.sleepeducation.org/essentials-in-sleep/healthy-sleep-habits. Accessed March 10, 2016.
20. Harvard University. Twelve simple tips to improve your sleep. healthysleep.med.harvard.edu/healthy/getting/overcoming/tips. Accessed March 10, 2016.
21. Dhwani Shah DB, Borresen D. Benzodiazepines: a guide to safe prescribing. *Carlat Report.* 2011. www.thecarlatreport.com/free_articles/benzodiazepines-guide-safe-prescribing. Accessed January 21, 2016.
22. Indiana University School of Medicine. P450 drug interaction table: abbreviated "clinically relevant" table. medicine.iupui.edu/clinpharm/ddis/clinical-table/. Accessed March 8, 2016.
23. Miller DD. Atypical antipsychotics: sleep, sedation, and efficacy. *Prim Care Companion J Clin Psychiatry.* 2004;6(Suppl 2):3-7.
24. O'Brien CP. Benzodiazepine use, abuse, and dependence. *J Clin Psychiatry.* 2005;66(Suppl 2):28-33.
25. Estivill E, Bove A, Garcia-Borreguero D, et al. Consensus on drug treatment, definition and diagnosis for insomnia. *Clin Drug Invest.* 2003;23(6):351-385.
26. Farinde A. Benzodiazepine equivalency table. Updated May 15, 2014. Medscape. emedicine.medscape.com/article/2172250-overview. Accessed May 5, 2016.
27. Ashton CH. Benzodiazepine dependence and withdrawal: an update. *Drug Newsletter.* 1985;31. www.benzo.org.uk/drcha.htm. Accessed May 4, 2016.
28. Halcion [package insert]. New York, NY: Pfizer Inc; March 2015. www.pfizer.com/products/product-detail/halcion. Accessed January 14, 2016.
29. Xanax [package insert]. New York, NY: Pfizer Inc; September 2013. labeling.pfizer.com/ShowLabeling.aspx?id=547. Accessed January 14, 2016.
30. Klonopin [package insert]. South San Francisco, CA: Genetech USA, Inc.; October 2013. www.gene.com/download/pdf/klnopin_prescribing.pdf. Accessed January 14, 2016.
31. Serax [package insert]. Philadelphia, PA: Wyeth Laboratories, Inc.; June 2000. www.accessdata.fda.gov/drugsatfda_docs/label/2001/15539s52lbl.pdf. Accessed January 14, 2016.
32. Restoril [package insert]. Hazelwood, MO: Mallinckrodt Inc.; November 2014. www2.mallinckrodt.com/WorkArea/DownloadAsset.aspx?id=1719. Accessed January 14, 2016.
33. Librium [package insert]. Costa Mesa, CA: Valeant Pharmaceuticals International; July 2005. www.valeant.com/Portals/25/Pdf/products/PI/Librium_Capsule_5-10-25mg_PI_Sep01.pdf. Accessed January 14, 2016.
34. Tranxene [package insert]. Deerfield, IL: Lundbeck, Inc.; April 2009. www.accessdata.fda.gov/drugsatfda_docs/label/2009/017105s075lbl.pdf. Accessed January 19, 2016.
35. Valium [package insert]. South San Francisco, CA: Genetech USA, Inc.; August 2015. www.accessdata.fda.gov/drugsatfda_docs/label/2013/013263s092lbl.pdf. Accessed May 5, 2016.
36. Dalmane [package insert]. Aliso Viejo, CA: Valeant Pharmaceuticals North America; April 2007. www.valeant.com/Portals/25/Pdf/products/PI/Dalmane_Capsule_15-30mg_PI_Sep01.pdf. Accessed January 14, 2016.
37. Sonata [package insert]. New York, NY: Pfizer Inc; May 2013. labeling.pfizer.com/ShowLabeling.aspx?id=710. Accessed January 14, 2016.
38. Ambien [package insert]. Bridgewater, NJ: Sanofi-Aventis US LLC; October 2014. products.sanofi.us/ambien/ambien.pdf. Accessed January 14, 2016.
39. Lunesta [package insert]. Marlborough, MA: Sunovion Pharmaceuticals Inc.; May 2014. www.lunesta.com/pdf/PostedApprovedLabelingText.pdf. Accessed January 14, 2016.
40. National Institute on Drug Abuse. *Principles of Drug Addiction Treatment: A Research-Based Guide.* 3rd ed. Revised December 2012. www.drugabuse.gov/sites/default/files/podat_1.pdf. Accessed March 8, 2016.
41. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders (DSM-5).* Arlington, VA: American Psychiatric Association Publishing; 2013.
42. American Geriatrics Society. Choosing Wisely. Revised April 23, 2015. www.choosingwisely.org/clinician-lists/american-geriatrics-society-benzodiazepines-sedative-hypnotics-for-insomnia-in-older-adults/. Accessed March 8, 2016.
43. American Geriatrics Society 2015 Beers Criteria Update Expert Panel. American Geriatrics Society 2015 updated Beers criteria for potentially inappropriate medication use in older adults. *J Am Geriatr Soc.* 2015;63(11):2227-2246.
44. Allain H, Bentue-Ferrer D, Polard E, Akwa Y, Patat A. Postural instability and consequent falls and hip fractures associated with use of hypnotics in the elderly: a comparative review. *Drugs Aging.* 2005;22(9):749-765.
45. Glass J, Lanctot KL, Hermann N, Sproule BA, Busto UE. Sedative hypnotics in older people with insomnia: meta-analysis of risks and benefits. *BMJ.* 2005;331(7526):1169.

BACK TO PAGE 1

City Health Information

Volume 35 (2016) The New York City Department of Health and Mental Hygiene No. 2; 13-20

NYC Health nyc.gov/health

42-09 28th Street, Long Island City, NY 11101 (347) 396-2914

Bill de Blasio
Mayor

Mary T. Bassett, MD, MPH
Commissioner of Health and Mental Hygiene

Division of Mental Hygiene
Gary S. Belkin, MD, PhD, MPH, Executive Deputy Commissioner

Bureau of Alcohol and Drug Use Prevention, Care and Treatment
Hillary Kunins, MD, MPH, MS, Assistant Commissioner
Denise Paone, EdD, Senior Director of Research and Surveillance
Jessica A. Kattan, MD, MPH, Director, Primary Care Integration
Ellenie Tuazon, MPH, Senior Epidemiologist
Shivani Mantha, Project Associate
Krishika Graham, MD, Public Health/Preventive Medicine Resident

Bureau of Mental Health
Myla Harrison, MD, MPH, Assistant Commissioner
Pablo Sadler, MD, MPH, Medical Director

Division of Epidemiology
R. Charon Gwynn, PhD, Deputy Commissioner

Provider Education Program
Ram Koppaka, MD, PhD, Director
Peggy Millstone, Director, Scientific Education Unit
Peter Ephross, Medical Editor
Rhoda Schlamm, Medical Editor

Consultants: Faye Chao, MD; Nathalie Moise, MD, MS; Benjamin Han, MD, MPH;
Christopher Jones, PharmD, MPH

Copyright ©2016 The New York City Department of Health and Mental Hygiene
E-mail *City Health Information* at: nycdohrp@health.nyc.gov
New York City Department of Health and Mental Hygiene. Judicious prescribing of benzodiazepines.
City Health Information. 2016;35(2):13-20.

ASK CHI
Have questions or comments about Benzodiazepines?
E-mail
AskCHI@health.nyc.gov

BACK TO PAGE 1