

Maternal Sleep Toolkit

KEY FACTS

- Physiologic changes of pregnancy can make sleep more difficult. Sleep disturbances affect 75% of pregnant people, peaking in the third trimester.
- Insomnia (38%), restless leg syndrome (20%), and sleep apnea (15%) are the most common sleep disturbances affecting pregnant people.
- Insomnia and sleep disturbances during pregnancy are associated with gestational diabetes, hypertension, preterm birth, cesarean delivery, and preeclampsia/gestational hypertension.

COURSE OF ACTION

- Identify etiologies
- Implement treatment based on etiology
- Provide resources and monitor outcomes



- Use the Global Sleep Questionnaire to identify possible causes (page 2)
- · Incorporate health disparity and pregnancyspecific considerations (page 3)

COMMON ETIOLOGIES FOR POOR SLEEP DURING PREGNANCY 23



- Thyroid Disorder
- Diabetes
- Renal Disease
- Anemia
- Fibromyalgia
- GERD
- Migraines

- - Epilepsy
 - Bruxism
 - · Obstructive Sleep Apnea
 - Asthma
 - Restless Leg Syndrome
 - Chronic Pain



- Depression
- Anxiety
- PTSD
- OCD
- Bipolar

REVIEW MED LIST FOR CULPRITS

COMMON

RISK FACTORS &

COMORBIDITIES

(meds that might cause or exacerbate sleep disturbances)

ORDERS & REFERRALS TO CONSIDER

(for diagnostic clarity)

- · Central nervous system stimulants
- Central nervous system depressant
- Bronchodilators
- Antidepressants

- Beta antagonist
- Diuretics
- Glucocorticoids

- Thyroid function test (TFT)
- Blood sugar & HbA1c
- BUN & creatinine
- Iron studies
- Sleep consult or polysomnogram (PSG)

- · History taking
- Screeners
- NC MATTERS consult for diagnostic clarity

SCREENING FOR SLEEP DISTURBANCES



scream, walk, punch, or kick in your sleep?

Did the following things disturb your

worries, medications, other?

Did you feel sad or anxious?

sleep? Pain, other physical problems,

"Many pregnant people have problems with sleep during pregnancy and in the postpartum period. People don't sleep well for a lot of different reasons. The good news is that there are many things that we can try to help you get some more sleep. Let's talk a little more to figure out what might be keeping you from sleeping well."

The Global Sleep Assessment Questionnaire is a comprehensive screening tool for use in primary care. Consider the following diagnoses and interventions based on questionnaire responses.

GLOBAL SLEEP ASSESSMENT QUESTIONNAIRE AND TREATMENT CONSIDERATIONS 9,10

Medical **Psychiatric** Sleep Global Sleep **Treatment Treatment** Hygiene Consider a diagnosis of... <u>Assessment</u> and **Treatment Treatment** Sleep Questionnaire Education based on based on CBT-I Consult diagnosis diagnosis Do you have difficulty falling asleep, or Insomnia; Obstructive feeling poorly rested in the morning? sleep apnea; Psychiatric Do you fall asleep unintentionally or have Insomnia: Obstructive to fight to stay awake during the day? sleep apnea Life activities; Insomnia; Do sleep difficulties or daytime sleepiness Psychiatric; Medical; interfere with your daily activities? Obstructive sleep apnea Do work or other activities prevent Life activities you from getting enough sleep? Do you snore loudly? Obstructive sleep apnea Did you hold your breath, have breathing Obstructive sleep apnea pauses, or stop breathing in your sleep? Did you have restless or "crawling" feelings in your legs at night that went Restless leg syndrome away if you moved your legs? Did you have repeated leg jerks or Periodic limb disorder leg twitches In your sleep? Do you have nightmares, or did you

Note: Information in the header of the Global Sleep Assessment Questionnaire may facilitate detection of sleep disturbances (i.e. work shift data may aid in detection of circadian rhythm disorders). Also of note, this questionnaire does not screen for narcolepsy. Additional research on the validity of this screener is needed. *Screeners in this toolkit are available online, may require permission for reuse.

Parasomnia; Psychiatric

Life activities; Medical;

Psvchiatric

Psychiatric

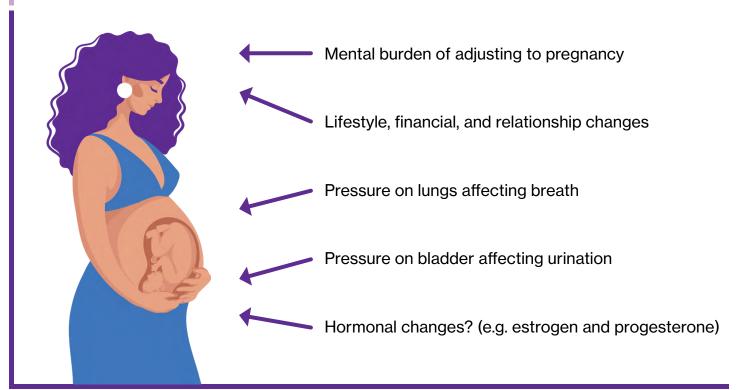
UNDERSTANDING HEALTH DISPARITIES 4

Consider how these factors identified by the National Sleep Foundation may be impacting your patient.

	What can it look like?	What can I do?	What resources can I offer?
Discrimination	Can be based on race or ethnicity or other protected status(es)	Consider referral for legal advice or support with filing a complaint	Legal Aid of North Carolina Civil Rights Division
Access to Care	Black individuals may be less likely to be diagnosed or treated for sleep apnea	Refer for financial assistance or refer to clinics that utilize sliding scale fees	Financial Assistance in Medical Care Find a Health Care Center
Financial Distress	People of color face disproportionate levels of unemployment and poverty	Refer for care management assistance	NC Care 360 Care Management for High-Risk Pregnancies (Medicaid program
Neighborhood Environment	Marginalized communities may live in neighborhoods with higher levels of pollution, noise, allergens, and other stressors	Refer for community resources	DHHS Office of Community Services EPA Environmental Justice
Shift Work	Marginalized communities may be more likely to work night shift, irregular, or extra hours	Consider a work note in alignment with the Pregnancy Workers Fairness Act	Pregnancy Workers Fairness Act
Occupational Hazards	Job stress from discrimination, potential for greater safety risks	Request Safety Data Sheets (SDS) & review perinatal risks from exposures	Safety Data Sheets Mothertobaby (exposure risk info)

Want to learn more? Read about Health Equity in Healthy People 2030 5

PREGNANCY-SPECIFIC CONSIDERATIONS 6,7,8



COMMON DIAGNOSES: INSOMNIA, SLEEP APNEA, RESTLESS LEG SYNDROME

INSOMNIA¹¹

Types of Insomnia:

Insomnia is classified into three categories: early (difficulty falling asleep); middle (difficulty staying asleep); and late (waking up too early). The disruption is distressing and results in daytime functional impairments.

Chronic Insomnia Disorder:

The sleep disturbances occur at least 3 times/week and have been present for the last 3 months.

2 Short-Term Insomnia Disorder:

The sleep disturbances have been present for less than 3 months.

3 Other Insomnia Disorder:

Difficulty in initiating or maintaining sleep that does not meet the criteria of chronic insomnia or short-term insomnia disorder.

3 P Model of Insomnia 12, 13

as Applied to the Perinatal Period



Precipitating Events

Stressors:

- Pregnancy
- Caregiving demands
- physical discomforts
- Nocturia
- · Depression/ anxiety
- Hormonal Changes

Predisposing Factors

Characteristics:

- Neuroticism/ agreeableness
- · Cognitive hyperarousal
- Perinatal rumination
- Female sex

Perpetuating Behaviors

- · More time awake in bed
- Bioactive light at night
- · Dim light during the day
- Sleeping later
- Napping
- · Dampened activity rhythms

Minimal, transient sleep disruption





To assess outcomes and guide treatment, consider the following screeners and diary:

Insomnia
Severity Index¹⁴



Epworth
Sleepiness Scale

15



Consensus Sleep Diary 16





A five question scale assessing insomnia

An eight question scale assessing sleepiness

A weekly sleep diary, available to print or download the app

SLEEP APNEA 17, 18

 Sleep-disordered breathing is associated with obesity, hypertension disorders of pregnancy, gestational diabetes, and cardiomyopathy.



- Obstructive sleep apnea is associated with increased maternal morbidity and mortality, and increased risk for anesthesia complications.
- Frequent snoring is the most common symptom. Refer for a sleep consult for severe daytime drowsiness, debilitating fatigue, and other significant symptoms.
- CPAP settings may need to be adjusted in pregnancy for preexisting sleep apnea.

RESTLESS LEG SYNDROME 1,19

- · Criteria used to confirm diagnosis:
 - (1) urge to move legs with unpleasant sensations.



- (2) symptoms worsen with rest or inactivity,
- (3) symptoms relieved with movement,
- (4) symptoms worsen in the evening
- Can be a primary or secondary diagnosis; consider medications that may exacerbate (e.g. some neuroleptics, antiemetics, antihistamines), end-stage renal disease, iron or folate deficiency (consider supplementation if indicated), and others.
- Benefits of non-pharmacologic measures are not wellstudied, exercise in the first part of the day may be beneficial.

NON-PHARMACOLOGICAL



Sleep Hygiene

Sleep Education

Provide Basic Supports

These are ineffective as

standalone treatments for



CBT-i

First Line Treatment for chronic insomnia

PHARMACOLOGICAL



Medications

Consider Medication with These Factors

- Non-pharmacological treatment is ineffective
- Insomnia is severe
- · Benefits outweigh the risks

SEVERITY OF SYMPTOMS



Sleep Hygiene

chronic insomnia

Avoid napping

Limit caffeine

Avoid nicotine and alcohol

Exercise

Quiet & dark sleep environment

Use a clock (no electronic devices)

Avoid large meals in the evening

Sleep Education 20, 21

Raise awareness and educate about:

- Perinatal-specific anatomical and physiological changes
- Beneficial lifestyle adjustments for stressors
- Detrimental practices based on misinformation

Pro Tip:

Check out babysleep.com for expert tips on infant sleep



Additional considerations when addressing sleep concerns with your patient

Realistic Expectations

- · Have household tasks been simplified?
- · Have work adjustments been considered? (e.g. travel, FMLA usage, etc)
- Have you offered education on typical newborn sleep?

Social Support

- · Are there concerns about interpersonal violence?
- · How is the family adjusting to the pregnancy and/or new baby?
- Has sleep been prioritized over other activities?
- · Would a sleep "prescription" be helpful? (see page 7)

Infant Feeding

- Has infant feeding been optimized? (Breastfeeding generally does not shorten nighttime sleep.)
- Have you evaluated for breastfeeding problems (e.g. mastitis, sore nipples, etc.)?

Infant Sleep

- Have you discussed a safe sleep environment for both parents and baby?
- Have you offered behavioral interventions for sleep?



Cognitive Behavioral Therapy- Insomnia (CBT-i)

What is CBT-i? 3, 20, 23

- · First-line treatment for chronic insomnia
- 6-8 sessions of therapy. focused on 3 aspects of sleep disturbance
- Can prevent postpartum depression

- · A good choice for those who
- · Addresses pregnancy, newborn, and family-related dynamics
- · Sleep restriction guidance is modified to increase flexibility in bed/wake times

CBT-i for Pregnancy²²

- prefer non-pharmacologic options

Find a Provider

- Visit cbti.directory Some therapists may be able to provide telehealth options
- Try Insomnia Coach, a free app from the VA Available in digital form

Component	Purpose
Education	
Sleep education	Improve understanding of normal sleep and behaviors that affect sleep
Cognitive	
Cognitive therapy	Change dysfunctional beliefs about sleep to reduce fear, anxiety, and effort around sleep
Behavioral	
Sleep restriction	Improve sleep efficiency by reducing time spent awake in bed, and set a stable schedule
Stimulus control	Reduce stimuli that increase wakefulness before and during sleep time
Relaxation	Reduce mental activity and physical tension before bed



DID YOU KNOW?

Treating insomnia during pregnancy can prevent postpartum depression symptoms



Pharmacological Treatment

Considerations for Medication Use for Sleep Management During Pregnancy and Lactation

MANAGEMENT ISSUES

MANAGEMENTIOOEO						
Medication	Preconception/ First Trimester	Antepartum	Intrapartum	Neonatal	Lactation	Notes
SSRIs	None confirmed	Decreased serum concentrations across pregnancy	None	Transient withdrawal	Fluoxetine has higher amount of drug in breast milk; other agents might be preferred	Most safety data on sertraline
Benzodiazepines	Inconclusive risk many do not show teratogenic effects; few studies show risk of anal atresia; pulmonary valve stenosis, neural tube defects, cleft lip, limb deficiencies; association with spontaneous abortion	Crosses placenta; association with preterm delivery	Floppy infant syndrome; may be associated with cesarean delivery	Transient withdrawal, association with small-for- gestational age	None confirmed; monitor for sedation; poor feeding and poor weight gain	Most safety data on lorazepam; strong causal connection with motor vehicle accidents Principally for short- term therapy
Tricyclic	Unknown risk	Possible small increased risk of preeclampsia with amitriptyline		Transient withdrawal	Doxepin is incompatible with breastfeeding	Doxepin has strong efficacy in non-pregnant patients & clinical experience with safety in pregnancy
HBRAs ("Z drugs")	None confirmed; Few cases with fetal intestinal malformation (with concomitant meds)	Possible increased risk of small- for-gestational age and preterm delivery		Transitory withdrawal; association with low birth weight and neonatal respiratory depression	Limited data, zolpidem not expected to cause adverse effects; monitor for sedation; poor feeding and weight gain	Strong causal connection with motor vehicle accidents; Zopiclone or zolpidem use may be justified Principally for short- term therapy
Exogenous Melatonin		Freely crosses placenta; may impact fetal circadian rhythms and reproductive function; may impact glucose tolerance		Possible decreased birthweight	Unlikely that short- term use of usual doses of melatonin in pm would adversely affect infant; caution due to long half-life & lack of data	Not monitored by FDA; contents and dose may not be as advertised
Antihistamines	Meta-analysis did not find; May be associated with various anomalies; none confirmed with second generation	None confirmed	None confirmed		Larger doses or more prolonged use may cause effects in the infant or decrease the milk supply	Doxylamine succinate is well-studied for nausea and vomiting in pregnancy & considered safe Principally for short-term therapy
SARIs (Trazodone)	None confirmed	None confirmed; limited data	None confirmed; limited data		Limited data; not expected to cause adverse effects	Trazodone use may be justified

KEY: HBRAs: hypnotic benzodiazepine receptor agonists

SARIs: serotonin antagonist and reuptake inhibitors

SSRIs: selective serotonin reuptake inhibitors

Having trouble choosing a medication for your patient?

Call NC MATTERS to consult with a perinatal psychiatry provider.

RESOURCES FOR PATIENTS

Get Help with Sleep Management During Pregnancy and Lactation

Sleep Safety





CBT-i App (Free)





Sleep Advice





Medication Safety





Just like our kids need a bedtime routine, adults also need signals that tell our bodies that it's time to sleep. Remember, we can't force ourselves to sleep...

Ask your provider for a "prescription" for sleep or extra help that you can share with loved ones

K	Door 'o friends and for	all.	Date
	Dear's friends and far	nily,	
	has recently giv	en birth to	·
	I would like to request your support for adequate	rest and sleep for them.	
	Please consider helping them in the following w	ays so they can nap/rest:	
	Make the beds	Play with other children	
	Hold the baby	(they especially like):	
	Make a meal	Take the kids outside to play	or for a walk
	Prepare snacks (like chop fruits and veggies)	Help the kids with homework	/bedtime or nap routine/
	Wash/load/unload the dishes	bathing/meal or snack	
	Load/fold laundry	Take/pick-up children up fror	n school or activities:
	Water the plants		
	Walk the dog/empty the kitty litter	Drive	to work
	Vacuum/dust	Other	
	Clean		
	Thank you for your support!		, CNM/NP/PA/N

MY PREGNANCY BEDTIME CHECKLIST



Having a routine can help signal to our bodies that it's time to sleep

My bedtime is: am/pm	回解機圖 漢式(2014年
Use this tool to calculate your bedtime: sleepeducation.org/healthy-sleep/bedtime-calculator	
Get up at the same time every day, even on weekends or during vacations	
Every day:	
Get some exercise (the recommendation is generally 150 min	utes per week)
Eat healthy foods	
10 hours before bed: am/pm	
Stop drinking caffeine (limit total daily caffeine to <200 mg)	(a) +1545967 (a)
Use this calculator to calculate your caffeine intake: tommys.org/pregnancy-information/calculators-tools-resources/check-your-caffeine-intake-pregnancy	
60 minutes before bed: am/pm	
Adjust temperature to make house cooler	
Lower the lights	
Consider a healthy snack (do not eat a meal before bed)	
Stop drinking fluids	
Elevate feet if they are swollen	
Consider making a 'to-do' list to help your mind unwind	
Try journaling if you mind is busy	
30 minutes before bed: am/pm	
Turn off electronic devices	
Do something relaxing to help your body unwind	
These activities help me relax (check all that apply):	
Warm shower or bath	
Reading	
Music	
Deep breathing, body scan or other mindfulness activ	rity
Other:	
Not asleep after 20 minutes?	
Get out of bed	
Go do a quiet activity without a lot of light exposure (read or audio content that is not too stimulating)	
Do not use electronics	

^{*}This is not intended to be medical advice – talk to your provider about what's right for you

ADDITIONAL PROVIDER RESOURCES

Free Provider Consultation with NC MATTERS

NC MATTERS is a free consultation service for North Carolina healthcare professionals working with pregnant and postpartum women with mental health concerns. A perinatal psychiatry provider can answer your questions about patient care and help connect you to local resources.



Call

919-681-2909 x 2



Learn more at

ncmatters.org

Information on medication use during pregnancy and infant feeding

Mother to Baby mothertobaby.org

- Fact sheets on perinatal exposures to share with patients
- Chat with an exposure expert, enroll your patient in observational studies, or schedule a patient consult

Lactmed ncbi.nlm.nih.gov/books/NBK501922

 Database on exposure of drug and chemicals to which a breast/chest-feeding parent may be exposed

Sleep safety in babies and young children

Safe to Sleep safesleepnc.org

- · Sharable patient resources
- · SIDS science and research updates

REFERENCES

- Meers JM, Nowakowski S. Sleep During Pregnancy. Curr Psychiatry Rep. 2022;24(8):353-357. doi:10.1007/s11920-022-01343-2
- 2. Winkleman, J. Overview of the treatment of insomnia in adults. In R. Benca, ed. *Uptodate*.Uptodate; 2023. Accessed May 18. 2023. uptodate.com
- 3. Sutton EL. Insomnia. Ann Intern Med. 2021;174(3):ITC33-ITC48. doi:10.7326/
- Sleep health equity: A position statement from the National Sleep Foundation. National Sleep Foundation. Accessed May 19.2023. https://doi.org/wp-content/uploads/2022/01/NSF-Position-Statement Sleep-Health-Equity.pdf
- Health Equity in Healthy People 2030. Healthy People 2030. Accessed May 18, 2023. health.gov/healthypeople/priority-areas/health-equity-healthypeople-2030
- Christian LM, Carroll JE, Teti DM, Hall MH. Maternal Sleep in Pregnancy and Postpartum Part I: Mental, Physical, and Interpersonal Consequences. *Curr Psychiatry Rep.* 2019;21(3):20. Published 2019 Mar 2. doi:10.1007/s11920-019-0999-y

- Jacobson, J., Dugdale, D., Conaway, B. Problems sleeping during pregnancy. National Library of Medicine Medline Plus. April 19, 2022. Accessed May 19, 2023.
- Reichner CA. Insomnia and sleep deficiency in pregnancy. Obstet Med. 2015;8(4):168-171. doi:10.1177/1753495X15600572
- Klingman KJ, Jungquist CR, Perlis ML. Questionnaires that screen for multiple sleep disorders. Sleep Med Rev. 2017;32:37-44. doi:10.1016/j. smrv.2016.02.004
- Roth T, Zammit G, Kushida C, et al. A new questionnaire to detect sleep disorders. Sleep Med. 2002;3(2):99-108. doi:10.1016/s1389-9457(01)00131-9
- Sateia MJ. International classification of sleep disorders-third edition: highlights and modifications. Chest. 2014;146(5):1387-1394. doi:10.1378/ chest.14-0970
- Spielman AJ, Caruso LS, Glovinsky PB. A behavioral perspective on insomnia treatment. Psychiatr Clin North Am. 1987;10(4):541-553
- Swanson LM, Kalmbach DA, Raglan GB, O'Brien LM. Perinatal Insomnia and Mental Health: a Review of Recent Literature. Curr Psychiatry Rep. 2020;22(12):73. Published 2020 Oct 26. doi:10.1007/s11920-020-01198-5
- Bastien CH, Vallières A, Morin CM. Validation of the Insomnia Severity Index as an outcome measure for insomnia research. Sleep Med. 2001;2(4):297-307. doi:10.1016/s1389-9457(00)00065-4
- Johns MW. A new method for measuring daytime sleepiness: the Epworth sleepiness scale. Sleep. 1991;14(6):540-545. doi:10.1093/sleep/14.6.540
- Carney, C. Sleep diary. Sleep and Depression Laboratory. 2023. Accessed May 19, 2023. drcolleencarney.com/sleep-diary
- Dominguez JE, Krystal AD, Habib AS. Obstructive Sleep Apnea in Pregnant Women: A Review of Pregnancy Outcomes and an Approach to Management. *Anesth Analg.* 2018;127(5):1167-1177. doi:10.1213/ ANE.0000000000003335
- 18. Facco FL, Chan M, Patel SR. Common Sleep Disorders in Pregnancy. *Obstet Gynecol.* 2022;140(2):321-339. doi:10.1097/AOG.0000000000004866
- Vlasie A, Trifu SC, Lupuleac C, Kohn B, Cristea MB. Restless legs syndrome: An overview of pathophysiology, comorbidities and therapeutic approaches (Review). Exp Ther Med. 2022;23(2):185. doi:10.3892/etm.2021.11108
- Sedov ID, Anderson NJ, Dhillon AK, Tomfohr-Madsen LM. Insomnia symptoms during pregnancy: A meta-analysis. J Sleep Res. 2021;30(1):e13207. doi:10.1111/jsr.13207
- Bei B, Pinnington DM, Quin N, et al. Improving perinatal sleep via a scalable cognitive behavioural intervention: findings from a randomised controlled trial from pregnancy to 2 years postpartum. *Psychol Med.* 2023;53(2):513-523. doi:10.1017/S0033291721001860
- Manber, R. (2022, March 17). Cognitive behavioral therapy for perinatal insomnia. YouTube. Retrieved from www.youtube.com/watch?v=SmlVN4HSUu
- Tomfohr-Madsen LM, Clayborne ZM, Rouleau CR, Campbell TS. Sleeping for Two: An Open-Pilot Study of Cognitive Behavioral Therapy for Insomnia in Pregnancy. Behav Sleep Med. 2017;15(5):377-393. doi:10.1080/15402002.20 16.1141769
- Amitriptyline. MothertoBaby. November 1, 2022. Accessed May 19, 2022. mothertobaby.org/fact-sheets/amitriptyline
- Chaudhry SK, Susser LC. Considerations in Treating Insomnia During Pregnancy: A Literature Review. Psychosomatics. 2018;59(4):341-348. doi:10.1016/j.psym.2018.03.009
- Cuomo A, Maina G, Neal SM, et al. Using sertraline in postpartum and breastfeeding: balancing risks and benefits. Expert Opin Drug Saf. 2018;17(7):719-725. doi:10.1080/14740338.2018.1491546
- 27. Facco FL, Chan M, Patel SR. Common Sleep Disorders in Pregnancy. Obstet Gynecol. 2022;140(2):321-339. doi:10.1097/AOG.0000000000004866
- 28. Fluoxetine. National Library of Medicine Drugs and Lactation Database. May 15, 2022. Accessed May 19, 2022. ncbi.nlm.nih.gov/books/NBK501186
- Koren G, Clark S, Hankins GD, et al. Maternal safety of the delayedrelease doxylamine and pyridoxine combination for nausea and vomiting of pregnancy; a randomized placebo controlled trial. BMC Pregnancy Childbirth. 2015;15:59. Published 2015 Mar 18. doi:10.1186/s12884-015-0488-1
- Miller MA, Mehta N, Clark-Bilodeau C, Bourjeily G. Sleep Pharmacotherapy for Common Sleep Disorders in Pregnancy and Lactation. Chest. 2020;157(1):184-197. doi:10.1016/j.chest.2019.09.026
- 31. Palagini L, Bramante A, Baglioni C, et al. Insomnia evaluation and treatment during peripartum: a joint position paper from the European Insomnia Network task force "Sleep and Women," the Italian Marcè Society and international experts task force for perinatal mental health. Arch Womens Ment Health. 2022;25(3):561-575. doi:10.1007/s00737-022-01226-8
- 32. Winkleman, J. Overview of the treatment of insomnia in adults. In R. Benca, ed. Uptodate.Uptodate; 2023. Accessed May 18. 2023. uptodate.com
- Okun ML, Ebert R, Saini B. A review of sleep-promoting medications used in pregnancy. Am J Obstet Gynecol. 2015;212(4):428-441. doi:10.1016/j. ajog.2014.10.1106