

# Nighttime sleep disturbances occur in **>90% of people with Smith-Magenis Syndrome (SMS)<sup>1</sup>**



Smith-Magenis Syndrome (SMS) is a developmental disorder frequently caused

**by a deletion in  
chromosome 17p11.2**

that encompasses the retinoic acid-induced 1 (RAI1) gene. In more rare cases, SMS is caused by a point mutation in the RAI1 gene<sup>1</sup>



SMS occurs in  
**1 out of  
15,000-25,000 births<sup>2,3</sup>**



Individuals with SMS have characteristic physical and behavioral features,

**including significant  
sleep disturbances<sup>1</sup>**

Bring this to your next doctor's visit to discuss  
nighttime sleep disturbances in SMS



# SMS Guide For Your Doctor



Severe sleep disturbances are common among people with SMS, and represent a **significant and often debilitating challenge** for people and their families<sup>4,5</sup>

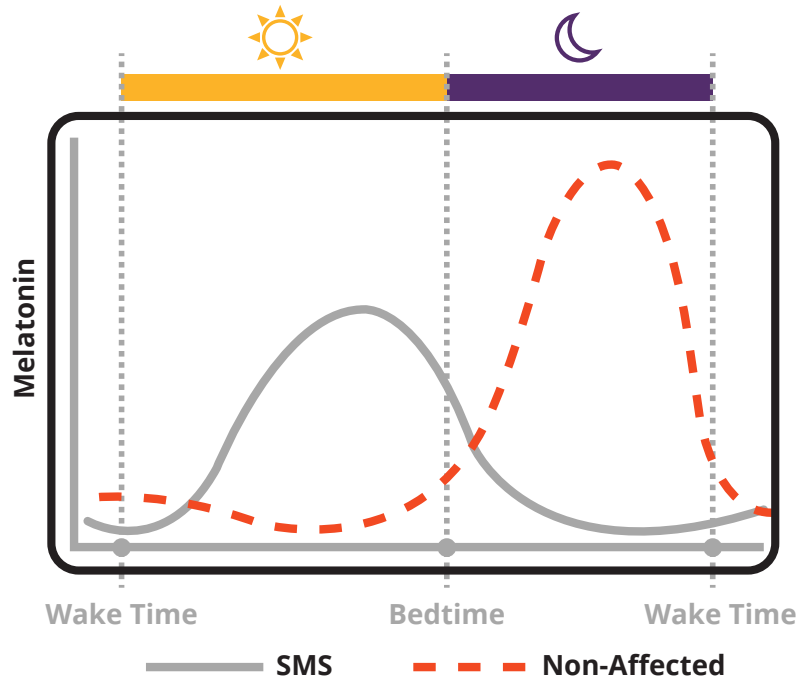


Sleep disturbances in individuals with SMS include **difficulty falling asleep, frequent nighttime awakenings, early wake times,** reduced total sleep time at night, and **daytime sleepiness**<sup>4-6</sup>



A 5-year-old child with SMS may typically get **6.5h of sleep per night** on average, compared to a same-age child without SMS, who can average between **8.5 and 9h of sleep per night**<sup>7,8</sup>

# SMS Guide For Your Doctor



In most people, levels of the hormone melatonin increase in the evening and peak in the late night, during sleep.<sup>9</sup> **In many individuals with SMS this rhythm is altered**, often marked by lower melatonin levels that peak during the day<sup>10-12</sup>



Altered and/or diminished pattern of melatonin secretion in people with SMS may be the result of a **dysfunctional internal circadian clock**, most likely due to loss of the RAI1 gene<sup>13,14</sup>

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# SMS Guide For Your Doctor

## Questions to ask if you have concerns about sleep in a potential patient with SMS:



Does this person or their parent/caregiver indicate that they have trouble falling asleep at night?



Does this person often wake up very early in the morning, commonly well before parents or caregivers?



Does this person get a full night's sleep, and feel awake and well rested the next day?



Do they often fall asleep during the day, particularly in the afternoon, or take excessively long naps that can disrupt their daytime routine or reduce productivity?

## Important Diagnostic Information for SMS

ICD-10

Q93.5/Q93.88  
Smith-Magenis Syndrome

### REFERENCES

1. Elsea, SH & Girirajan, S. *Eur J Hum Genet.* 16, 412-421 (2008). 2. Greenberg, F et al. *Am J Hum Genet.* 49, 1207-1218 (1991). 3. Smith, AC, Magenis, RE & Elsea, SH. *J Assoc Genet Technol.* 31, 163-167 (2005). 4. Foster, RH, et al. *J Genet Couns.* 19, 187-198 (2010). 5. Shayota, BJ & Elsea, SH. *Curr Opin Psychiatry.* 32, 73-78 (2019). 6. Nag, HE, Hoxmark, LB & Nærland, T. *J Intellect Disabil.* 23, 359-372 (2019). 7. Trickett, J, et al. *Sleep.* 43(4):1-26 (2020). 8. Gropman, AL, Duncan, WC, Smith, AC. *Pediatr Neurol.* May; (34) 337-50 (2006). 9. Dawson, D & van den Heuvel, CJ. *Ann Med.* 30, 95-102 (1998). 10. De Leersnyder, H, et al. *J Pediatr.* 139, 111-116 (2001). 11. Potocki, L, et al. *J Med Genet.* 37, 428-33 (2000). 12. Spruyt, K, et al. *CNS Neurosci Ther.* (2016). 13. De Leersnyder, H. *Trends Endocrinol Metab.* 17, 291-298 (2006). 14. Williams, SR, et al. *Am J Hum Genet.* 90, 941-949 (2012).

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