Journal of Comparative Effectiveness Research

Plain language summary: does treatment with vibegron result in improvements in overactive bladder (OAB) symptoms that are meaningful to people with OAB?

Jeffrey Frankel[1], David Staskin[2], Susann Varano[3], Diane K Newman[4], Steven G Gregg[5] and Janet Owens-Grillo[6]

[1]Seattle Urology Research Center, Seattle, WA, USA; [2]Tufts University School of Medicine, Boston, MA, USA; [3]Clinical Research Consulting, Milford, CT, USA; [4]Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, USA; [5]National Association for Continence, Charleston, SC, USA; [6]Sumitomo Pharma America, Inc. (formerly Urovant Sciences, Inc.), Marlborough, MA, USA

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Summary

What is this summary about?

This is a plain language summary of an article published in the journal *Advances in Therapy*. In 2020, the US Food and Drug Administration (also called the FDA) approved a medicine called vibegron to treat overactive bladder, also called OAB. The key results used to approve vibegron were from the EMPOWUR study. In the EMPOWUR study, participants who took vibegron had fewer urination episodes, urgency episodes, and bladder leaks each day than those who took a pill containing no medicine, called a placebo. At the end of the study, participants also rated how much their overactive bladder symptoms changed overall during EMPOWUR by responding to a survey. Many participants rated their overactive bladder symptoms as improved overall.

How to say (double click on the sound icon to play the sound)

Vibegron: vye-BEG-rahn
Beta-3 adrenergic receptor: BAY-ta three ah-druh-NUR-jik ree-SEP-tor
Tolterodine: tohl-TEH-ruh-deen

This study asked if improvements in the number of urination episodes, urgency episodes, and bladder leaks caused by urgency were associated with feeling better overall. This study also looked at how many participants in the EMPOWUR study had improvements in the number of urination episodes, urgency episodes, and bladder leaks that were big enough to matter. A separate group of people with overactive bladder were asked about the magnitude of improvements that would be important to them. This group had not participated in the EMPOWUR study.

What were the results?

EMPOWUR participants who reported that taking medicine resulted in their overactive bladder symptoms getting better overall also generally reported fewer daily urinations, urgency episodes, and bladder leaks after treatment. Many had changes in their symptoms that were meaningful. Meaningful was defined for each symptom as: at least 15% fewer urinations, 50% fewer urgency episodes, and 75% fewer bladder leaks. Participants who received vibegron had meaningful reductions in the daily number of episodes of urination, urgency, and bladder leaks more often than those who received the placebo (pill with no active medicine). People with overactive bladder who did not participate in the study were interviewed and said that improvements to those symptoms, similar to those seen in the EMPOWUR study, would be important to them.

What do the results mean?

This study suggests that the results we measured in the EMPOWUR study may also reflect changes in overactive bladder symptoms that are big enough to be important to people with overactive bladder. Many participants who took vibegron in the EMPOWUR study felt that it helped to improve their individual overactive bladder symptoms. This may also help improve quality of life of participants.

Becaris PUBLISHING

Where can I find the original article on which this summary is based?

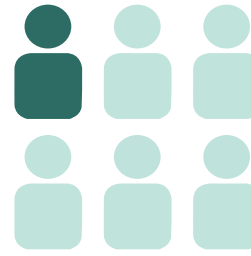
The original article is called "Interpretation of the meaningfulness of symptom reduction with vibegron in patients with overactive bladder: analyses from EMPOWUR." You can read the original article published in *Advances in Therapy* at this link: https://link.springer.com/article/10.1007/s12325-021-01972-8

Who is this article for?

This summary is for people with overactive bladder symptoms. It may also be helpful for their families and caregivers. Healthcare providers and patient advocates may also find it useful. It may help people understand how much benefit in individual symptoms and quality of life may be expected from treatments for overactive bladder.

What is overactive bladder?

Overactive bladder, also known as OAB, is a medical condition that affects 1 in 6 adults in the US. People with overactive bladder need to urinate many times during the day. They may wake up to urinate at night. People with overactive bladder may also feel a sudden, urgent need to urinate, making them feel like they need to get to the bathroom as quickly as possible. This may result in bladder leaks.



Overactive bladder is more common in women than in men. It also becomes more common over time in people over 40 years of age.

Overactive bladder symptoms can disrupt sleep, work, and social activities. People with overactive bladder symptoms are more likely to feel anxious or depressed than people who do not have overactive bladder symptoms.

What is vibegron?

Vibegron is a medicine approved by the US Food and Drug Administration to treat overactive bladder. It is in a newer class of medicine for treating overactive bladder called **beta-3 adrenergic receptor agonist**. Vibegron is a pill that you take once a day. It is prescribed to people with overactive bladder to help them urinate less often, reduce strong bladder urgency, and have fewer bladder leaks.

Beta-3 adrenergic receptor agonist: An agonist is a substance that can bind to a receptor. A receptor is found either inside or on the surface of a cell. The binding of a particular substance to a receptor can cause an effect in the cell. The beta-3 adrenergic receptor is a type of receptor found in the bladder. When this receptor is activated, the bladder relaxes. Vibegron is a medicine that can bind to this type of receptor.

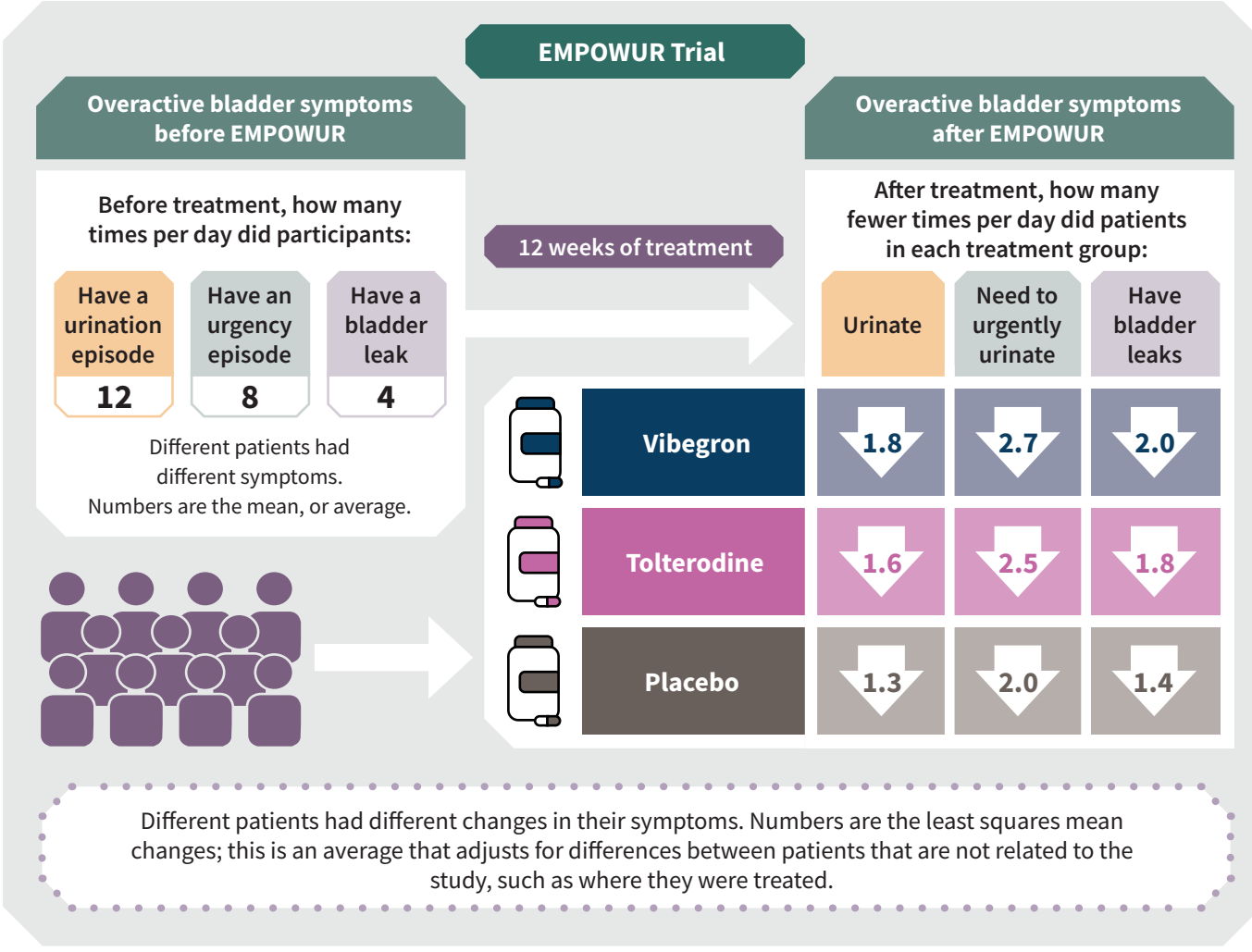
Why was this study carried out?

We wanted to know if people taking vibegron felt that it reduced their symptoms enough to make a meaningful difference in the quality of their lives and to make it worth taking this medicine every day.

What is the EMPOWUR study?

This study used data from a large research study named EMPOWUR. In the EMPOWUR study, participants with overactive bladder took one of these pills: (1) vibegron, (2) another overactive bladder medicine called tolterodine, or (3) **placebo**. The participants agreed to take the pill for 12 weeks. They did not know which pill they were taking. Participants filled out a paper diary for a week to note when they had **urination episodes**, **urgency episodes**, and **bladder leaks** caused by an urgent need to urinate. They filled out the diaries before they started taking the pill and at weeks 2, 4, 8, and 12 of the study. Then we measured how overactive bladder symptoms changed over the 12 weeks. We found that participants who took vibegron for 12 weeks urinated less often, felt less urgency to urinate, and had fewer bladder leaks due to urgency than participants who took placebo. We looked at bladder leaks that happened when a participant had an urgent need to urinate but not leaks that were caused by things other than urgency, for example having a few drops of urine leak out during an activity like a cough, sneeze, or laugh.

Placebo: A pill with no medicine in it. This is sometimes called a "sugar pill." In some studies, participants may be assigned to take a placebo rather than the study medication.
Urination episode: A time that the participant urinated (peed).
Urgency episode: A time that the participant felt a sudden and intense desire to pee right now.
Bladder leak: A time when accidental peeing happened because of an intense need to urinate and not making it to the toilet in time. Any accidental peeing episodes not related to urgency were not counted.



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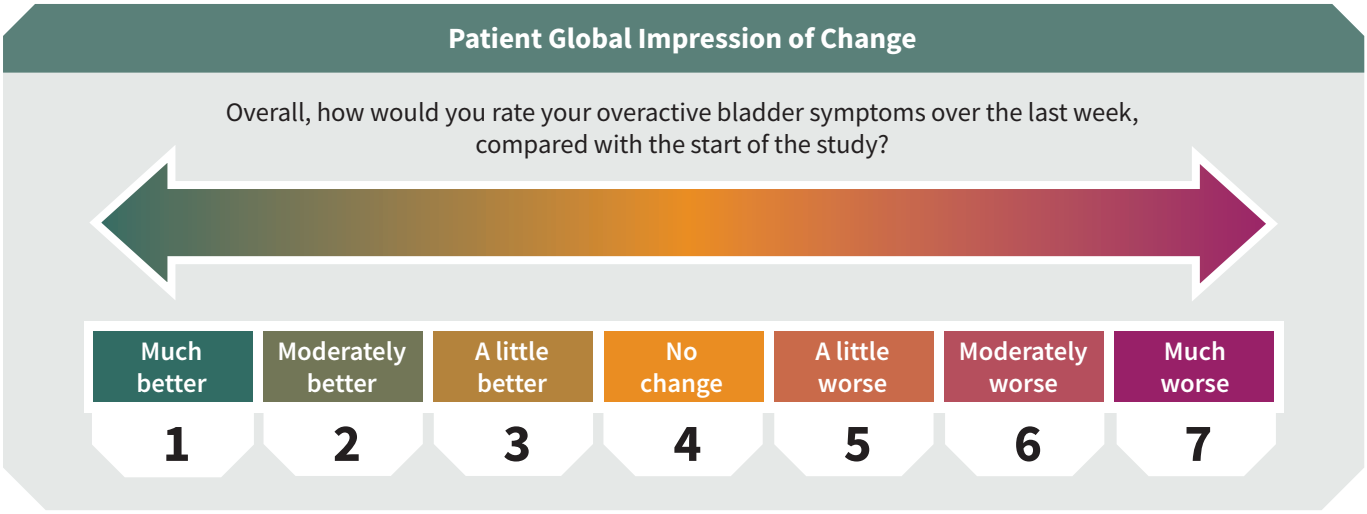
PGI-C: A scale used to measure how a patient feels their symptoms have changed overall. The patient rates their symptoms on a scale from 1 to 7. A lower number (1, 2, or 3) means that the symptoms got better. A higher number (5, 6, or 7) means the symptoms got worse.

During the EMPOWUR study, we asked participants to rate how much their overactive bladder symptoms changed. They rated their symptoms using a scale called the Patient Global Impression of Change (**PGI-C**).

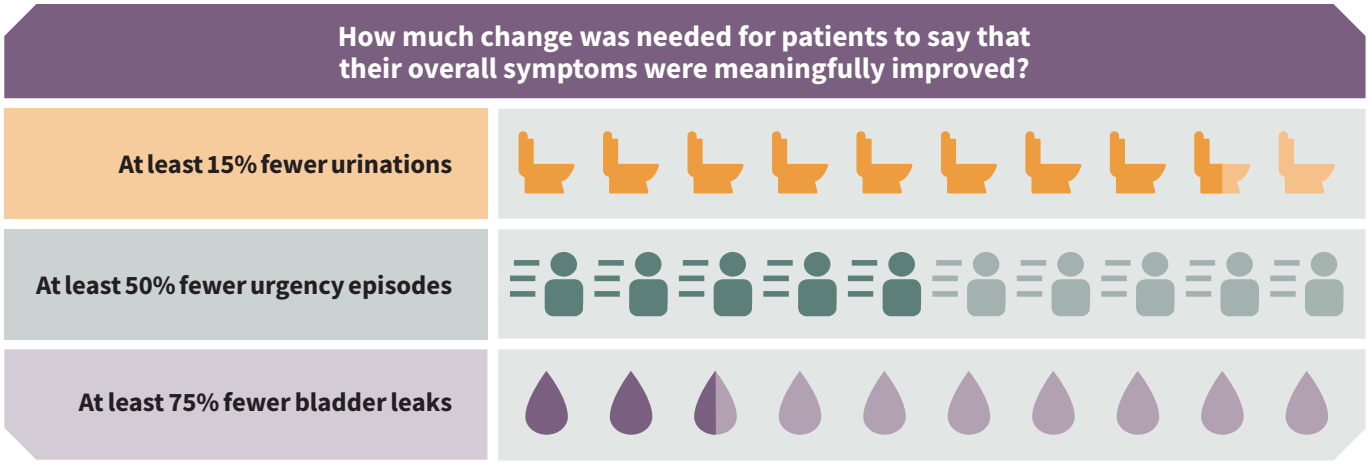


Participants in the EMPOWUR study who took vibegron had greater overall symptom improvements compared to those who took placebo. They were more likely to rate their symptoms as "much better" than those who took placebo.

What we did in this study and why

In this study, we wanted to find out if participants who took vibegron in the EMPOWUR study had **meaningful** decreases in their overactive bladder symptoms.

Meaningful: A way of looking at whether a medicine reduces symptoms by enough to matter to the person experiencing the symptoms. We looked at previous studies to decide what was meaningful for each symptom.



We also looked at whether having fewer urinations, less urgency, and fewer bladder leaks was associated with participants feeling better overall. This was also measured using the PGI-C scale in all participants, regardless of whether they took vibegron, tolterodine, or placebo. This analysis did not compare any treatments.

We then counted how many participants from the EMPOWUR study from each treatment group had at least 15% fewer urinations, how many had at least 50% fewer urgency episodes, and how many had at least 75% fewer bladder leaks.

In addition, we interviewed a separate group of people with overactive bladder. We wanted to know if what we selected as meaningful agreed with what they considered to be an important improvement. We asked them to describe their overactive bladder symptoms and tell us which symptoms bothered them the most. We asked them how many times a day they had symptoms. We also asked them how much of an improvement in each symptom would be meaningful enough to keep taking a medicine.

Who took part in the study?

Who participated in EMPOWUR?

1518 people with overactive bladder

43% were 65 years and older

85% were women, 15% were men

Who took part in participant interviews?

11 people with overactive bladder

8 women, 3 men
Average age: 50 years

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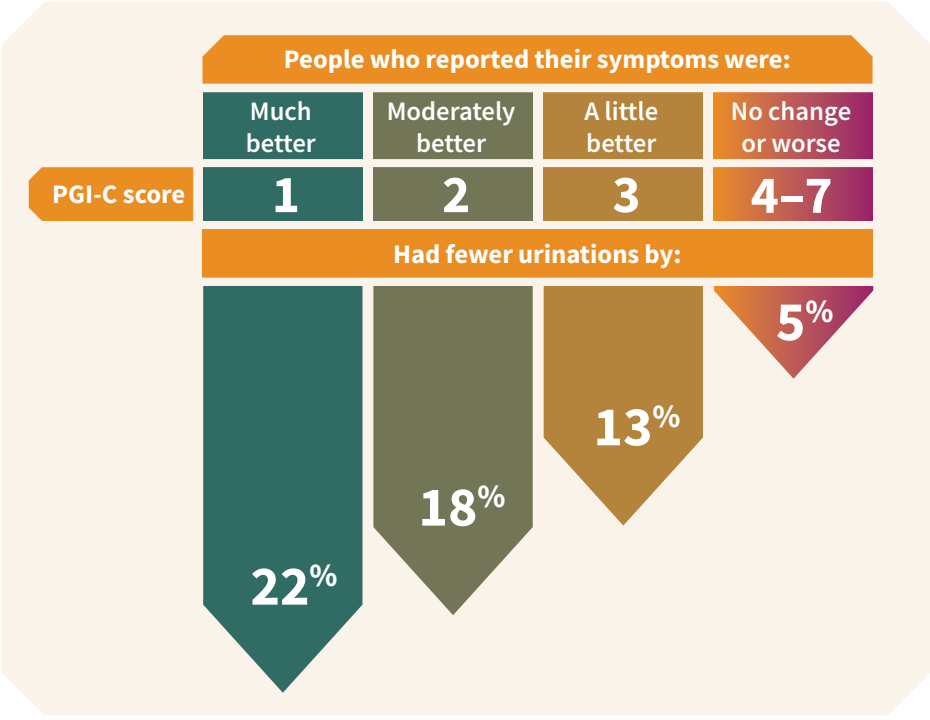
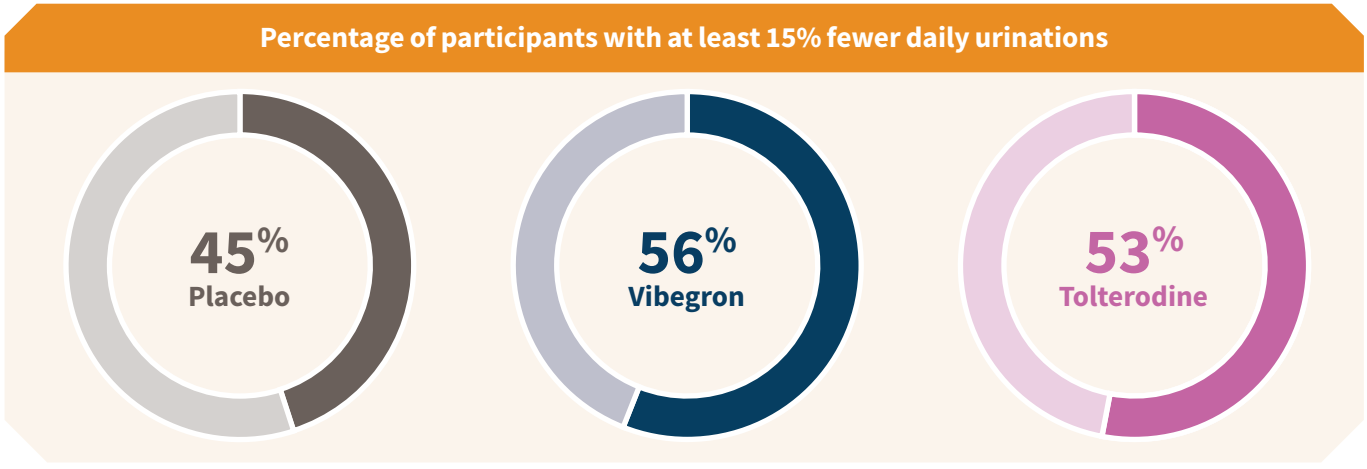
What were the results of the study?

1 Did participants have meaningful reductions in their number of urinations?

Participants who reported an improvement on the PGI-C scale generally had fewer daily urinations. We determined before that having at least 15% fewer daily urinations was a meaningful change to study participants. We found that participants who reported that their symptoms were "moderately better" or "much better" had meaningful changes in their number of urinations. This means that having fewer urinations was associated with feeling better overall.

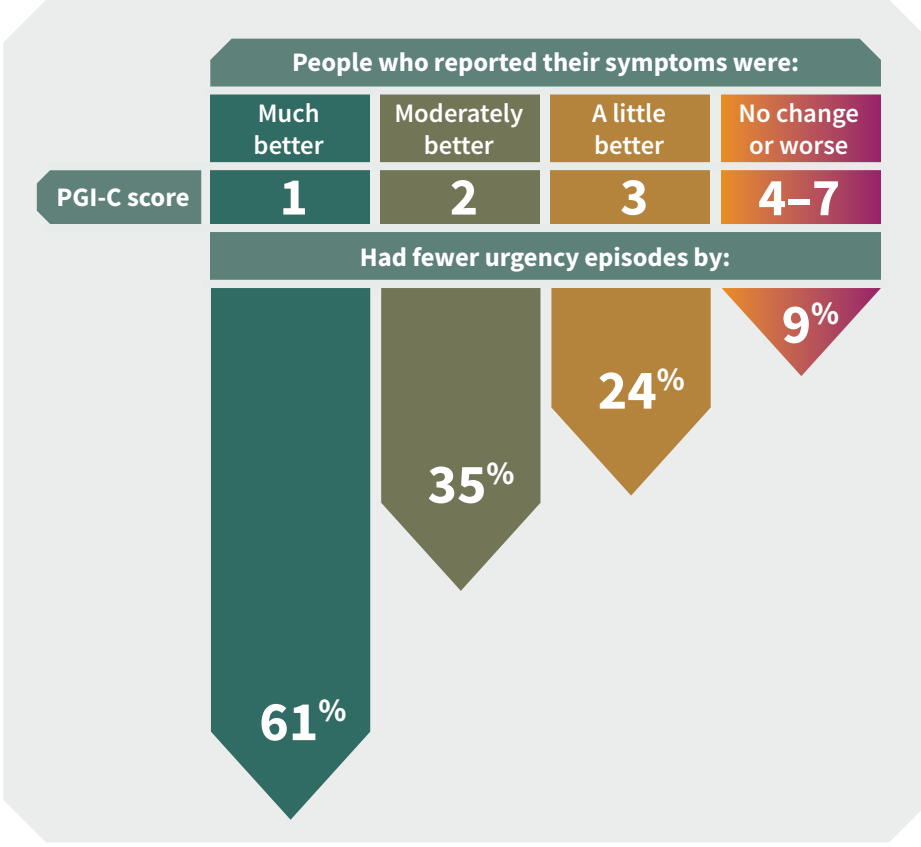


More participants who took vibegron had meaningful changes of at least 15% fewer daily urinations compared with those who took placebo. Some participants had more than 15% fewer daily urinations.

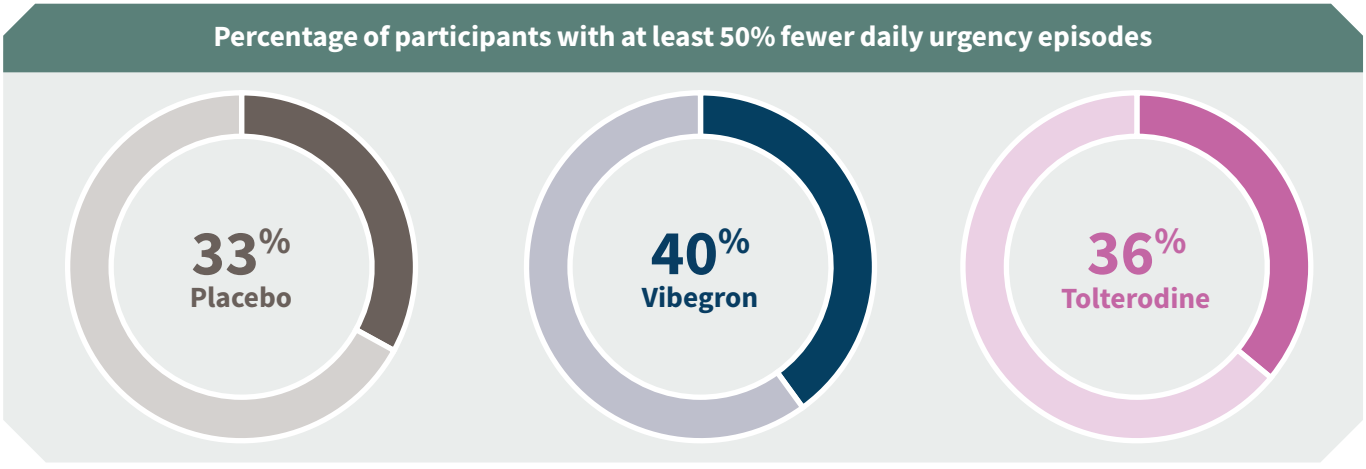


2 Did participants have meaningful reductions in urinary urgency?

Participants who reported an improvement on the PGI-C scale generally had fewer urgency episodes. We determined earlier that having 50% fewer daily urgency episodes was a meaningful change. Those who rated their symptoms as "much better" on the PGI-C scale had 61% fewer urgency episodes after 12 weeks of treatment. This means that having fewer urgency episodes was associated with feeling better overall.



More participants who took vibegron had at least 50% fewer daily urgency episodes compared with those who took placebo.



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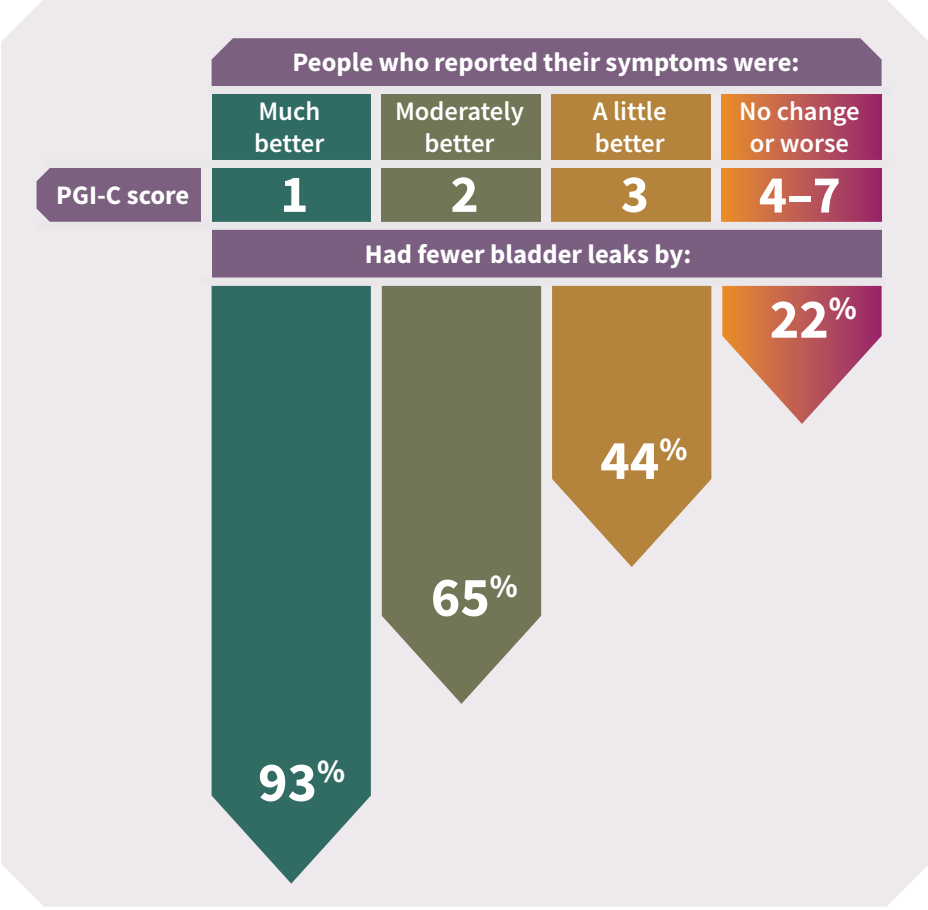
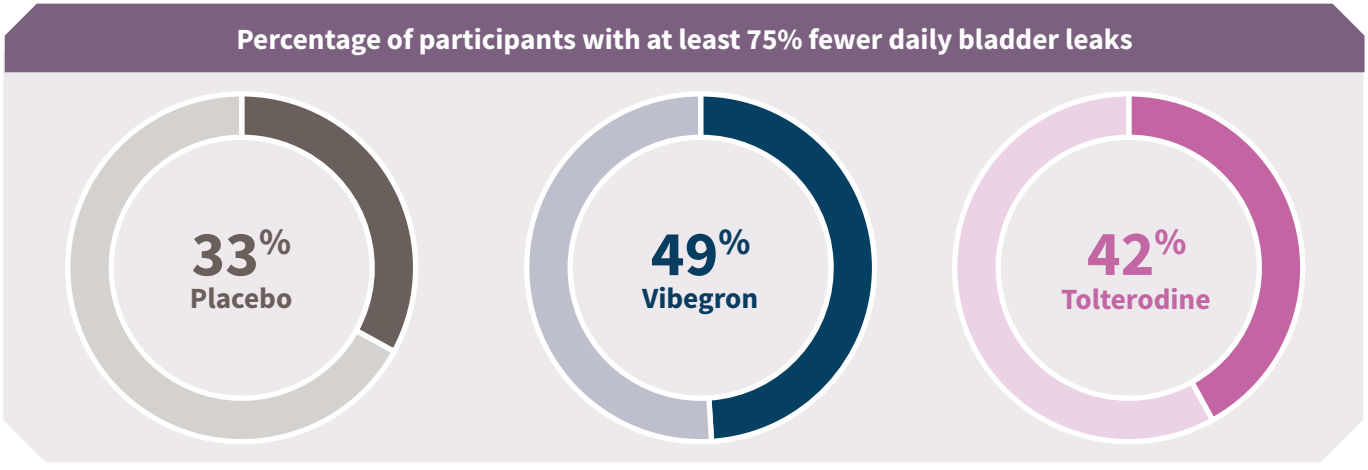
3 Did participants have meaningful reductions in bladder leaks caused by the urgent need to urinate?

Participants who reported an improvement on the PGI-C scale generally had fewer bladder leaks. We determined earlier that having 75% fewer daily bladder leaks was a meaningful change. Those who rated their symptoms as "much better" on the PGI-C scale had 93% fewer bladder leaks after 12 weeks of treatment. This means that having fewer bladder leaks was associated with feeling better overall.

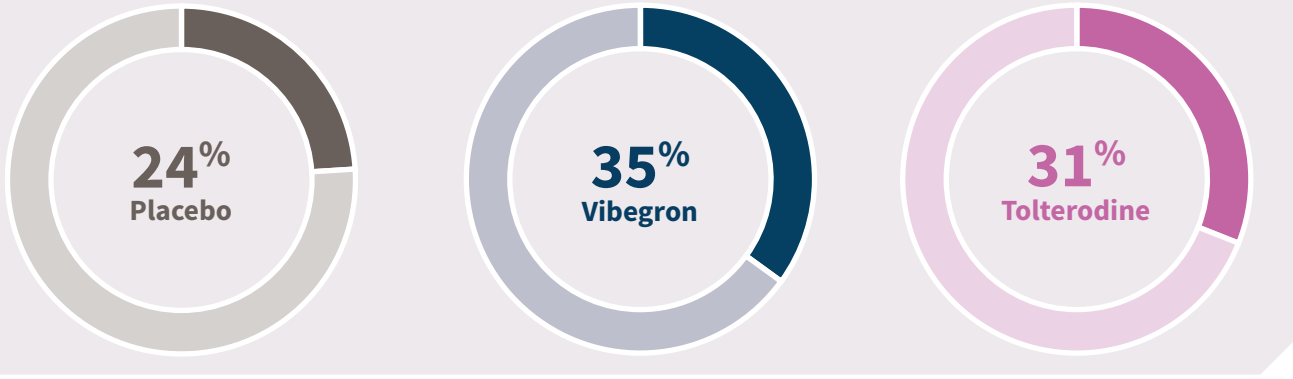


More participants who took vibegron had at least 75% fewer daily bladder leaks compared with those who took placebo.



In addition, more participants who took vibegron had at least 90% fewer daily bladder leaks compared with those who took placebo.

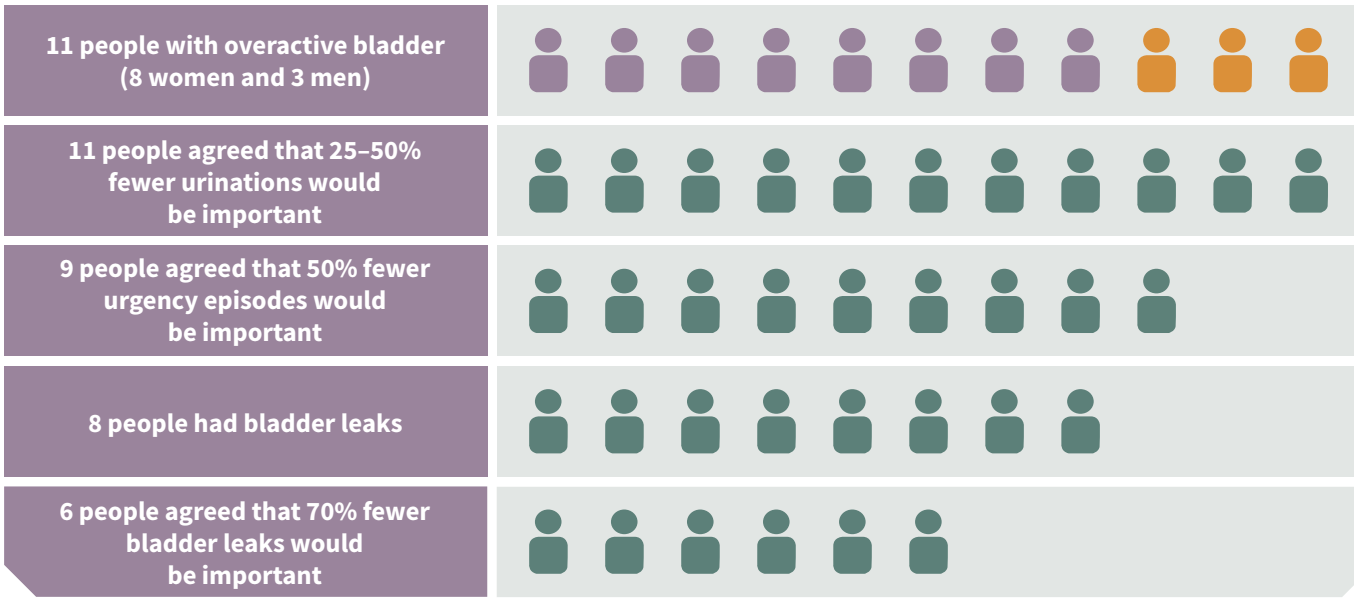
Percentage of participants with at least 90% fewer daily bladder leaks



4 Did people with overactive bladder believe these changes were meaningful?

We interviewed 11 people with overactive bladder. We asked them to tell us about their overactive bladder symptoms and which symptom bothered them the most. We asked how much their symptoms would need to improve to make a meaningful difference to them. Many of the people who were interviewed agreed with the meaningful changes and that the symptoms we looked at in the EMPOWUR study (high daily urinations, urgency episodes, and bladder leaks) were among the symptoms that bothered them the most.

Who participated in overactive bladder interviews?



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What do the results of this study mean?

The results of this study mean that the outcomes we measured in the EMPOWUR study probably reflect changes in overall overactive bladder symptoms that are meaningful to people with overactive bladder. Many of the participants with overactive bladder who took vibegron had improvements in their symptoms that were helpful and important to them. People with overactive bladder that we interviewed separately said that their worst symptoms included frequent, urgent urination and bladder leaks.

Of the participants who took vibegron:

- **56% had at least 15% fewer daily urinations**
- **40% had at least 50% fewer urgency episodes**
- **49% had at least 75% fewer bladder leaks**

Of the participants who took placebo:

- **45% had at least 15% fewer daily urinations**
- **33% had at least 50% fewer urgency episodes**
- **33% had at least 75% fewer bladder leaks**

More participants who took vibegron had reductions in symptoms that were meaningful improvements than participants who took a placebo. These improvements in symptoms may also help improve quality of life of participants.

Where can readers find more information on these studies?

The original article is titled "Interpretation of the Meaningfulness of Symptom Reduction With Vibegron in Patients With Overactive Bladder: Analyses From EMPOWUR" and was published in *Advances in Therapy* in 2022. The paper is free to access. You can find it using the link below:

- https://link.springer.com/article/10.1007/s12325-021-01972-8

If you want to learn more about EMPOWUR, you can find a plain language summary by following this link:

- https://becarispublishing.com/doi/10.57264/cer-2023-0043

The results of the EMPOWUR study were published in the *Journal of Urology* in 2020. The article is titled "International Phase III, Randomized, Double-Blind, Placebo and Active Controlled Study to Evaluate the Safety and Efficacy of Vibegron in Patients With Symptoms of Overactive Bladder: EMPOWUR." The paper is free to access. You can find it using the link below:

- https://www.auajournals.org/doi/10.1097/JU.0000000000000807

The EMPOWUR study is registered at ClinicalTrials.gov. You can find it using the link below:

- https://clinicaltrials.gov/ct2/show/NCT03492281

Patient-reported outcomes from the EMPOWUR study were published in the *International Journal of Clinical Practice* in 2021. The article is titled "Vibegron Improves Quality-of-Life Measures in Patients With Overactive Bladder: Patient-Reported Outcomes From the EMPOWUR Study." The paper is free to access. You can find it using the link below:

- https://onlinelibrary.wiley.com/doi/full/10.1111/ijcp.13937

Who sponsored these studies?

Sumitomo Pharma America (formerly Urovant Sciences), the maker of vibegron, supported this work.

Financial and competing interests disclosure

Jeffrey Frankel, MD, is an advisor for Sumitomo Pharma America (formerly Urovant Sciences); is a meeting participant/lecturer for Myovant, Pfizer, and Sumitomo Pharma America (formerly Urovant Sciences); and is an investigator for Astellas, Exact Sciences, Johnson & Johnson, and Pfizer. David Staskin, MD, is a consultant for Astellas, AzuraBio, UroCure, and Sumitomo Pharma America (formerly Urovant Sciences); is an investigator and meeting participant/lecturer for Astellas and Sumitomo Pharma America (formerly Urovant Sciences); and holds other interests in AzuraBio and UroCure. Susann Varano, MD, is a consultant and speaker for Sumitomo Pharma America (formerly Urovant Sciences), a principal investigator for Clinical Research Consulting, and holds academic positions at Sacred Heart University and University of Bridgeport. Diane K Newman, DNP, ANP-BC, is an editor for Digital Science Press, an advisor to COSM and Sumitomo Pharma America (formerly Urovant Sciences), and has received research funding from the Society of Urologic Nurses and Associates and National Institutes of Health. Steven G Gregg, PhD, is Executive Director at the National Association for Continence, Charleston, SC. Janet Owens-Grillo, PhD, MS, is an employee of Sumitomo Pharma America (formerly Urovant Sciences).

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