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**Chicago ENT/Chicago Sleep
Center accelerates patient
outcomes, reduces overhead
with EnsoSleep PPG**

Case Study: Chicago ENT / Chicago Sleep Center accelerates patient outcomes, reduces overhead with EnsoSleep PPG

About Chicago ENT / Chicago Sleep Center

Chicago ENT / Chicago Sleep Center (CENT/CSC) is a multi-location practice providing comprehensive ENT patient care and sleep disordered breathing diagnostics and treatment. Since 2021, CENT/CSC has deployed EnsoData's suite of solutions to support more than 500 in-lab and at-home sleep studies per month. In 2024, CENT/CSC explored EnsoData's latest FDA-cleared solution - [EnsoSleep PPG](#) - to help address a number of common challenges in the traditional home sleep testing (HSAT) workflow.

To streamline the home testing process, reduce device costs, and expedite patient outcomes, CENT/CSC adopted EnsoSleep PPG, an FDA-Cleared, AI-Powered Sleep Diagnostic SaMD that leverages data from pulse oximeters. This case study explores CENT/CSC's EnsoSleep PPG adoption and the significant benefits of adding affordable devices and cutting edge AI to their workflow.



Scott Rice
Director of
Ancillary Services



Laura Brannigan
RPSGT
Lab Manager

Bottlenecks delay patient care

Like many organizations using traditional flow-based devices to drive their home sleep testing program, CENT/CSC's common challenges include the high cost of both devices and associated inventory, manual patient processing of data, a large patient backlog, and other delays in the patient journey.

And like any good leader, [Scott Rice](#), Director of Ancillary Services for CENT/CSC, is always on the lookout for ways to support his staff and improve patient outcomes.

“Exploring ways to streamline our processes is always a priority, as we're committed to improving efficiency and the patient experience,” shared Rice, adding: *“Anything I can do to make the process more efficient is worth exploring.”*

This drive to continue to improve efficiency and patient outcomes led Rice and the CENT/CSC team to explore EnsoData's latest FDA-cleared multi-night HSAT solution, EnsoSleep PPG.

Top 3 Challenges

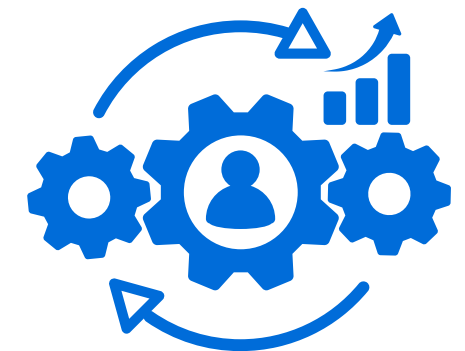
1. Expensive Devices and Inventory



2. Large Backlog of Patient Studies



3. Manual Sleep Data Uploading and Processing

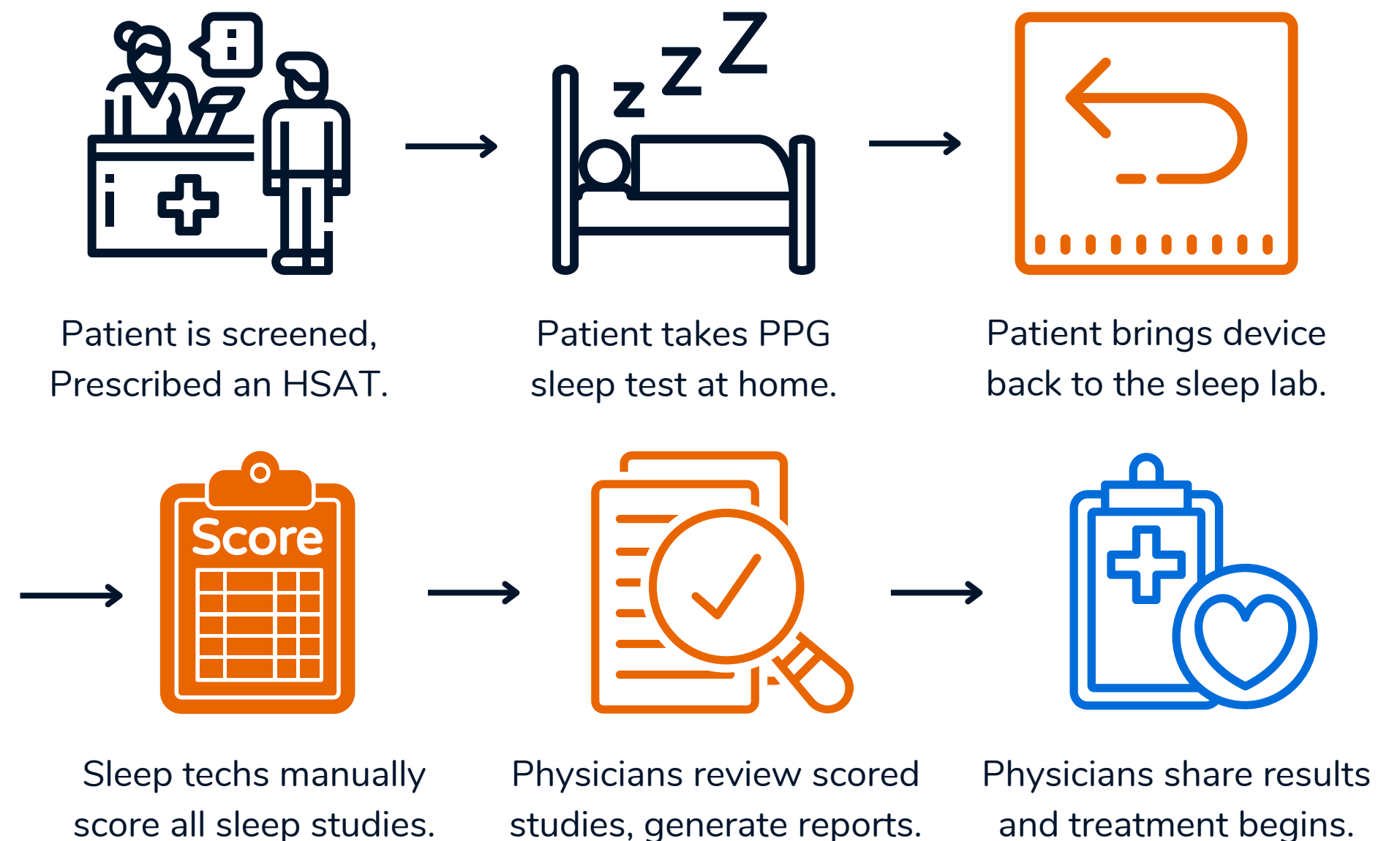


Traditional HSATs require manual data uploading

Per [Laura Brannigan](#), RPSGT, Lab Manager, the slowest part of the home testing process is requiring a sleep tech to manually upload patient sleep data collected by flow-based HSAT devices at the clinic. Because this is dependent on staff availability and patient timing, it usually takes multiple days depending on who is working on a specific site.

There are also times when patient data is either corrupted or not collected properly and a patient needs to take another test. Brannigan noted that when patients required a second night of testing, they needed to come back into the clinic to pick up the device again. This combination of factors is one of CENT/CSC's biggest bottlenecks.

The Home Sleep Testing workflow before adding EnsoSleep PPG to accelerate the process:



High costs, access to devices, lengthy backlog prohibitive of HSAT program growth

Brannigan and Rice each point out another significant bottleneck in the program: securing enough devices that are both available for use and affordable. The limited supply and high costs cause delays in labs delivering tests to patients.

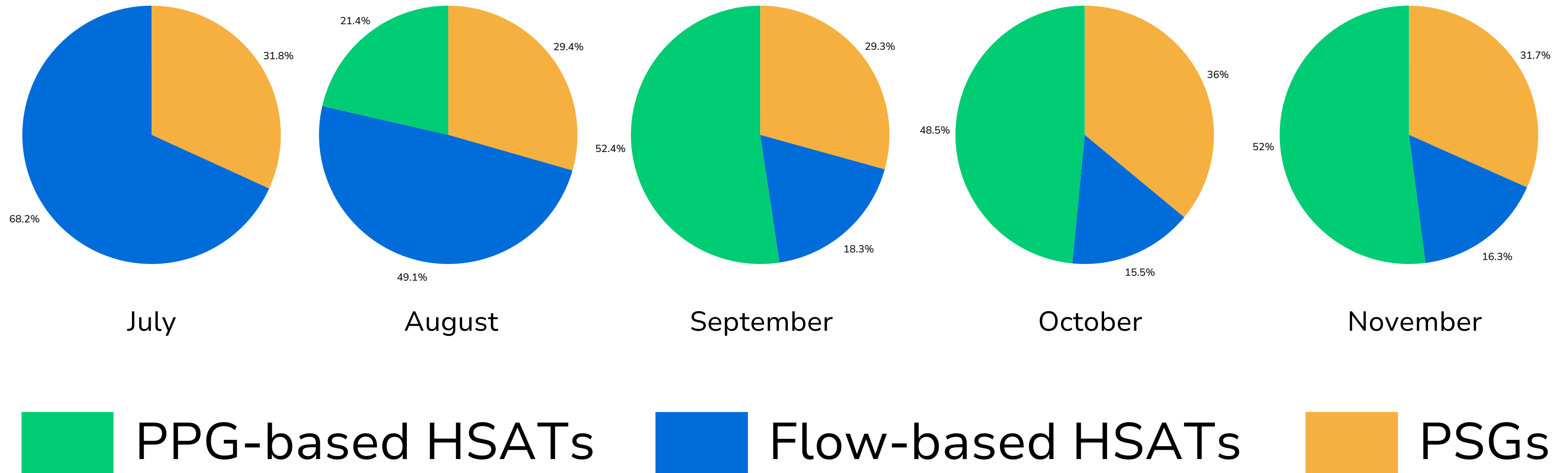
“Our growing practice could not get our hands on enough HSAT units to keep up with the volume that our lab required. We were booking out 3-4 weeks for home sleep studies, creating a backlog and bottleneck for all things sleep related,” said Brannigan.

Rice noted the HSAT hardware cost has traditionally been another major barrier to entry for increasing home testing. He noted that devices can range in price from \$2,000 to \$5,000 and may require other disposable parts, while reimbursement is only around \$200 per study. *“If I could get the hardware cost off my books and move to software, it would reduce our home testing device costs significantly,”* said Rice.

CENT/CSC also needs to manage supply chain issues, delays, and the rising cost of the additional disposable parts for devices, especially for cannulas which have risen since the pandemic. In totality, there were a number of challenges that led the CENT/CSC team to be early adopters of EnsoData’s EnsoSleep PPG HSAT solution.

Streamlining operations with EnsoSleep PPG

To address these home sleep testing challenges, Chicago ENT/Chicago Sleep Center implemented EnsoSleep PPG for study uploading, scoring, and reporting. The AI/ML-driven software enabled a quick transition from flow-based to PPG-based devices, with over 75% of home studies shifting to PPG within 3 months, all while PSG volume remained steady.



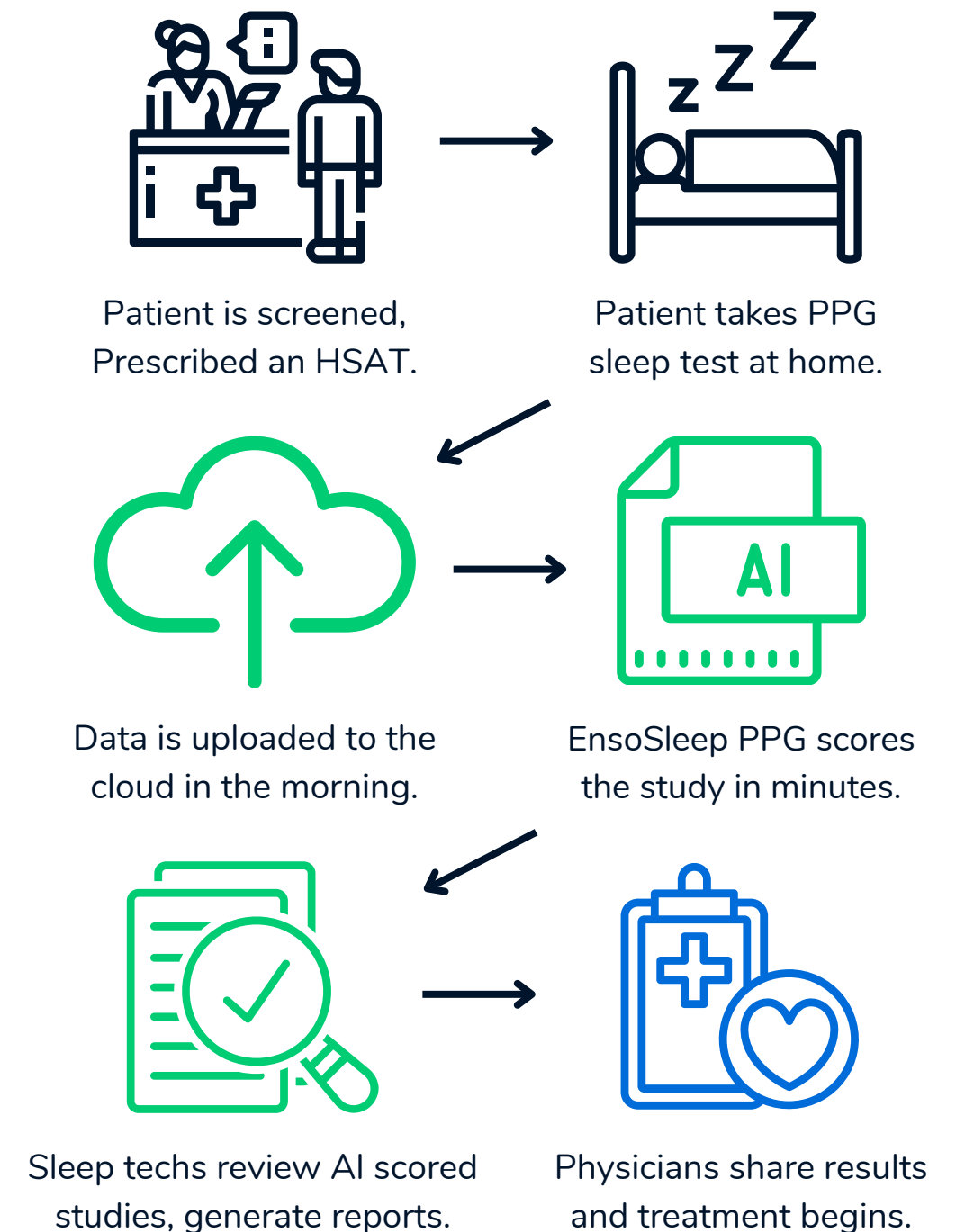
Addressing the slow, manual workflow with AI

Brannigan highlights the immediate impact of shifting from flow-based to PPG-based HSATs powered by EnsoSleep PPG. She noted that for patients experiencing sleep issues, slow access to their sleep study diagnosis can negatively impact their everyday life. Per Brannigan: *“With the drop-box workflow, patients would often get frustrated with turnaround times, asking ‘why is this taking two weeks?’ EnsoSleep PPG allows us to go in and get that report from start to end so much quicker. Patients are satisfied because they’re not waiting. It’s so much easier for everyone all around. We love it!”*

With EnsoSleep PPG, patients use a mobile app to start and stop the sleep test recording and when the test is complete, it is immediately uploaded to EnsoData’s cloud-based study management platform, significantly improving turnaround time.

“EnsoSleep PPG is so much more efficient. Getting studies into the system, getting them read and finalized, and enabling patients to come in and get the care they need faster without having to rely on staff to upload data from the devices. It’s a lot better and more efficient,” said Brannigan.

EnsoSleep PPG Workflow



Reducing costs and improving ROI with affordable pulse ox home sleep testing devices

By shifting from traditional HSAT hardware to EnsoSleep PPG's software-based solution, CENT/CSC saw a significant reduction in both device and inventory costs. Both Rice and Brannigan noted the immense value of shifting to affordable hardware, powered by software, rather than more expensive all-in-one solutions.

“We went from a \$2,000 piece of hardware to a \$150 piece of hardware, with no disposables. Those economics make EnsoSleep PPG very attractive, even if I'm paying on a per patient basis on the back end,” said Rice.

Regarding cannulas and other disposable inventory, Brannigan added the simplicity of PPG-based devices is both a cost saver but also resulted in higher quality data collection and analysis, leading to fewer patient delays, noting: *“Removing the inventory and cost issues really made this an easy decision.”*

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Enhancing operational efficiency across devices, locations, and Medicare reimbursement levels

With a large staff spread across four sleep labs, one cloud-based study management platform for all studies and reports simplifies and accelerates the process for their whole team, but especially for Brannigan managing the lab. She said: *“I love that I am easily able to set filters to check where we are in the process, and see if there are any physicians falling behind. This really helps us stay aligned and have an appropriate turnaround to keep things moving with follow-up, and creating a treatment plan for that specific patient.”*

For Rice, EnsoSleep PPG’s device-agnostic and scalable workflow enables efficient handling of growing patient volumes. He emphasizes the flexibility of consolidating all in-lab and home testing devices into the same study management platform: *“The main benefit of Study Management is that it is device agnostic. With Enso, if I’m acquiring new systems or technology for labs, I don't have to have all the same hardware to be able to manage my labs. That is always a huge benefit for me,”* said Rice.

Study Management’s built-in functionality allows switching from 3% to 4% scoring rules with a simple toggle, speeding up the process for patients moving to Medicare without the need for a new sleep test. Brannigan added: *“I've had no issues going back into Study Management 1 or 2 years back to change a report from the 3% scoring rule to 4% to account for patients switching to Medicare and immediately create a new report.”*

Comparative data analysis across multiple nights

With the majority of flow-based devices, diagnostic testing across multiple nights is challenging. However, evidence shows that there is value in doing so. In this [Roeder M, Bradicich M, Schwarz EI](#), et al. study, **one in ten people received an incorrect diagnosis based on a single night of studying.**

With PPG-based devices and EnsoSleep PPG, testing over multiple nights is simple. Just put the watch or ring back on, open the app, and record another study. Patients can also take that second test without ever returning their device.

“Our patient population is not inconvenienced with having to make multiple trips to and from the lab to repeat testing,” Brannigan said. *“We can simply just advise them to repeat the test the following night.”*

Beyond the diagnostic benefits of multi-night testing, CENT/CSC also uses PPG based devices to help provide critical insights for clinicians at the beginning of a patient’s CPAP therapy journey. Brannigan added: *“Being able to run a night of baseline followed by a night with their therapy whether it be PPG with Inspire, OA, CPAP/BIPAP. With this technology we have that comparative data analysis.”*

The subsequent night(s) of testing with the patient using the prescribed therapy helps clinicians assess the effectiveness of the therapy in real-time, offering a deeper understanding of how the patient responds to different treatment modalities. It also may allow for fine-tuning the therapy such as adjusting pressure settings, mask fit, or other elements as needed.

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The implementation of [EnsoSleep PPG](#) transformed Chicago ENT / Chicago Sleep Center's sleep study processes, streamlined operations, reduced hardware expenses, and enhanced patient satisfaction. The team is confident that EnsoSleep PPG will enable them to meet growing demand with a scalable and efficient system.

“We’re at a point now where we can hopefully increase our patient volume. I really love that we implemented EnsoSleep PPG and these watches,” concluded Brannigan.

[Schedule an EnsoSleep PPG Demo](#)

