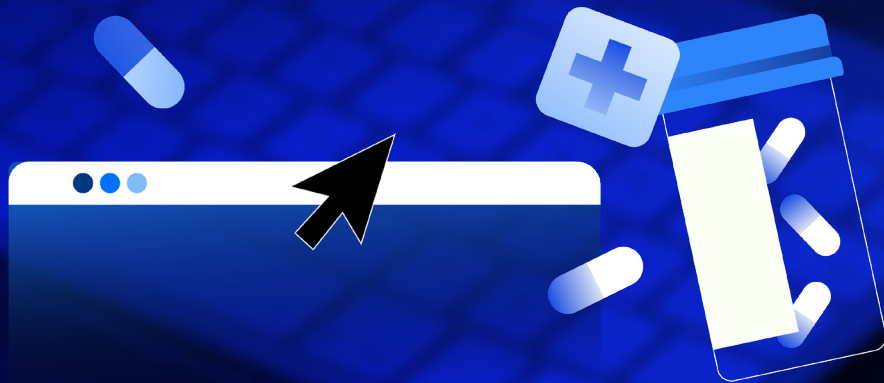


# IMPROVING MEDICATION ADHERENCE

Case Study

A DATA-DRIVEN APPROACH  
FOR CHRONIC DISEASE,  
POWERED BY AWS



softserve

## SUMMARY

Jazz Pharmaceuticals, a Dublin, Ireland-based company specializes in therapeutics to treat sleep disorders, epilepsy, and hard-to-treat cancers. They selected SoftServe to build a digital solution to provide narcolepsy patients with an easier way to track their symptoms, while supporting adherence to their ongoing treatment regimen.

## CHALLENGE

Jazz Pharmaceuticals was preparing to release XYWAV, a low-sodium successor to its first narcolepsy medication. XYWAV has a regimented, twice-nightly dosing schedule and black-box warning. The steps to getting and staying on the treatment are complex. Jazz Pharmaceuticals believed patients would need help enrolling in the JazzCares support programs and adhering to the regimen.

## SOLUTION

A digital platform, called myWAV, consisting of a web portal and a mobile app to guide patients through the process of treatment onboarding, and then help motivate and track compliance with the treatment regimen.

## BENEFITS

**Engagement:** The number of patients using the app increased every quarter since launch and patients have steadily increased their deep engagement with myWAV and with its tools.

**Adherence:** Patients who registered for myWAV were two times more likely to seek and receive their first shipment of XYWAV than patients who did not register. They were 3.5 times more likely to seek and receive a second shipment and 4.5 times more likely to seek and receive a third shipment.

Narcolepsy is a serious neurological disorder that disrupts the brain's ability to control sleep cycles. Those who live with narcolepsy may involuntarily fall asleep, even while driving or talking, but that's far from the only symptom. They may also experience severe fatigue during the day, the inability to sleep at night, temporary sleep paralysis, and even hallucinations as they fall asleep or wake. Jazz Pharmaceuticals is a leader in developing medicines to manage the two most common symptoms of this disorder.



## A digital experience to manage a twice-nightly dosing schedule

The FDA approved a successor to XYREM called XYWAV, which treated the same symptoms, but with a low-sodium formulation. As Jazz Pharmaceuticals prepared for the rollout of XYWAV, they knew patients would need support adhering to its twice-nightly dosing regimen, which requires one dose immediately before bed and another 2.5 to four hours later.

Jazz Pharmaceuticals envisioned a digital experience for patients to help them follow the treatment plan. Patients would benefit because adherence means they would be less likely to experience excessive daytime sleepiness and cataplexy, also known as the sudden loss of muscle control while awake.

## An experienced partner with a dedicated UX practice

Because of a longstanding partnership dating back to 2015, Jazz Pharmaceuticals selected SoftServe to realize this vision. Jazz Pharmaceuticals knew that the digital experience they provided to patients had to be intuitive and effortless to use. After all, progressing through the steps to get treatment and following XYWAV's dosing schedule was a perceived challenge. Patients wouldn't use the app if it added additional friction.

SoftServe excels in developing digital experiences for the healthcare and life sciences industry and has a dedicated user experience (UX) practice that specializes in creating an intuitive, engaging patient experience. SoftServe also ensures the solutions they develop and deliver to their clients address the security and regulatory standards the life sciences industry requires. This ensures the safety of products, protects data and privacy, and contributes to overall business success.

## Developing the vision for myWAV

SoftServe and Jazz Pharmaceuticals developed the requirements and set goals and milestones for myWAV, the brand name for the digital experience and solution that would include a web portal and a mobile app. Through multiple workshops, SoftServe engaged with the team to develop a shared vision.

Knowing that the patient experience was of utmost importance, SoftServe needed to understand the voice of the patient. SoftServe, with the help of Jazz Pharmaceuticals, conducted patient research and user testing to understand how patients prefer to interact with the mobile app and web portal.

### Goals



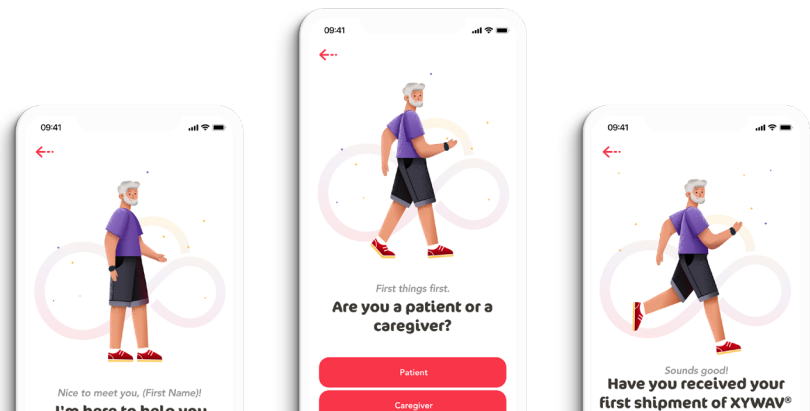
Once prescribed, increase the number of people who complete their first-time fill (FTF)



Decrease the time between the prescription and the FTF



Increase adherence to treatment



## Stage specific content

After working with Jazz Pharmaceuticals and analyzing input from XYREM patients, SoftServe found that mirroring the treatment regimen in a three-stage process within myWAV would offer an intuitive and engaging UX. In the first stage, myWAV would help guide patients through their first prescription. The second stage would help them with adherence through the first month of treatment. The third stage would guide the patient through ongoing maintenance.

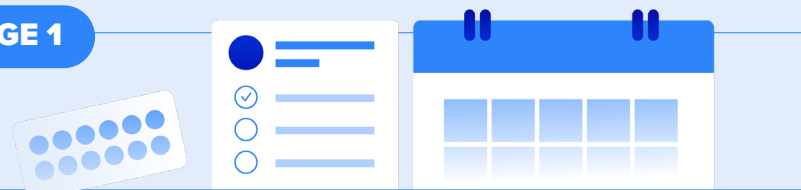
SoftServe developed myWAV through an iterative, agile process that delivered functional components of the solution regularly. The team collaborated with Jazz Pharmaceuticals and patients to get feedback, ensuring that the final product was easy to use and met their needs. Some of this feedback was also to inform future enhancement and development of the myWAV digital experience solution.

## Ensuring patient understanding and compliance

myWAV users with a XYWAV prescription are required to go through XYWAV Risk Evaluation and Mitigation Strategy program (REMS) enrollment. The program ensures that patients are educated on and understand the risks and safe use conditions of XYWAV and agree to follow the requirements of XYWAV REMS. XYWAV is only dispensed to patients enrolled in XYWAV REMS.

After REMS enrollment, here's what the myWAV solution looked like when it was rolled out to patients:

### STAGE 1



Interacting with patients taught SoftServe that patients often struggled with the process of starting a medication like XYWAV. As a highly regulated, black-box medication, the steps to enroll and receive it are complex. It's well established that if patients find the onboarding process for a new medication too difficult, they'll drop off. To make the first phase of treatment easier, myWAV includes a checklist of everything a patient needs to do before they receive their first treatment.

However, this was not a traditional checklist, and SoftServe discovered patients found it overwhelming. To address that challenge, patients receive a step-by-step process, complete with animated illustrations to help guide them throughout their journey.

### STAGE 2



This stage starts when patients begin taking XYWAV, and it helps guide them through the first month of treatment. Patients receive information about potential side effects and symptoms, along with help navigating the refill process so there's no interruption in treatment.

Since the stage's introduction, scheduling tools have been added, allowing patients to set up alerts to be notified when it's time to take XYWAV. Patients also get reminders about their eating schedule, which they need to adjust during the first dose. The app reinforces adherence by reminding them of their progress throughout the regimen.

### STAGE 3

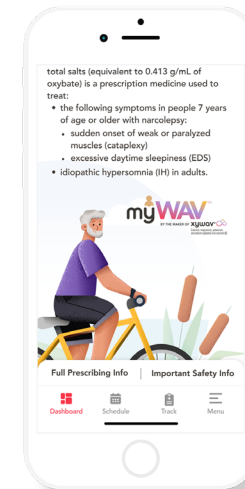


The third stage helps patients with long-term maintenance and adherence to a dosing schedule. The app and portal help patients track their adherence over time and record episodes of cataplexy through a notes application. Patients can also share information about symptoms with their healthcare provider. This data paints a clear picture of how symptoms are changing over time, supplying helpful longitudinal data for healthcare providers to consider as they determine adjustments to treatment plans.

Additionally, the SoftServe data science team created a solution where anonymous data was gathered from all myWAV users. Jazz Pharmaceuticals could then visualize and analyze how the app was being used by patients to make improvements to the app and to any future therapies.

***SoftServe was a tremendous partner that not only met all of our requirements but also took action on patients' needs. Thanks to SoftServe, myWAV is helping patients adhere to their treatment schedule, which means they're experiencing fewer symptoms and a better experience overall.***

Gregg M. Arbittier, Director of Consumer Marketing, Jazz Pharmaceuticals



## Data-driven solution powered by AWS

Because of our long-standing partnership, with 10 years of proven delivery of cloud-based solutions, we selected Amazon Web Services (AWS) for this project.

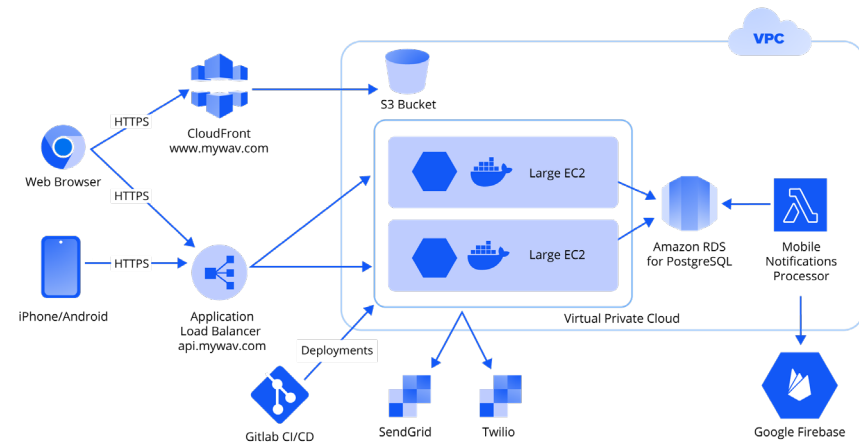
**Infrastructure:** The myWAV application is a three-tier web and mobile application, consisting of a web and mobile application, a Java Spring Application Programming Interface (API) backend, and a PostgreSQL database. All components (except for the mobile applications) are hosted on an AWS environment containing only Jazz production applications managed by SoftServe.

SoftServe guarantees that solutions meet the security and regulatory standards required by the life sciences industry:

**Database:** The database uses AWS Relational Database Service (RDS) for PostgreSQL 11.8 and the data is encrypted when at rest through Amazon RDS-encrypted DB instances. The encryption follows an industry-standard AES-256 encryption algorithm and allows network access only from within the private cloud to EC2 instances and through SoftServe's corporate virtual private network (VPN).

**EC2 instances:** The system ensures security and efficiency by avoiding application data storage on instances, employing Lacework for comprehensive security, restricting network access, using containerization with Docker, and implementing monitoring with DataDog.

**Data encryption in transit:** The data transmission across various components is secured through encryption methods. Specific traffic permissions and protocols are implemented to enhance security within the virtual private cloud (VPC) environment.



**S3 bucket:** The Simple Storage Service (S3) bucket contains web files that are publicly accessible, and there is no private or sensitive information stored in it.

**Integrations:** The system has external integrations with SendGrid (for email sending), Twilio (SMS for multifactor authentication), and Google Firebase (for mobile notifications). These integrations are configured with API keys and certificates that are specific to the production environment of myWAV.

**Roles and permissions:** To enhance security, only SoftServe software development management and DevOps system engineers have access to the AWS console. Moreover, access is limited to those connecting through SoftServe's Perimeter81 corporate VPN. DataDog has integration with AWS, specifically for S3 bucket write access.



As an AWS Consulting Partner and a digital authority in cloud-enabled solutions, SoftServe helps life science organizations by sharing our experience and creating customized solutions based on organizational goals, patient needs, and technology capabilities.

## The myWAV portal and mobile app delivered on all fronts



### ENGAGEMENT

- Not only has the number of patients using the app steadily increased, but they're also using it more often. The average session count per user has grown 53% since launch.
- Patients are also taking full advantage of all the myWAV features. Almost every tool feature within myWAV has seen steady and significant utilization growth.



### ADHERENCE

- Most notable, however, is the impact on adherence: myWAV users are far more likely to receive subsequent shipments of XYWAV than non-users.
- Specifically, myWAV users are:
  - Twice as likely to receive their first shipment
  - 3.5 times more likely to receive a second
  - 4.5 times more likely to receive a third shipment compared to those who don't use the app

In conclusion, the collaboration between Jazz Pharmaceuticals and SoftServe yielded remarkable results. The development of the myWAV digital experience has not only met the initial goals and milestones set by both teams but has exceeded expectations in terms of patient engagement and adherence.

# About SoftServe

SoftServe is a premier IT consulting and digital services provider. We expand the horizon of new technologies to solve today's complex business challenges and achieve meaningful outcomes for our clients. Our boundless curiosity drives us to explore and reimagine the art of the possible. Clients confidently rely on SoftServe to architect and execute mature and innovative capabilities, such as digital engineering, data and analytics, cloud, and AI/ML.

Our global reputation is gained from more than 30 years of experience delivering superior digital solutions at exceptional speed by top-tier engineering talent to enterprise industries, including high tech, financial services, healthcare, life sciences, retail, energy, and manufacturing. Visit our [website](#), [blog](#), [LinkedIn](#), [Facebook](#), and [X \(Twitter\)](#) pages for more information.

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