

# Medisanté and Gnomon Streamline IoT Data Collection for Diabetes Care with AWS



## Executive Summary

DM4all is a care management platform for Type 2 diabetes created by a consortium of companies led by Gnomon Informatics with the participation of Medisanté. Medisanté Hub streamlines IoT data collection into DM4all straight over a cellular network. It uses AWS Lambda for serverless computing, Amazon DynamoDB for database services, and Amazon CloudWatch for monitoring.

## The Daunting Challenges of Diabetes Care for National Healthcare Systems

Type 2 diabetes is a complex and chronic disease with major impact on patient well-being and healthcare systems worldwide. According to the World Health Organization, approximately 60 million Europeans have diabetes, the vast majority being Type 2. Its severity can be mitigated through intensive management with the right combination of therapeutics and lifestyle changes. Tracking health indicators such as weight, blood glucose, and blood pressure is essential to effective and timely treatment. Adopting value-based care, in which providers are compensated based on outcomes, requires such Internet of Things (IoT) data for accurate payment and tracking of progress in outcomes.

Remote patient monitoring using connected medical devices and data platforms has long been seen as a potential solution. However, such devices are often too complex for patients to configure. Healthcare providers struggle with collecting readings while meeting a broad variety of security, privacy, and regulatory compliance requirements.

## Partnering for Better Population Health Outcomes

A best-of-breed consortium including [Medisanté](#) and led by [Gnomon Informatics](#) set out to solve those daunting challenges within a pan-European initiative called [ProEmpower](#). The group created [DM4all](#), a new digital platform dedicated to the effective management of type 2 diabetes. The platform includes web and mobile interfaces along with intelligent medical devices to support diabetes care.

Medisanté, an [AWS Advanced Technology Partner](#), provides a global medical IoT hub that securely connects and manages devices at scale for remote patient monitoring initiatives driven by providers or health authorities. Medisanté Hub uses Amazon Web Services (AWS) to provide direct-to-cloud device connectivity and management to DM4all. "By abstracting IoT devices in a single global cloud, Medisanté redefines device management and interoperability with health IT systems while shielding care teams and patients from device complexity and privacy risks," says Gilles Lunzenfichter, chief executive officer at Medisanté. "In addition, by combining the best of global tech for non-identifiable data with the compliance of in-country health IT systems for sensitive patient data, it allows to keep device deployment simple and secure globally."

Gnomon Informatics, an innovative European e-health solution provider, leads the DM4all consortium. "Medisanté's platform, built on AWS, provides seamless medical IoT interoperability," says Dr. Alexander Berler, director of consulting services at Gnomon. "Built-in cellular connectivity ensures a zero-touch device configuration by the patients, which is key for adherence to ongoing measurement."

## A Comprehensive Approach Meeting A Wide Range of Patient Needs

Under DM4all, patients receive devices measuring blood glucose, blood pressure, steps, and weight. The device ID is linked to patient information and the clinical data repository within the DM4all care management platform, avoiding the need for Medisanté Hub to manage sensitive data.

## About Gnomon Informatics



Headquartered in Thessaloniki, Greece, Gnomon Informatics provides innovative solutions for healthcare interoperability, patient empowerment, silver economy, and assisted independent living. Drawing on a 25-year history of software engineering expertise and innovation, it led the multi-country DM4all consortium within the ProEmpower project.



Medisanté Hub uses a range of AWS services to capture, manage, and distribute non-identifiable device readings and other device health data such as battery level or signal strength. Message queueing is handled by [Amazon Simple Queue Service](#) (Amazon SQS), while [Amazon Simple Notification Service](#) (Amazon SNS) is used for app-to-app and app-to-user messaging. [AWS Lambda](#) serverless computing manages data flows. Medisanté Hub also leverages [Amazon DynamoDB](#) for device data storage and access and [Amazon Simple Storage Service](#) (Amazon S3) for object storage. Developers use [Amazon CloudWatch](#) event analysis for real-time monitoring to ensure reliable operations. The solution connects to external systems using [Amazon API Gateway](#).

Using device data sent through Medisanté Hub, the DM4all service provides a web interface that allows clinicians to monitor patients and share treatment plans with them. An easy-to-use mobile application empowers patients to view their individual treatment plans, including medication, nutrition, education, physical activity, and test results, in addition to the medical device readings. Patients can also interact with one another through the mobile app to provide mutual support in a vibrant ecosystem of users.

### **Proven Results and Outstanding Possibilities**

DM4all was clinically tested in Turkey, Spain, Portugal, and Italy. In the initial pilot of the solution, 200 patients were enrolled over eight months. Their 50,000 readings were sent automatically via the AWS-based Medisanté Hub to providers. Medisanté Hub and DM4all ensured seamless and secure data collection while also offering unified “direct-to-cloud” device management. With the COVID-19 pandemic limiting in-person medical visits, this became even more important as a means to enable remote care.

The pilot project demonstrated that DM4all enabled both effective remote patient monitoring and sustainable self-management. “We managed to prove that properly designed solutions are accepted and used by patients and care teams from diverse backgrounds,” says Dr. Berler. “Most importantly, we have shown that, with the right experience, they will keep using it consistently over time.” Once fully deployed, it is expected that ProEmpower, including DM4all, will serve 12 million diabetes patients in the four countries where it was initially tested and reduce the cost of diabetes-related health complications by €53 billion over seven years. It is a striking example of how technology delivers transformative results by focusing on great user experiences.

## **About Medisanté**

Medisanté is an AWS Advanced Technology Partner that empowers connected care by putting the Internet of Things (IoT) to work for care teams. It keeps the deployment of cellular-enabled devices simple and secure at scale for Remote Patient Monitoring (RPM). Its Medisanté Hub is powered by AWS and delivers medical IoT as a Service to healthcare providers.



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