

In September of this year, 2014, the US Patent and Trademark Office issued MEDarchon patent number 8,825,786 for Quarc, our *System for Exchanging Medical Information*. MEDarchon continues to pursue multiple other patents, but we are excited to celebrate this watershed moment: our years of working alongside clinicians and administrators to understand inpatient and outpatient communication challenges has led us to develop a radically different, clinically significant secure communication platform in Quarc.

What's So Unique About Quarc?

The Quarc patent recognizes and protects several important differences between Quarc and existing solutions for healthcare communications:

1. Our smart issue routing system for communication effectiveness
2. Our analytics engine for delivering insights about patients
3. Our method for delivering communications in a secure, reliable manner



The Quarc Smart Issue Routing Engine

- When a patient has multiple comorbidities and an interdisciplinary team caring for them, which team is taking responsibility for each issue?
- When there are multiple care team members (e.g. Intern/Resident/Fellow/Attending or PA/NP/MD), who receives the first call?
- How quickly should the user respond? What happens if that user does not respond?
- What is the appropriate priority for various issues being discussed?
- What is each user's preference for how they are contacted?
- Should the communication pattern change if the patient's severity changes (e.g. critical to fair)? Or if they move units (e.g. from the ward to the ICU)? Or if they are a VIP?

These were the use cases that we heard from clinical and IT thought leaders and which we considered when building our Smart Issue Routing Engine. Very few call scheduling, paging or secure texting solutions answer even one of these important questions. Clinical studies have found that 14.3% of healthcare messages are sent to the wrong person and 32% of pages are unanswered within 15 minutes of being sent. Additionally, the common occurrence of workflow interruptions caused by communications (5-15 per hour) leads to lost efficiency, alert fatigue, and medical errors.


The Quarc solution was built to handle these use cases and is the first system to personalize communication patterns based on patient condition. Our patent covers the process of using templates and rules to help define whom messages should go to at a given time based on the issue being discussed, patient condition, patient VIP status, call schedules and recipient preferences. It also covers using this same methodology to assign the correct priority for a message and escalating the message if the user fails to respond to the message in a timeframe dictated by that priority.

The Quarc Analytics Engine

With the changing reimbursement environment, hospitals must produce good inpatient and outpatient outcomes while reducing resource consumption. Communication is one of the most powerful tools that hospitals have to improve outcomes as it enables collaboration and coordination. Collaboration and coordination help prevent medical errors, reduce length of stay, conserve physical resources, prevent readmissions, improve quality metrics, and boost patient satisfaction. But currently, how much insight do you have into the communication health for a patient, a unit, or your entire organization?



The Quarc Analytics Engine harnesses the big data captured through healthcare communications to provide unprecedented insights and surveillance for your organization. Our patented process



benchmarks communication patterns for a singular patient against other patients like them and uses a Six Sigma process to identify outliers. By examining message volumes, keywords discussed, outstanding messages, and handoff data in this lens and adding in additional data about the patient (from our EMR interface) and care team (from our workforce analytics database), we gain the ability to predict when issues will arise for patients. With this prediction, we can trigger alerts to case management, nursing administration or members of the care team in real-time to help prevent unwanted outcomes. Additionally, we can provide administrators with real-time communication health assessments and the ability to understand the users, units, and patients with challenges.


The Quarc Secure Delivery Mechanism

At its core, a healthcare communication platform must provide exceptional information security and reliability. Unlike secure texting solutions which download data into an encrypted drive on the smartphone, *Quarc prevents any patient data from persisting on the computer, phone or tablet.* We use very cutting edge techniques to essentially play a real-time video of the conversations from a secured server to the endpoint device (what is termed “streaming data on the fly”).

Additionally, we use a messaging bus technology that ensures no messages are lost in the ether. Occasionally, a server or database will go down or the message is unable to be delivered to a mobile device because of poor connectivity. Lesser solutions can lose messages under these conditions; however, MEDarchon’s message bus technology holds onto the messages until they can be delivered or processed as part of its overall strategy to ensure high reliability and availability.

Final Thought

Today, we celebrate having an authoritative source recognize and protect our innovation. We also celebrate being one step closer to realizing our mission: to improve patient, provider and



organizational outcomes through revolutionary communication-based information technology products. The current Quarc communication platform incorporates game-changing technology and features but we have many more opportunities and ideas to conquer. We hope that we get to include you and your organization as a thought leader in our march forward.

About MEDarchon

When starting MEDarchon, we looked at the shortcomings of EMRs and engineered our development process in such a way as to avoid their mistakes: we worked with care teams to study clinician workflows and built a solution that fit those workflows while helping to remove inefficiency. We also did extensive research on patient safety to fully understand the role that communication failures play in causing medical errors. As a result, we layered in functionality, usability and analytics designed to prevent medical errors caused by communication breakdown. Lastly, we have priced our solution in an affordable, straightforward manner that makes sense and provides a high return on investment. Quarc is the solution that can help healthcare systems improve the outcomes that matter to the business, to the patients, and to the providers.

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