Market Insights: Predictive Clinical Analytics in the Marketplace

Hillrom acquires BardyDx - Another piece of their multi-parameter clinical predictive surveillance System Puzzle

[Hillrom](#) is a growing giant of a healthcare system in the US that interestingly started out as a casket company that found its mark - first in hospital beds, then connectivity. Hillrom divested its casket company, Hillenbrand in 2008, creating Hillrom Holdings, (HRC), today a very forward-thinking healthcare IT company that is slowly performing some strategic moves that will greatly change its marketing vector in the next decade – from beds to data. Given their success so far, they make an interesting case-study.

Hillrom has recently acquired:

- Welch-Allyn in 2015 for $2B USD – a physician's office brand leaning into technology
- Mortara Instrument in 2017 for $330M USD – innovating cardiology company that invented DICOM 12-lead ECG, FDA ECG Warehouse for TQT data (now Hillrom has divested that FDA relationship), annotated ECG format
- BardyDx in 2021 for $380M – a forward-thinking invasive cardiology company in Seattle

It is even more obvious from my perspective, as I worked for two of these acquired companies and consulted for another, that there is a master plan for cloud-based clinical predictive analytics, or "[surveillance](#)" as Hillrom calls it. But from a sheer expression of voice-of-the-marketplace, it shows that Hillrom is betting squarely on predictive analytics. Their acquisitions cover almost all of the right spots: predictive analytics, WAVE platform (Excel Medical), cardiology (Mortara/Welch-Allyn, BardyDx), and medical-device interfaces (Excel Medical).

Not just any analytics, but multi-parameter, near real-time, waveform-based analytics. Excel Medical's "Bedmaster" product is a black box that extrapolates data from UDP-based patient monitoring networks, parses, and drops into a SQL/NoSQL environment for processing. One can use this to power, for instance, the [HeRO](#) neonatal sepsis prediction software, or Dr. Andrew Seely's [WAVE](#) protocol based upon capnography waveform variability for ventilator weaning.

This platform gives Hillrom everything they need to be able to consume high-speed XML (HSDI) real-time waveform data from GE or Philips patient monitoring systems, as well as an Epic-approved FHIR/ Haiku interface.   As an example, OBS Medical's [Visensia Safety Index](#) is one of Hillrom's supported algorithms that consumes multiple parameters including heart rate, oxygen perfusion, temperature, and blood-pressure. The [Visensia Safety Index](#) can spot a patient deterioration from 6 hours a way with 86% positive predictive accuracy, from an algorithm that was originally designed to quantify jet-engine blade wear for Rolls-Royce invented at Oxford University.

This will make them uniquely suited for near real-time ambulatory waveform data ingestion, and 12 Lead ECG Management (including annotated ECG (aECG). I would not be surprised if they did not have an eye on IQVIA. It would seem that the wearable ambulatory surveillance market is as sound as [the Bionet](#) project anticipated, and in fact used the same Visensia/[Unscrambl.ai](#) data consumption model that Hillrom now uses, except better. It will be interesting to see how [Philips Medical](#), who just purchased [Capsule Technologies](#), counterplays with their own surveillance product line.