

# Anesthesia's Next Frontier

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Cleveland Clinic Innovations has teamed with three private investor-operators to launch a new company, Talis Clinical, to commercialize and further develop two Cleveland Clinic technologies. The product is a 2nd generation Anesthesia Information Management System that documents real-time patient physiologic values and provides “Advanced Clinical Guidance” to anesthesia clinicians during perioperative care.

Both technologies – Anesthesia Automated Record Keeping System (ARKS) and Decision Support System (DSS) were developed in Cleveland Clinic’s Anesthesiology Institute and have been utilized in Clinic operating rooms since 2010. ARKS and DSS work in tandem- as ARKS records and documents pertinent real-time patient data, like heart rate, blood pressure and respiratory rate; the DSS application uses this information to offer “advanced clinical guidance” that can alert clinicians when pertinent clinical implications can take a patient on a path outside of the targeted outcome.

George Takla, PhD, has been working on anesthesia documentation for nearly ten years. In 2008, when the current AIMS provider was unable to meet the extensive requirements of the Clinic, Takla was appointed to develop the application known today as ARKS. The initiative includes a staff of five talented developers and is the standard of care in the delivery of anesthesia services in over 270 OR’s within the Cleveland Clinical facilities. DSS assists a large number of anesthesia clinicians throughout the Clinic systems as well. The technology, which is infinitely configurable, elevates the quality of clinical decision making, patient surveillance and physician oversight far beyond other known Anesthesia Information Management Systems.

Like many innovations, the idea for DSS came from an unlikely place. David Brown MD, who joined Cleveland Clinic as Chairman of the Anesthesiology Institute in 2008, conceived the idea of anesthesia DSS while flying his own plane. Brown, an experienced pilot, was unexpectedly inspired by his cockpit computers and integrated alerts. With his plane on auto-pilot during a long cross-country flight, Dr. Brown began outlining extensive notes on a Decision Support System that could guide anesthesiologists and enhance patient outcomes.



“Much like a pilot, anesthesiologists rely on numerous, complex factors to keep everyone safe. Anesthesiologists, however, have not had a computer or control tower that can help analyze all the data to guide clinicians to the correct decisions,” explains Brown. “As is the case with all humans, clinicians are subject to tiredness and distraction. Computers don’t have these stresses and are great vigilance monitors.” In other words, Brown understood that a Decision Support System could amplify physician judgment and increase capacity to manage multiple patients.

Wolf Stapelfeldt MD, who joined the Clinic in 2008 as Department Chair of General Anesthesiology, shared Brown’s passion and brought his extensive Health Information Technology (HIT) skills and creativity to develop DSS technology. He likens DSS to a “tap on the shoulder” to keep clinicians ahead of the case. “DSS provides Cleveland Clinic Anesthesia Staff with an extra set of eyes and extensive cognitive processing power to improve both clinical and management decision making in the perioperative environment. It allows clinicians to react more rapidly to potentially harmful trends,” said Stapelfeldt.

CCI has been evaluating, refining, and positioning the ARKS/DSS technology for commercialization since its original disclosure in 2011. As part of its due diligence, CCI’s Health Information Technology (HIT) group found the commercial opportunities to be extensive, and decided to launch CCI’s ninth HIT-based spin-off. “The volume of hospitals, clinicians, and patients this technology will benefit is remarkable,” explained Gary Fingerhut, General Manager of HIT.

Talis Clinical will be led by CEO and Chairman Roger Hungerford and Gary Colister, President and COO. Hungerford, a prominent entrepreneur, patent holder and investor in medical technology, is the Founder and CEO of Talis Equity, a medical technologies investment and operations management firm. Prior to this initiative, Hungerford was President and CEO of SIGMA International, a Smart Infusion Pump manufacturer that was wholly acquired by Baxter International in 2012. Colister worked with Hungerford for five years at SIGMA and has been a leader in the medical technology arena for more than 20 years, with stops at GE, Kimberly Clark, Smiths Industries and Alaris Medical Systems.

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CCI connected with Hungerford and Colister in 2012, as the two were searching for technologies that could support targeted patient outcomes, improve clinician workflows, enhance quality and reduce healthcare costs, while leveraging Health Information Technology. “We could see the impact ARKS/DSS was having at Cleveland Clinic and knew it could have the same impact on other leading healthcare organizations. It also became evident that we could use the technology to create a larger platform of Advanced Clinical Guidance throughout the acute care environment,” said Hungerford.

In addition to the technical expertise that went into ARKS/DSS, Colister and Hungerford knew it was developed in one of the highest volume and acuity environments in the world. The technology is scalable to meet the needs of any organization, large to small with high or low acuity, Colister explained.

Talis Clinical will commercialize the new platform as ARKS/ACG (Automated Record Keeping System / Advanced Clinical Guidance). Other Anesthesia Information Systems offer some level of decision support. However, most typically offer only generic tips or checklists. They do not account for patient specific conditions and real-time fluctuating status. ARKS/ACG will interact with these changing variables to guide clinicians through clinical and managerial decisions. ARKS/ACG also includes a remote dashboard technology to allow for comprehensive clinical oversight of the entire perioperative environment.

Talis Clinical will begin expansive commercialization efforts of its ARKS/ACG technology in February 2013. For more information on the new company, please contact Gary Colister at 330-285-1297 or [\*\*gcolister@talisclinical.com\*\*](mailto:gcolister@talisclinical.com).