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USING DIGITAL HEALTH INNOVATION TO IMPROVE CLINICIAN PRODUCTIVITY AND QUALITY CARE



How are Clinicians like doctors, nurses, pharmacists, and others directly involved in patient care doing? From many reports, neither Clinicians nor their supporting administrative staff have fared well in the past decade—but don't blame the Electronic Health Record (EHR) or downward wage pressure.

When you evaluate different segments of Clinicians, the ones who practice in a technologically rich environment for workflow simplification, compared to those lacking productivity tools, treat their patients more effectively with less frustration. Clinicians who have access through fewer steps to timely educational information and treatment reminders in context to their patient can provide better evidence-based medicine (EBM). EBM such as new guidelines from medical societies, applied efficiently during care, translate to improved provider utilization of the EHR, clinical decision-making, and patient engagement.

The question of how to best apply technology to reach high-productivity amongst Clinicians makes the difference. Most medical practices and hospital systems in the United States are mandated to use the EHR along with additional decision support capability, with other countries following suit. While the EHR provides the digital foundation and framework into which workflow-based information services can be integrated and delivered to the Clinician, early experiences using the EHR have been dismal. Clinician resistance is attributed to the lack of intuitive screens requiring many steps to accomplish what was previously done with the swipe of a pen and paper.

1st Stage of the Digital Health Revolution

The first stage of the digital revolution in US healthcare, which comprises 16% of the economy, was defined by the universal implementation of the EHR. This digital tool was viewed by Clinicians as impeding their workflow and by patients as interfering with the physician-patient interaction. In addition, addressing quality of care metrics and increased medical costs has been limited even with continued medical science advancement of disease treatments.

Heart disease is a good window into the future of global healthcare. According to the CDC, heart disease is responsible for 1 in 4 deaths in the US every year. 6 million Americans have heart failure, with a projected rise to 46% by 2030, driven by obesity and increasing diabetes. Heart failure is the consequence of arteriosclerotic heart disease.

In the last 30 years, the use of statin inhibitors has markedly reduced heart disease. Despite this intervention, heart disease is still the leading cost driver for US healthcare. The reason is that heart disease is now understood to be multi-factorial. Not only elevated LDL but elevated PCSK9, high TMAO, interleukins, and myocardial enzymatic abnormalities are causative. Specific treatments for each of these conditions are now becoming available to physicians and patients. Costs for these new treatments/year range from \$15,000 for PCSK9 inhibitors to \$250,000 for Tafamidis for cardiomyopathy.

In advanced heart failure, similar advanced and costly treatment options are now offered. These range from Sacubitril, a drug that improves cardio perfusion, to digital monitors of physical signs of heart failure like oxygen and blood pressure monitoring to miniaturized implantable pumps. The key prerequisite for the decision to advance to these next steps is strict implementation of American Heart Association recommendations for generic heart failure medications. This last step requires traditional close attention to patient symptoms, reviewing standard lab values and monitoring drug compliance.

Heart disease is emblematic of the opportunity and challenge for US healthcare. The opportunity is that medical science is rapidly providing insight into the disease and building more powerful treatment options. The challenge is failing to apply or inappropriately applying these advances at the point of care, leading to patient dissatisfaction, increased morbidity and enormous cost overruns.

2nd Stage of the Digital Health Revolution

The second stage of the digital revolution will enable healthcare providers to meet this challenge and fulfill their professional obligations to their patients. This stage leverages the information available in the EHR by presenting it to the clinician in a timely and user-friendly format. The promise of decision support to enhance patient-specific advice in fewer steps, clicks, and screens required to perform the job is now possible through software technology like natural language processing and artificial intelligence.

Technological advances using advanced clinical analytics and cloud computing over the past couple of years have now enabled constant monitoring of patient data to bubble up to Clinicians attention as the most pressing cases requiring action. These innovations can monitor 15-20 data points in the EHR, necessary for modern management of complex conditions such as Sepsis monitoring, as well as Heart Failure, and then present it seamlessly to the physician for evidence-based treatment intervention. This workflow prioritization using the computer to identify the EBM options as next steps in Clinician management optimizes productivity.

The systematic approach of integrating decision support into the EHR workflows focuses Clinicians' attention on improving population management of disease areas such as Sepsis, Heart Failure, Oncology Biomarker Testing, Back Pain, and others. The response to the initial Clinician backlash against the EHR is not to stop using the EHR, rather to enhance the EHR's presentation of meaningful patient-specific information to speed decision-making.

The second stage of the digital revolution using advanced software technology to extract and interpret data in the EHR will bring the healthcare industry into the 21st century. In the 20th century, physician productivity was described in a simplistic fashion, using outdated concepts of a worker producing widgets. In this idiom, productivity tools helped a worker produce more widgets/hour, i.e., see more patients/hour. But healthcare globally requires a more modern concept of provider productivity. In this concept, productivity is defined as a tool that enables a physician to gather, review, interpret dynamic, multiple data points in a timely way and apply this to implementation of evidence-based, cost-effective treatment protocols.

This is what the patient wants. This is what the physician wants and must do. This is what society requires. This is what digital [productivity software tools like Hitek](#)s provide

in the context of individual patient encounters to enhance the EHR workflow experience.



Dr. Martin Coyne

A long experience as a clinical gastroenterologist combined with many years as CEO of large medical groups gave Dr. Coyne the perspective that the physician in real-time at the point of care is central to the multi-trillion dollar healthcare industry. It is this perspective that has informed the development of the Hitek's product portfolio. Experienced Medical Group Administrator (100+ physicians, \$100+ million budget) Extensive Clinical Research Experience Published more than 40 Scientific Articles M.D., Boston University M.S. in Medical Informatics from Northwestern B.A. in History from Brandeis.



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Gerry Petratos, MD, MS, is CEO of Hitek's Solutions and began his career as an NIH-trained Medical Informatics physician with experience in EHR-integrated decision support systems from Intermountain and the University of Utah. Dr. Petratos has 9 years of experience as the former Global Head of Healthcare Data Analytics at Roche and Genentech.