



MEDICOMP
SYSTEMS

**2017 United States
Healthcare Documentation
Enabling Technology Leadership Award**

FROST & SULLIVAN

BEST
2017 **PRACTICES**
AWARD

UNITED STATES
HEALTHCARE DOCUMENTATION
ENABLING TECHNOLOGY LEADERSHIP AWARD

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Background and Company Performance

Industry Challenges

Clinical Documentation in the United States has transformed from a paper record format to a technology-based digital environment. The most visible digital resource throughout this evolution has been the Electronic Health Record (EHR) or Electronic Medical Record (EMR). There is some confusion about the difference between the EHR and EMR. Some experts observe that the EHR should be interoperable across various provider systems, while the EMR is designed to work within a specific medical system or network. For this report we will use the term EHR to represent the electronic patient record.

EHRs have also evolved over the years and are offered by many companies for either hospital-based or ambulatory patients. However, EHR's do not perform all the critical functions that are associated with the documentation needed to support the provider's patient-centric workflow. The EHR's represent an electronic repository for patient information that features a summary of procedures performed, drugs prescribed and some data that focuses on the financial implications of these medical events. EHRs are generally not able to serve as a point of care (POC) clinical decision resource.

Clinical Decision Support (CDS) has also been evolving. Early systems were created to provide expert protocols and guidelines that would literally be a resource to lead the physician toward a proper treatment guideline. These systems provided what has become known as the "five rights" which referred to communication of the right information, to the right person, in the right intervention format, through the right channel at the right time.¹

Yet physicians are highly-trained experts and many veteran practitioners simply do not want to be told what to do. Although this sentiment has been a factor for many years, the evolution to digital connected health systems has created an opportunity for systems designed to support the medical care process, rather than attempt to offer rules and guidelines for the physician. In the current complex regulatory environment physicians need a tool that enables them to utilize the proper coded order sets. They require a resource that presents clinical data about a patient in a sequence that aligns with the normal process that represents how a physician thinks. This type of digital system enables a physician to be more efficient and to see more patients.

Although not officially a CDS system, Medcomp Systems, Inc. has developed digital technology that offers physicians a helpful utility that supports their expert knowledge. It facilitates the completion of proper coding and terminology, along with the necessary order sets to make patient care efficient, while also facilitating required documentation to succeed in a connected health environment. In addition, Medcomp Systems has improved the functionality of the EHR by supporting the ability to ensure electronic records can be

¹ Osheroff JA, Pifer EA, Teich JM, et al. Improving outcomes with clinical decision support: an implementer's guide. Boca Raton: Productivity Press; 2005.

shared and become more interoperable across systems. Frost & Sullivan believes that Medicomp Systems represents an established company that offers a valuable digital tool vital to the success of the medical practitioner in today's digital environment.

Technology Leverage and Customer Impact

Commitment to Innovation

Medicomp Systems was started in 1978 by Peter Goltra. The goal of the company was to provide physicians with access to clinically relevant information when it was needed at the point of care and to allow this information to be shared. Although the company was started well before the advent of EHRs, the aim was to develop an innovative expert-based knowledge engine that linked the leading medical terminology systems, such as SNOMED and LOINC®. The research and development efforts were successful, and resulted in a first-of-its kind knowledge engine, MEDCIN®.

MEDCIN has evolved over the years and now accepts data from numerous contemporary coding and terminology systems, such as ICD-10-CM, SNOMED, RxNorm and Logical Observation Identifiers Names and Codes (LOINC). MEDCIN also accepts data from several additional external sources. The creation of MEDCIN has proven to be a necessary component of the 21st Century connected healthcare evolution by making EHR's more functional. It is poised to become an even more vital resource in the next generation development of data-intensive population health management systems. As the healthcare industry works to transform patient data into actionable stratified data that will serve to improve the healthcare outcomes of specific populations, MEDCIN will be a key driver of success.

Stage Gate Efficiency

Medicomp Systems' development of MEDCIN and additional solutions offered under the Quippe brand represents an excellent example of the stage gate product development model. The first phase of the development by Peter Goltra was to create several design formats and select the best one for further development. The basic function was to create a dynamic clinically intelligent search engine that would present the most relevant information to the physician at the point of care. The next phase was to combine the capabilities with engineers working in collaboration with a select team of highly qualified medical experts from Cornell, Harvard, Johns Hopkins and the Defense Military Health System. The goal during this phase was to enable MEDCIN to benefit from human expertise to ensure that the system would efficiently manage required documentation and ensure accurate medical orders with relevant documentation. In simple terms the aim was to provide powerful search and retrieval of a wide ranging universe of patient and medical data that reduced the time and search efforts necessary to obtain the data needed to provide an overview of the patient that would enable a review of the patient's status

regarding their disease, condition or required actions, such as immunizations, lab tests, radiologic procedures, and other therapeutic interventions.

However, the developers sought to create more than just a search capability. The truly exciting challenge was to emulate the way a physician typically approaches a medical assessment. This process includes questions to the patient, clinical observation, further testing and therapeutic intervention based on six domains:

- Symptoms
- History (family/personal, exposure, geography, etc.)
- Physical exam findings
- Tests (Orders, results, MRI, etc.)
- Diagnoses & co-morbidities
- Therapy

The resulting MEDCIN engine was designed to function in the same way physicians think and work. Medcomp's IT and clinical experts created this capability by developing pre-coordinated concepts. The team developed a presentation engine that featured a diagnosis scoring system. The scoring includes demographic and onset assumptions. However, unlike some CDS content systems, the purpose of the engine is not to tell the physician what to do, but to support the documentation of various factors pertaining to the conditions that a patient is presenting. Among the outputs, a useful short documented list that supports evaluating, documenting, treating, and successfully gaining reimbursement for the disease state of the patient.

Frost & Sullivan believes that Medcomp Systems adds much-needed enhancements to EHRs that improves the utility of this digital format, streamlining care and documentation. Throughout its history the product has been continuously improved. More than 35 years after its initial development the product is perfectly positioned to solve the documentation challenges associated with EHRs from companies such as Allscripts, athenahealth, Epic, Pulse, Greenway, Meditech and others. MEDCIN also offers a path to create the much-needed interoperability of these systems by ensuring they are in accordance with standard medical terminology and medical protocols that are based on the most up-to-date expert thinking.

Customer Ownership Experience

MEDCIN has enabled Medcomp Systems to develop specific products geared to the needs of medical practitioners. Providers utilize Medcomp Systems' solutions to improve the quality of their electronic medical record experience. This has been achieved by the capabilities derived from Medcomp Systems' powerful knowledge engine, which is now in use in leading EHRs around the world.

Using the power of the MEDCIN knowledge engine, Medcomp has created a family of products known as Quippe. This includes:

- **The Quippe Clinical Lens**, is a solution that can harness a myriad information from multiple electronic health records (EHR) and present only the relevant information needed by the physician at the point of care.
- **Quippe Physician Documentation**, is a solution that connects and enables clinicians within a provider organization to use the same documentation tools. This is made possible by a powerful interface which allows clinicians to see what they need for each individual patient when it is required. This feature eliminates the need for a clinician to spend valuable time searching for required patient information.
- **Quippe Nursing Documentation**, is a solution that provides standard nursing protocols. This includes the capability to modify documentation and customize the data entry which is based on the care-related needs of an individual patient.

The Quippe family of products benefits medical professionals by offering accurate documentation and content that may be customized according to individual user preferences. In addition, the solution permits the sharing of data across a provider network. Quippe users also benefit from improved value and usability from their embedded medical record. Quippe is being added to legacy and new EHRs, to make it easy for doctors to immediately access relevant information for individual patients while satisfying all documentation and coding requirements. The Quippe Clinical Engine powers all of Medicomp's products providing users and the enterprise with structured data and decision-support tools.

Application Diversity

Medicomp Systems' solutions include interfaces that can accept data from a range of sources, including HL-7 protocols, Fast Healthcare Interoperability Resources (FHIR), or direct data feeds from any clinical database. Medicomp Systems provides a powerful clinical engine that enables the presentation of clinically relevant information to the clinician based on what they want to see at that particular time. The company collects medical information from many sources of patient related data and content into a digital technology layer that can easily be embedded into other systems.

Frost & Sullivan believes that Medicomp Systems offers a diverse range of clinical applications and interfaces that combine the need for standardized and relevant data to be available, shareable and customizable to the needs of a provider organization. This data can then be used to facilitate the complex documentation needs of providers who must manage multiple payer requirements in a productive and efficient manner.

Commitment to Creativity

Medicomp Systems has demonstrated a commitment to creativity throughout the course of its history when it developed a game-changing product geared to facilitate and improve

physician access to relevant patient data. The company worked with expert clinicians to achieve success. Yet, the healthcare environment has continued to evolve and has introduced recent regulatory requirements to use technology in a meaningful way. As previously mentioned Medicomp has not stood still. The company has demonstrated continuous development aimed at solving current healthcare coding and documentation challenges. For example, back in 2005 the company designed new software to make it cloud-based, web based, geographically accurate and browser-based. The company was creative in its thinking because it anticipated that most of the enterprise systems that were in the market, such as Cerner, Epic, Paragon, and Sunrise, were not designed for use by clinicians at the point of care but would eventually be forced to provide solutions to clinicians that support the way physicians think and work. Medicomp Systems perceived that these legacy systems were really designed for transactions that had financial implications, and would, therefore, be unable to adapt to direct use by clinicians at the point of care.

Medicomp Systems also anticipated that large vendors would not easily adapt to the changing environment. Medicomp focused on mapping additional codes for the global market. Medicomp developed products that have measurable return on investment in terms of permitting the physician to spend less administrative time both during and after the patient visit. The Quippe tools increase the quality of documentation needed to achieve reimbursement without the need to re-do forms. The company has succeeded because it realized that highly trained medical users needed critical support to manage increasingly complex processes and that this technology cannot impede physicians' ability to see patients or slow them down. Medicomp created solutions for the point of care by partnering with medical experts to ensure that the new technology aligned with established protocols and workflows.

Frost & Sullivan observes that Medicomp Systems developed a powerful engine that enables medical professionals to decide what they need to successfully focus on with patients to deliver the best care and achieve the best clinical outcomes.

Commercialization Success

Medicomp Systems has more than achieved the vision of Peter Goltra. It went through a stage gate development process that included the development of a resource that aligned with standard nomenclature, developed an expert search engine, included the participation of leading medical professionals and continued to map to an increasing array of medical codes. The solution has grown from its innovative birth in 1978 to its current vital role today. The company has collaborated with physicians at major academic medical centers, and other enterprises including the Department of Defense Military Health System. This diligence has enabled Medicomp Systems to continuously expand the knowledge engine and to innovate new technologies that improve EHR systems and make them easy for clinicians to use.

The company has achieved success in the United States and global markets. This enduring product is poised to provide support for the changing needs of today's physicians and nurses and is well-positioned as Medicomp Systems plans for increased utilization of its products and services by the Population Health Management Industry.

Conclusion

Medicomp Systems is a strong, established company which provides a powerful knowledge engine that resolves challenges facing clinicians on a daily basis. The vision was developed in stages and included a mix of technical advances along with collaboration from expert medical practitioners from renowned medical and government institutions. Although created at the point where computerized systems were still at an early phase of operational utility, the system is just as vital and enduring today as a workable solution to the challenges associated with the lack of interoperability of electronic health records. Medicomp Systems maps to a wide range of standard codes and classification systems. It offers "usable interoperability" that has expanded to become a global solution. Moving forward, Medicomp Systems is poised to continue its role as an enabler in the emerging world of Population Health Management.

With its strong overall performance, Medicomp Systems, Inc. has earned Frost & Sullivan's 2017 Enabling Technology Leadership Award.

Significance of Enabling Technology Leadership

Ultimately, growth in any organization depends upon customers purchasing from your company, and then making the decision to return time and again. In a sense, then, everything is truly about the customer—and making those customers happy is the cornerstone of any long-term successful growth strategy. To achieve these goals through technology leadership, an organization must be best-in-class in three key areas: understanding demand, nurturing the brand, and differentiating from the competition.



Understanding Enabling Technology Leadership

Product quality (driven by innovative technology) is the foundation of delivering customer value. When complemented by an equally rigorous focus on the customer, companies can begin to differentiate themselves from the competition. From awareness, to consideration, to purchase, to follow-up support, best-practice organizations deliver a unique and enjoyable experience that gives customers confidence in the company, its products, and its integrity.

Key Benchmarking Criteria

For the Enabling Technology Leadership Award, Frost & Sullivan analysts independently evaluated two key factors—Technology Leverage and Customer Impact—according to the criteria identified below.

Technology Leverage

- Criterion 1: Commitment to Innovation
- Criterion 2: Commitment to Creativity
- Criterion 3: Stage Gate Efficiency
- Criterion 4: Commercialization Success
- Criterion 5: Application Diversity

Customer Impact

- Criterion 1: Price/Performance Value
- Criterion 2: Customer Purchase Experience
- Criterion 3: Customer Ownership Experience
- Criterion 4: Customer Service Experience
- Criterion 5: Brand Equity

Technology Leverage

Criterion 1: Commitment to Innovation

Requirement: Conscious, ongoing adoption of emerging technologies that enables new product development and enhances product performances

Criterion 2: Commitment to Creativity

Requirement: Technology is leveraged to push the limits of form and function, in the pursuit of “white space” innovation

Criterion 3: Stage Gate Efficiency

Requirement: Adoption of technology to enhance the stage gate process for launching new products and solutions

Criterion 4: Commercialization Success

Requirement: A proven track record of taking new technologies to market with a high rate of success

Criterion 5: Application Diversity

Requirement: The development and/or integration of technologies that serve multiple applications and can be embraced in multiple environments

Customer Impact

Criterion 1: Price/Performance Value

Requirement: Products or services offer the best value for the price, compared to similar offerings in the market

Criterion 2: Customer Purchase Experience

Requirement: Customers feel like they are buying the most optimal solution that addresses both their unique needs and their unique constraints

Criterion 3: Customer Ownership Experience

Requirement: Customers are proud to own the company's product or service, and have a positive experience throughout the life of the product or service

Criterion 4: Customer Service Experience

Requirement: Customer service is accessible, fast, stress-free, and of high quality

Criterion 5: Brand Equity

Requirement: Customers have a positive view of the brand and exhibit high brand loyalty

The Intersection between 360-Degree Research and Best Practices Awards

Research Methodology

Frost & Sullivan's 360-degree research methodology represents the analytical rigor of our research process. It offers a 360-degree-view of industry challenges, trends, and issues by integrating all 7 of Frost & Sullivan's research methodologies. Too often, companies make important growth decisions based on a narrow understanding of their environment, leading to errors of both omission and commission. Successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. The integration of these research disciplines into the 360-degree research methodology provides an evaluation platform for benchmarking industry players and for identifying those performing at best-in-class levels.



Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan Awards follow a 10-step process to evaluate award candidates and assess their fit with select best practice criteria. The reputation and integrity of the Awards are based on close adherence to this process.

STEP	OBJECTIVE	KEY ACTIVITIES	OUTPUT
1 Monitor, target, and screen	Identify award recipient candidates from around the globe	<ul style="list-style-type: none"> • Conduct in-depth industry research • Identify emerging sectors • Scan multiple geographies 	Pipeline of candidates who potentially meet all best-practice criteria
2 Perform 360-degree research	Perform comprehensive, 360-degree research on all candidates in the pipeline	<ul style="list-style-type: none"> • Interview thought leaders and industry practitioners • Assess candidates' fit with best-practice criteria • Rank all candidates 	Matrix positioning all candidates' performance relative to one another
3 Invite thought leadership in best practices	Perform in-depth examination of all candidates	<ul style="list-style-type: none"> • Confirm best-practice criteria • Examine eligibility of all candidates • Identify any information gaps 	Detailed profiles of all ranked candidates
4 Initiate research director review	Conduct an unbiased evaluation of all candidate profiles	<ul style="list-style-type: none"> • Brainstorm ranking options • Invite multiple perspectives on candidates' performance • Update candidate profiles 	Final prioritization of all eligible candidates and companion best-practice positioning paper
5 Assemble panel of industry experts	Present findings to an expert panel of industry thought leaders	<ul style="list-style-type: none"> • Share findings • Strengthen cases for candidate eligibility • Prioritize candidates 	Refined list of prioritized award candidates
6 Conduct global industry review	Build consensus on award candidates' eligibility	<ul style="list-style-type: none"> • Hold global team meeting to review all candidates • Pressure-test fit with criteria • Confirm inclusion of all eligible candidates 	Final list of eligible award candidates, representing success stories worldwide
7 Perform quality check	Develop official award consideration materials	<ul style="list-style-type: none"> • Perform final performance benchmarking activities • Write nominations • Perform quality review 	High-quality, accurate, and creative presentation of nominees' successes
8 Reconnect with panel of industry experts	Finalize the selection of the best-practice award recipient	<ul style="list-style-type: none"> • Review analysis with panel • Build consensus • Select winner 	Decision on which company performs best against all best-practice criteria
9 Communicate recognition	Inform award recipient of award recognition	<ul style="list-style-type: none"> • Present award to the CEO • Inspire the organization for continued success • Celebrate the recipient's performance 	Announcement of award and plan for how recipient can use the award to enhance the brand
10 Take strategic action	Upon licensing, company may share award news with stakeholders and customers	<ul style="list-style-type: none"> • Coordinate media outreach • Design a marketing plan • Assess award's role in future strategic planning 	Widespread awareness of recipient's award status among investors, media personnel, and employees

About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, enables clients to accelerate growth and achieve best in class positions in growth, innovation and leadership. The company's Growth Partnership Service provides the CEO and the CEO's Growth Team with disciplined research and best practice models to drive the generation, evaluation and implementation of powerful growth strategies. Frost & Sullivan leverages almost 50 years of experience in partnering with Global 1000 companies, emerging businesses and the investment community from 31 offices on six continents. To join our Growth Partnership, please visit <http://www.frost.com>.