



Wolters Kluwer Recognized as the

2021

Company of the Year

North America

Clinical Decision Support

Excellence in Best Practices

Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Wolters Kluwer excels in many of the criteria in the clinical decision support space.

AWARD CRITERIA	
<i>Visionary Innovation & Performance</i>	<i>Customer Impact</i>
Addressing Unmet Needs	Price/Performance Value
Visionary Scenarios Through Mega Trends	Customer Purchase Experience
Implementation of Best Practices	Customer Ownership Experience
Leadership Focus	Customer Service Experience
Financial Performance	Brand Equity

Wolters Kluwer: Pioneering Evidence-based, Point-of-care Solutions that Align Care Team Decisions

According to the Centers for Disease Control and Prevention (2019), six in ten Americans have at least one chronic illness such as heart disease, diabetes, stroke, or cancer. These diseases are the leading causes of death in the United States (U.S.) and are a driver of increasing healthcare costs in the industry. Within the U.S. healthcare space, the rising demand for reducing overall expenditure, improving the quality of patient care, and implementing more technological advancements in healthcare facilities boosts the market growth for clinical decision support systems (CDS systems). Forecasted to grow at a compound annual growth rate of 9.3%, with revenues topping \$6.47 billion by 2024, CDS systems become the user interface of choice for clinical interaction within healthcare information technology (I.T.).¹ CDS systems will supersede electronic health records as the primary health I.T. point of interface for clinicians.

The exponential growth of clinical research makes clinical decision-making complex, increasing in pace, volume, nature, and sources. The volume of clinical research produced makes it very difficult for care teams to keep up with the latest clinical guidance, especially in the wake of a global pandemic. Thus, medical practitioners need tools to streamline data processing from the latest research to make more

¹ [US Clinical Decision Support Systems Market, Forecast to 2024](#), (Frost & Sullivan, June 2019).

informed and organized decisions and prevent potential errors, especially at the point of care. Because no clinician can distill the massive volume of new data regularly, clinicians need to understand how experts evaluate data and arrive at a recommendation. Conclusion: grading clinical recommendations by the quality of evidence indicates confidence levels that guide decision-making, even when the evidence is weak or unclear. Wolters Kluwer's physician editors provide clear guidance for care teams to follow according to the international GRADE (Grading of Recommendations Assessment, Development and Evaluation) group. The grading scheme classifies recommendations as strong (Grade 1) or weak (Grade 2), according to the balance between benefits, risks, burden, and cost, and the degree of confidence in estimates of benefits, risks, and burden. The system classifies the quality of evidence (as reflected in confidence in estimates of effects) as high (Grade A), moderate (Grade B), or low (Grade C) according to factors that include the risk of bias, the precision of estimates, the consistency of the results, and the directness of the evidence.

CDS Solutions Align Care Team Decisions

For each patient, clinical decisions consider a complex range of variables such as the patient's background and preferences, the latest medical evidence, and what is discovered by the provider during the clinical encounter. Individual decisions made throughout the care journey can contribute to care variability in a region, among a population, or for a particular condition. As care teams have expanded, clinical decisions are being made across an even more significant number of roles, introducing the risk of misaligned decisions. Given that care teams use their CDS solutions consistently every day, this is a place where providers can focus on fostering more aligned decision-making on behalf of their patients. That, in turn, can help to standardize care and improve outcomes.

Wolters Kluwer delivers more aligned solutions, with an editorial team committed to harmonizing content across four core solutions: UpToDate®, Lexicomp®, Emmi®, and Medi-Span®. This coordination means that every clinician on the care continuum -- from the patients themselves to the providers, pharmacists, nurses, and more -- is using a resource built for their needs but drawing from the same evidence, which supports the company's ability to deliver on its stated mission: to help reduce care variability and measurably improve clinical effectiveness.

“Our clinical staff overwhelmingly prefers and relies on UpToDate® and Lexicomp® to make the best treatment and medication decisions. The solutions work together, right within the workflow, helping us to provide quality patient care.”

- ***Michael McCoy, MD, CMO Great River Health System***

Aligned Resources to Reduce Care Variability



Courtesy of Wolters Kluwer

Avoiding the Pitfalls of Traditional CDS Systems: Alert Fatigue, Diagnostic Errors, and Disrupted Workflows

Traditional CDS systems come with disadvantages that make advanced systems a better choice for clinicians. Alert fatigue arises when users input incorrect and unreadable information into the CDS system, which causes an overwhelming number of irrelevant error notifications to pop up. Such alert messages from these traditional systems appear unspecific and unclear, thus causing alert fatigue among users. Due to the fatigue, the users overlook essential notifications and reminders that could impact patients' health. Additionally, the traditional system may miss hazards such as diagnostic errors involving ordered tests and incidental findings. Such errors lead to unnecessary procedures, and hospital stays to mitigate detrimental medical situations.

“Wolters Kluwer’s healthcare solutions run on specialized clinical technology and evidence-based methods that support effective healthcare decision-making and outcomes. Among its array of healthcare solutions, the company’s CDS portfolio includes; UpToDate®, Lexicomp®, Medi-Span®, Emmi®, Senti7®, and POC Advisor™.”

- Azza Fazar, Best Practices Research Associate

Traditional CDS systems require constant manual documentation, which consumes a considerable amount of medical practitioners’ time, shortening patient care time. Manual information input also causes medical practitioners to channel more cognitive effort into completing the task, disrupting their workflow and reducing face-to-face patient interactions. Despite the CDS systems markets’ well-diversified presence internationally, regionally, and locally, a significant international player, Wolters Kluwer dominates the industry with its technological yield, brand image, and market reach.

With corporate headquarters in Alphen aan den Rijn, the Netherlands, and Wolters Kluwer, Health headquarters in Waltham, Massachusetts, the company develops expert solutions that foster effective clinical decision-making to help reduce care variability. Wolters Kluwer’s healthcare solutions run on specialized clinical technology and evidence-based methods that support effective healthcare decision-

making and outcomes. Among its array of solutions, Wolters Kluwer's CDS portfolio includes UpToDate®, Lexicomp®, Medi-Span®, Emmi®, Sentri7® and POC Advisor™.

UpToDate®: Actionable, Evidence-based Recommendations at the Point of Care

Trusted by nearly two million clinicians worldwide, UpToDate® acts as an online point-of-care

“Wolters Kluwer’s multi-layer editorial policy involves continuous, systematic, and transparent review, identification, and synthesis of new clinical evidence. The company’s highly skilled network of external physician editors and authors and in-house physician deputy editors who are experts in their field comprehensively review medical literature, considering its quality, the hierarchy of evidence, and clinical relevance.”

- Azza Fazar, Best Practices Research Associate

clinical resource, which offers up to 12,000 medical topics searchable using clinical terms, phrases, or questions.² As of November 29, 2021, there have been 619 million views of UpToDate topics year to date. The platform allows immediate access to original, peer-reviewed clinical content directly from the clinician workflow. It supports clinical decision-making with patient-specific treatment information at the point-of-care interventions and for individualized study as well. Clinicians can confidently plan improved treatment strategies from the knowledge extracted from the platform.

Fully accredited since 2000, UpToDate® gains validity from the USA Accreditation Council for Continuing Medical Education. It is the only resource associated with improved outcomes such as better quality of care, shorter hospital stays, and lower mortality rates.³ Clinicians using UpToDate® change patient treatment decisions 37% of the time.⁴ The platform’s reliability to healthcare professionals proves helpful even for the most complex questions. Irrespective of expertise, UpToDate® gives clinicians access to new research and advances in care, democratizing treatment quality.

Wolters Kluwer’s multi-layer editorial policy involves continuous, systematic, transparent review, identification, and synthesis of new clinical evidence. The company’s highly skilled network of over 7300 external physician editors and authors and in-house physician deputy editors who are experts in their field comprehensively review medical literature, considering its quality, the hierarchy of evidence, and clinical relevance, and then assign a grade to each recommendation, even for those where the evidence is weak or unclear.

UpToDate® includes:

- 7,300 contributors from more than 50 countries who are experts in their field

² [“CME in the Time of COVID-19: Educating Healthcare Professionals at the Point-of-care and Improving Performance Outcomes”](#), US National Library of Medicine National Institute of Health, October 2020.

³ [Use of UpToDate® and outcomes in US hospitals](#), Journal of Hospital Medicine, February 2012.

⁴ Utility of the electronic information resource UpToDate for clinical decision-making at bedside rounds, Singapore Med J 2012; 53(2)

- More than 50 full-time deputy editors who are physicians specializing in the clinical specialty they oversee in UpToDate®
- 12,000 clinical topics and 6,900 drug topics, which embed 514,000 references
- Patient education leaflets and topics, including 4,500 medication leaflets and 1,500 disease topics, more than 1,000 of which are in Spanish and Arabic
- 9,500 graded recommendations, which exclusively follow GRADE, are broadly considered to be the standard for guideline development
- 700 society guidelines topics and a range of modalities, including algorithms, tables, and 36,000 graphics
- 75 UpToDate® Pathways, which are interactive guides for common conditions associated with unwarranted care variability
- 120 Lab Interpretation monographs that provide support for interpreting abnormal lab results and determining the next steps

Lexicomp® and Medi-Span®: Reducing Prescription Errors

Lexicomp®

Trusted globally by pharmacists and clinicians, Lexicomp® offers drug reference options that address critical and challenging drug-related decision-making at the point of care. Given the fast-evolving nature of pharmacology, the platform provides updated evidence-based content backed by a multidisciplinary editorial team of pharmacists and clinicians. Medical practitioners confidently use Lexicomp®, with 115 million topics viewed per year. The platform promptly incorporates newly released information such as regulatory agency approvals and regulatory, manufacturer, and scientific reports used by the editorial team to create or revise referential drug monographs.⁵ Additionally, the editorial team makes and updates medication patient education leaflets and drug interaction information reflecting the latest findings in pharmacology. Lexicomp® presents the drug-related information in a straightforward interface.

With Lexicomp®, clinicians benefit from a more holistic view of drug information because Lexicomp® and UpToDate® content is harmonized, ensuring consistent guidance for care team members. The editorial team of pharmacists, physicians, nurses, and other advanced degree clinicians discuss medication decisions, evaluate evidence together, and embed the resulting clinical insights into drug content. This approach provides additional support when making the best possible decision for each patient. The stringent editorial process ensures that the data is clear and succinct, appropriate for point of care and patient use. Wolters Kluwer provides Lexicomp® drug information to 93% of the top 100 health systems in the U.S. Additionally, the top 100 health systems in the U.S. rely on UpToDate® and/or Lexicomp® to help inform their patient treatment decisions.

⁵ Wolters Kluwer Analyst Briefing with Frost & Sullivan, Wolters Kluwer, September 2021

Medi-Span®

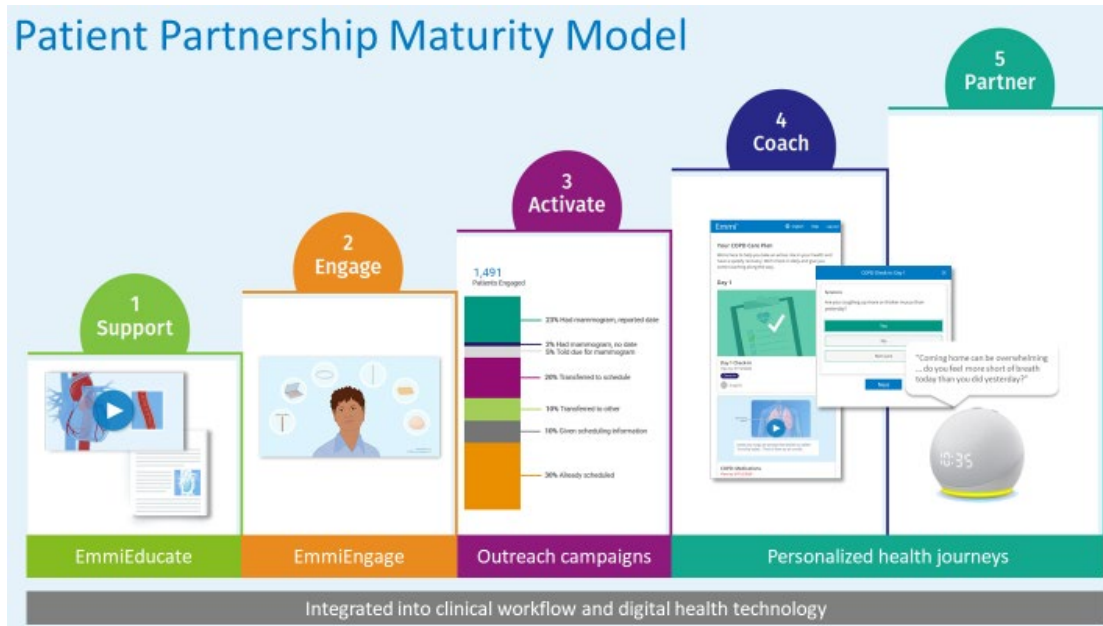
Wolters Kluwer's drug data solution, Medi-Span®, assists clinicians in making better and safer medication decisions for their patients, which is especially important given the rise in adverse drug events worldwide and the pace at which clinical evidence evolves. Medi-Span lets the provider organization embed customizable drug screening into every step of the prescription process. Compared with other solutions in this category, Medi-Span can present clinicians with fewer, more meaningful alerts by considering granular patient data like comorbidities or relevant lab results, and by applying sophisticated drug data that is updated regularly based on the latest evidence. This reduces the clinicians' cognitive load, making it easier to focus on fewer, specific alerts rather than seeing a high volume of broader alerts at the end of a drug entry.

The underlying drug data that drives those alerts is harmonized with other Wolters Kluwer solutions that clinicians use at the point of care like UpToDate®. By reducing the noise for clinicians and focusing their attention on more accurate signals, Medi-Span® can help to reduce burnout and promote patient safety—while improving efficiencies for healthcare organizations. Over time, the insights from those alerts can also be used to optimize and deliver real value to the organization.

Emmi®: Amplifying Patient Engagement

Education is an essential step in enabling patients to make informed care decisions. But education is just the first step toward providing patient-centered care that achieves sustained behavior change. A reconsidered approach that fosters engagement and partnership with patients can provide consistent, authentic, and personalized connections that build trust, encourage alignment among patients and their care teams, and empower patients to make shared evidence-based decisions. When organizations provide this level of optimized care, they build lasting relationships with patients and reap the benefits of better clinical, financial, and quality outcomes. Wolters Kluwer's Patient Partnership Maturity Model can help healthcare organizations identify where they are on the path to providing optimized care and assess their strategy and technology needs for moving forward.

Emmi® programs embody the art and science of empathic communication, generating human connection virtually, resulting in more robust patient-provider relationships. As more organizations are moving to virtual care solutions, it is more important than ever that the patient's experience aligns with what they hear from their clinicians. With an editorial team that spans UpToDate® to the Emmi® patient suite, Wolters Kluwer focuses on bridging that gap. The patient engagement suite consists of EmmiEducate™ for patient education, interactive multimedia programs in EmmiEngage™, and programs that support patient outreach at scale and longitudinal care journeys. Healthcare systems select the blend they need to engage their patients when, where, and how they want while simultaneously tracking and measuring improvement and outcomes.



Courtesy of Wolters Kluwer

The artificial intelligent-enabled solution has facilitated more than 39 million patient interactions to engage users, support informed decisions, and nurture healthy behaviors without taking much of the clinicians’ time.⁶ The solution enables clinicians to extend their reach without additional staffing and actively empowers patients to participate in their care journeys. Emmi® keeps up with evolving healthcare practitioners’ needs and is flexible to meet specific patient outcomes and performance goals.

The Dartmouth Hitchcock Medical Center reported an overall 14% reduction in colonoscopy procedure time associated with the long-term use of the Emmi® suite. Moreover, Metrohealth reports a 39% reduction in readmission rates related to Medicare patients engaging with Emmi®.⁷

These encouraging outcomes suggest that patients engage and undergo a change in behavior over time through a combination of experiences that spark behavioral changes and ensure optimal health outcomes and financial results. Frost & Sullivan commends Wolters Kluwer’s emphasis on patient engagement to create a better relationship between healthcare professionals and patients, thus meeting patient goals.

Wolters Kluwer’s COVID-19 Response

The COVID-19 pandemic exacerbated the strain on the healthcare industry with the increased pressure to recruit and retain physicians, who were quickly overwhelmed by the caseloads of patients presenting to their hospitals. As the pandemic worsened in the U.S., the volume and pace of clinical research about the novel virus made it impossible for clinicians to keep up with the latest literature. When the pandemic began, healthcare professionals reviewed COVID-19 topics in UpToDate® 319,880 times,

⁶ “[Empowering Patients with Emmi®](#)”, Wolters Kluwer.

⁷ Wolters Kluwer Analyst Briefing with Frost & Sullivan, Wolters Kluwer, September 2021.

which tripled to 921,207 by the end of March 2020.⁸

The platform's rigorous editorial model provides a framework for an immediate and dynamic response to emergencies such as the coronavirus crisis. UpToDate® now has a total of 93 COVID-19 topics, 47 of which came about in 2021. These topics have been updated 612 times from January 1 through November 1, 2021. Since February 4, 2020, COVID-19 topics in UpToDate® have been viewed 31.1 million times by 1.3 million individual clinicians. Wolters Kluwer continues to offer free access to COVID-19 topics, which clinicians can access on the Wolters Kluwer website.

The highly engaged editorial team performs external reviews and responds to changes within about one to two hours of receipt within the same day. The platform enables the convenient search of COVID-19 content through additional instructional design features that allow easy navigation. Moreover, the UpToDate platform highlights COVID-19 content below the primary search field, linking users to in-depth COVID-19 studies.

Conclusion

Wolters Kluwer extensively contributes to the North American clinical decision support (CDS) systems industry. Among the company's array of solutions, its CDS portfolio includes UpToDate®, Lexicomp®, Medi-Span®, Emmi®, Sentri7® and POC Advisor™. These solutions ensure that clinicians can make highly informed and accurate clinical decisions at the point of care, directly from their workflow, irrespective of the disease and situation. Its highly skilled editorial team follows a systematic procedure that ensures that the latest information is published, with graded recommendations based on the best available evidence.

This advantage can help to mitigate the possibility of medical errors and ensures that medical practitioners have prompt access to the most updated clinical and drug information about any given disease. Additionally, the company's healthcare solutions strive to optimize engagement among clinicians and their patients, effectively reducing hospital readmissions and shortening the time to carry out medical procedures.

Wolters Kluwer earns Frost & Sullivan's North America 2021 Company of the Year Award with its strong commitment to creating solutions that improve clinical decision-making and drive a better patient experience.

⁸ ["CME in the Time of COVID-19: Educating Healthcare Professionals at the Point-of-care and Improving Performance Outcomes"](#), US National Library of Medicine and National Institutes of Health, October 2020.

What You Need to Know about the Company of the Year Recognition

Frost & Sullivan's Company of the Year Award is its top honor and recognizes the market participant that exemplifies visionary innovation, market-leading performance, and unmatched customer care.

Best Practices Award Analysis

For the Company of the Year Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

Visionary Innovation & Performance

Addressing Unmet Needs: Customers' unmet or under-served needs are unearthed and addressed by a robust solution development process

Visionary Scenarios Through Mega Trends:

Long-range, macro-level scenarios are incorporated into the innovation strategy through the use of Mega Trends, thereby enabling first-to-market solutions and new growth opportunities

Leadership Focus: Company focuses on building a leadership position in core markets and on creating stiff barriers to entry for new competitors

Best Practices Implementation: Best-in-class implementation is characterized by processes, tools, or activities that generate a consistent and repeatable level of success

Financial Performance: Strong overall business performance is achieved in terms of revenue, revenue growth, operating margin, and other key financial metrics

Customer Impact

Price/Performance Value: Products or services provide the best value for the price compared to similar market offerings

Customer Purchase Experience: Quality of the purchase experience assures customers that they are buying the optimal solution for addressing their unique needs and constraints

Customer Ownership Experience: Customers proudly own the company's product or service and have a positive experience throughout the life of the product or service

Customer Service Experience: Customer service is accessible, fast, stress-free, and high quality

Brand Equity: Customers perceive the brand positively and exhibit high brand loyalty

