CLINICAL DECISION SUPPORT SYSTEM (CDSS) MARKET

[Product - Integrated (EHR, CPOE)], Model (Knowledge-based), Applications (Drug Allergy Alerts, Drug Interactions), Delivery Mode (Web-based, Cloud-based), (Hardware, Software)]

– Global Forecast to 2018
MarketsandMarkets is a global market research and consulting company based in the U.S. We publish strategically analyzed market research reports and serve as a business intelligence partner to Fortune 500 companies across the world. MarketsandMarkets also provides multi-client reports, company profiles, databases, and custom research services.

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Chapter 1: MARKET OVERVIEW

1.1 INTRODUCTION

Healthcare IT solutions such as electronic health record (EHR), clinical decision support system (CDSS), computerized physicians order entry (CPOE), and others have emerged as lucrative solutions to counter the increasing healthcare cost and manage the scattered patient data. Although, the adoption of HCIT is slower than expected, factors such as healthcare reforms, unprecedented investments in healthcare IT, and government initiatives to promote implementation of HCIT solutions will reshape the healthcare system. Moreover, the deployment of the clinical information system on cloud model will further add significant value to healthcare systems, thereby reducing healthcare costs and enhancing the opportunity to integrate healthcare systems.

A CDSS solution helps in drug prescription, diagnosis, and disease management, which in turn reduces healthcare costs, risks, and errors and improves services. CDSS can be used for evaluating patient drug allergies, drug-drug interactions, drug dosing, therapy critiquing and planning, prescribing, information retrieval, image recognition and interpretations, and clinical alerts and reminders. In addition, CDSS offers clinical knowledge and best practices standards and guidelines for non-expert physicians.

In the current scenario, the demand for integrated solutions has increased, owing to the need to connect the fragmented healthcare system into a single platform. The most prominent combinations are EHR-CDSS, EHR-CDSS-CPOE, and CDSS-CPOE. Such integrated systems help in accessing historic or current data of patients, which helps in recommending the best solution for treating diseases at the point-of-care.

With the stimulus funding and ‘Meaningful Use’ criteria (regulations to improve quality, safety, efficiency of the healthcare system using certified electronic health record technology), the U.S. federal government is building a robust infrastructure to support healthcare IT adoption, mainly, electronic health record integrated with CDSS or CPOE module or integrated CDSS or CPOE module. Additionally, the implementation of CDSS will improve the overall performance of physicians. According to a survey conducted by the American Medical Association (AMA), the
implementation of CDSS improved the performance of practitioners in XX% of the XX studies conducted by AMA.

1.2 MARKET SEGMENTATION

The clinical decision support system market is segmented by product, model, application, delivery mode, component, and healthcare provider entity capacity.

By product, the CDSS market is segmented into integrated solutions and standalone solutions. The most efficient combinations of CDSS solutions available in the market are CDSS with EHR, CDSS with CPOE, and CDSS with EHR and CPOE.

By model, the CDSS market is segmented into knowledge-based and non-knowledge-based CDSS.

The clinical decision support system is widely used for alerts and reminders, diagnosis assistance, prescription, information retrieval, and therapy critiquing and planning. For the study, the CDSS market by application is segmented into clinical guidelines, clinical reminders, drug allergy alert, drug-drug interaction, drug-dosing support, and others.

The market is also studied with the perspective of components and delivery modes. By component, this report covers software, hardware, and services; whereas, the three common delivery modes considered for this study are web-based, on-premises, and cloud computing.

To understand the end-user perspective, the CDSS market is divided depending upon healthcare provider entity capacity that includes hospitals with bed size less than 100 to bed size above 500.

The market has also been studied for four major geographies, namely, North America, Europe, Asia, and Rest of the world (RoW).
Global Clinical Decision Support System (CDSS) Market
Forecast to 2018

FIGURE 1

MARKET SEGMENTATION OF GLOBAL CDSS MARKET


1.3 MARKET DYNAMICS

Currently, the market is witnessing a surge in the adoption of integrated CDSS solutions. The rise in demand of CDSS solutions can be attributed to the shift in healthcare systems towards electronic health. Owing to the increasing pressure to reduce healthcare costs, healthcare providers are now forced to implement integrated solutions of EHR with the CDSS module for providing better care at a lower cost. However, challenges faced in integration and implementation, security concerns, and lack of skilled IT staff are restricting the market growth.

In spite of roadblocks, there are plenty of opportunities available to the stakeholders in the clinical information system (CIS) market. The most prominent opportunities are the growth in aging population, increase in the number of cases of chronic disorders, and rise in patient consumerism for point-of-care solutions.
1.4 BURNING ISSUES

1.4.1 SUPERCOMPUTER IBM WATSON: BREAKTHROUGH EVIDENCE-BASED MEDICINE SUPPORTS CDSS

In 2013, a new era began in the healthcare ecosystem with the introduction of IBM Watson, the first supercomputer built on cognitive computing programming that supports clinical decision support system. The unique features of this supercomputer are its natural language processing, hypothesis generation and evaluation, and dynamic learning. The most important goal of IBM Watson is to deliver healthcare by means of advising the best treatment option at the point-of-care to patients. This technology has the ability to process huge amounts of information in a similar way as how people think. To date, more than XX pieces of medical evidence and XX million pages of text from XX medical journals and clinical trials in the area of oncology research were entered into this supercomputer, which works on the concept of artificial intelligence. Moreover, IBM Watson has the capability to support medical information which doubles in volume every five years. Furthermore, it will help in reducing healthcare cost, and will take XX seconds to analyze XX pages of clinical data to cross-reference the symptoms of XX cancer patients and read millions of current medical journal to test hypothesis. Such a system will accelerate the clinical workflow, thereby reducing the cost and improving quality care. At present, this solution is put into practice by two U.S. healthcare providers, namely, Maine Center for Cancer Medicine and Westmed Medical Group, for testing. The adoption of this system will significantly enhance cancer care.
2 PREMIUM INSIGHTS

2.1 APPLICATIONS

FIGURE 2

OPPORTUNITY MATRIX: GLOBAL CDSS MARKET, BY APPLICATIONS, 2013

2.2 MARKET DYNAMICS

FIGURE 3

CDSS MARKET DYNAMICS

STRENGTHS
- Growing pressure to curtail healthcare cost
- Growing need to integrate healthcare systems
- Improved Quality of Care and Clinical Outcomes
- Growing incidences of medication errors
- Government support
- Requirement to Meet the Criteria of “Meaningful Use” to Receive Incentives by the Federal Government
- Rise in aging Population Triggers the Incidence of Chronic Disorders
- Shifting focus towards patient-centric care
- Emerging Markets
- Cloud computing models

WEAKNESSES
- Rising Incidence of Data Breach and Loss of Confidentiality
- High Maintenance & Service Expenses
- Shortage of Skilled IT professionals
- High Costs of CDSS Solutions
- Alert Fatigue: Major burden on healthcare providers
- Inadequate Technical and On-Site IT support
- Fragmented End-User Market
- Security Concern: Threat to CDSS market

OPPORTUNITIES

THREATS

2.3 GEOGRAPHIC ANALYSIS

2.3.1 VOLUME MARKET (NO. OF INSTALLATIONS)

CDSS MARKET, GEOGRAPHIC ANALYSIS, BY HEALTHCARE ENTITY CAPACITY, 2013 (NO. OF INSTALLATIONS)

3 GLOBAL CDSS MARKET, BY PRODUCT

3.1 INTRODUCTION

| TABLE 1 |

GLOBAL CDSS MARKET, BY PRODUCT, 2011–2018 ($MILLION)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
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<tbody>
<tr>
<td>Integrated CDSS Solutions</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
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<tr>
<td>Standalone CDSS Solutions</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
</tr>
<tr>
<td>Total</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
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</table>


In 2013, integrated CDSS solutions accounted for the largest share—XX%—of the global CDSS market, by product. This segment was an estimated $XX million in 2013 and is expected to reach $XX million by 2018, at a CAGR of XX% from 2013 to 2018. Factors accelerating this market are robust government initiatives to promote clinical IT solutions such as EHR, CDSS, and CPOE; growing pressure to curtail healthcare costs; and rising demand for quality care. Integrated CDSS solutions also help to reduce the incidences of medication errors and make it easier to integrate clinical data repositories with workflow systems.
4  GLOBAL CDSS MARKET, BY APPLICATION

4.1  INTRODUCTION

<table>
<thead>
<tr>
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<th></th>
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<td>Drug Allergy Alerts</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
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<tr>
<td>Drug-drug Interactions</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
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<tr>
<td>Drug Dosing Support</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
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<td>Clinical Reminders</td>
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<td>Others</td>
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<td>Total</td>
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<td>XX</td>
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</tbody>
</table>


Based on applications, clinical reminders will witness the fastest growth rate at an expected CAGR of XX% in order to meet the demand for just-in-time quality care.

The others segment of the clinical decision support system market includes diagnostic assistance, therapy critiquing and planning, information retrieval, and image recognition and interpretation. This segment accounted for a share of XX% of the global CDSS market in 2013.
5  GLOBAL CDSS MARKET, BY DELIVERY MODE

5.1  CLOUD-BASED

5.1.1  CLOUD-BASED CDSS SOLUTION OFFERS SIGNIFICANT OPPORTUNITIES FOR GROWTH

**TABLE 3**

CDSS: CLOUD-BASED MARKET, BY GEOGRAPHY, 2011–2018 ($MILLION)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
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<td>XX</td>
<td>XX</td>
<td>XX</td>
</tr>
<tr>
<td>Europe</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
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<tr>
<td>Asia</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
</tr>
<tr>
<td>RoW</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
</tr>
<tr>
<td>Total</td>
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<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
</tr>
</tbody>
</table>


North America commanded the largest share—XX%—of the global clinical decision systems market. This market was valued at $XX million in 2013 and is expected to reach $XX million by 2018, at an estimated CAGR of XX% from 2013 to 2018.
6 GLOBAL CDSS MARKET, BY HEALTHCARE PROVIDER ENTITY CAPACITY

6.1 INTRODUCTION

6.1.1 HEALTHCARE ENTITY WITH <100 BED SIZE OCCUPIES THE LARGEST SHARE

**TABLE 4**

GLOBAL CDSS MARKET, BY PROVIDER ENTITY CAPACITY, 2011–2018 (NO. OF UNITS INSTALLED)

<table>
<thead>
<tr>
<th>Type</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2018</th>
<th>CAGR% (2013–2018)</th>
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</thead>
<tbody>
<tr>
<td>&lt;100 Beds</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
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<tr>
<td>100–199 Beds</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
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<tr>
<td>200–299 Beds</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
</tr>
<tr>
<td>300–399 Beds</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
</tr>
<tr>
<td>400–499 Beds</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
</tr>
<tr>
<td>500+ Beds</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
</tr>
<tr>
<td>Total</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
</tr>
</tbody>
</table>


Hospitals with less than 100 beds installed 294 units of CDSS in 2013 and it is forecasted that this number will reach XX by 2018, at an estimated CAGR of XX% from 2013 to 2018.
7 GEOGRAPHIC ANALYSIS

7.1 INTRODUCTION

7.1.1 NORTH AMERICA TO DRIVE THE CDSS MARKET IN THE NEAR FUTURE

TABLE 5

CDSS MARKET, BY GEOGRAPHY, 2011–2018 ($MILLION)

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<tr>
<td>Europe</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
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<tr>
<td>Asia</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
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<tr>
<td>ROW</td>
<td>XX</td>
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<td>XX</td>
<td>XX</td>
<td>XX</td>
</tr>
<tr>
<td>Total</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
<td>XX</td>
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</table>


North America accounted for the largest share—XX%—of the global CDSS market in 2013, at an estimated $XX million. This region is expected to reach $XX million by 2018 at a CAGR of XX% from 2013 to 2018. Factors driving the growth of the North American CDSS market are rise in demand of integrated CDSS solution with EHR, growing pressure to cut healthcare cost, and Obama’s Affordable Care Act that financially supports healthcare providers to achieve ‘meaningful use’ criteria. Rise in aging population which in turn also stimulates the incidences of chronic diseases will also positively drive the growth in the analysis period.

Asia ranks second in terms of growth rate, that is, it is poised to show a CAGR of XX% from 2013 to 2018. The reasons for the high growth are rising awareness among healthcare
providers regarding the benefits of CDSS solution, rise in demand of CDSS solutions in order to manage patient data, and to provide quality care at point-of-care, and firm government initiatives such as e-Japan policy, New IT reform Strategy, and iJApn Strategy in Japan.
8 COMPANY PROFILES

8.1 MEDICAL INFORMATION TECHNOLOGY, INC. (MEDITECH)

8.1.1 OVERVIEW

Founded in 1982 and headquartered at Massachusetts, U.S., Medical Information Technology is a company that offers software and services to the healthcare industry, including hospitals, clinics, physicians’ offices, home health agencies, long-term care sites, and research facilities. The company also publishes academic medical and scientific literature. In addition, the company also offers health information management, revenue cycle management, scanning and archiving, scheduling and referral management, emergency department management, cost accounting, data repository management, general accounting, human resource planning, supply chain management, operating room management, patient discharge instructions, long-term care solutions, behavioral health solutions, and home health solutions.

The company’s core competent products are EHR with inbuilt CDSS modules and Order Management. Order Management performs various functions including drug-drug, food-drug, and drug-allergy interactions; disease contraindications; and duplicate therapy checks that help healthcare providers to take critical decisions, enhance productivity, and improve outcomes. In addition, the order management solution is also linked with evidence-based order sets offered by Zynx Healthcare, Inc.

The company operates in various countries including U.S., Canada, U.K., South Africa, Australia, and other regions.
8.1.2 PRODUCTS & SERVICES

The company offers the following products:

<table>
<thead>
<tr>
<th>Category</th>
<th>Product Type/Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Information System</td>
<td>• Physicians Care Manager Solutions</td>
</tr>
<tr>
<td></td>
<td>• Emergency Department Management Solutions</td>
</tr>
<tr>
<td></td>
<td>• Provider Order Management Solutions</td>
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</table>
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