

iKnowMed Electronic Health  
Record (EHR) System Provides  
Comprehensive Data Capture for  
Outcomes Measurement

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### BACKGROUND

With healthcare reform on the horizon, hospitals and community-based practices are in need of a common technology platform that has the ability to capture and record valuable patient information while also proving accountability for care delivery performance, which is increasingly important for Medicare and private payers. Health outcomes measurement is a key to proving high-quality delivery of care and is becoming a much sought after capability in technology systems. A sophisticated information technology (IT) platform that supports standardized documentation through evidence-based medicine and outcomes and quality measurement will help hospitals and community-based practices both effectively provide and quantitatively prove their delivery of value-based, high-quality care.

### METHODS

The iKnowMed™ electronic health record (EHR) system is one of the few EHR systems specifically designed for the unique needs of oncologists and their cancer patients. It is a web-based application available through McKesson Specialty Health Solutions for Oncology, with the ongoing development driven by the oncologists who use it. With almost 1,000 providers using the system across the United States, iKnowMed EHR provides a platform for the collection of comprehensive patient information within a centralized database. Because McKesson Specialty Health owns iKnowMed EHR, it can also leverage the expertise from McKesson Specialty Health's Healthcare Informatics (HI) group, which is made up of pharmacists, oncology nurses, outcomes researchers, clinical data analysts and statisticians. Based on data entered by providers as far back as 2004, HI can access more than 900,000 patient charts and use this information to track the top 15 tumor types, which is approximately 65 percent of the patients treated.

### Percentages of Patients by Tumor Type

Breast Cancer, Female	36.14%
Colon & Rectal	8.50%
Non-Hodgkin's Lymphoma	7.24%
Lung Cancer, Non Small Cell	6.01%
Prostate Cancer	3.59%
Chronic Lymphocytic Leukemia, Adult	3.00%
Ovarian Cancer	2.21%
Multiple Myeloma	2.08%
Myelodysplastic Syndrome	1.92%
Melanoma, Cutaneous	1.90%
Renal Cell Carcinoma	1.36%
Hodgkins Lymphoma	1.35%
Endometrial Cancer	1.17%
Lung Cancer, Small Cell	1.13%
Uterine Cancer	1.11%
(For the period November 2009 - October 2010)	

### DISCRETE SEGMENTATION OF PATIENT POPULATIONS

Using iKnowMed EHR, physicians enter complete patient data that includes thorough demographics, clinical information, treatment details and patient assessment information. By adding to the pool entered by previous and existing iKnowMed EHR users, this documentation continuously expands the robust collection of data that can be discreetly segmented and, as necessary under HIPAA, de-identified by the HI team based on specific criteria for research studies and outcomes reporting. The analysis and outcomes measurement that stems from this large pool of data and flexible segmentation can help improve patient care in a timely manner by referencing historical outcomes and trends across multiple patient segments.

Patient Demographics	Clinical information	Treatment Information	Patient Assessment
<ul style="list-style-type: none"> <li>• Age</li> <li>• Gender</li> <li>• History</li> <li>• Race</li> </ul>	<ul style="list-style-type: none"> <li>• Date of Diagnosis</li> <li>• TNM Staging</li> <li>• Karnofsky Performance Status</li> <li>• Current Disease Status</li> <li>• Multiple Diagnoses</li> <li>• Biomarker Information</li> </ul>	<ul style="list-style-type: none"> <li>• Regimens</li> <li>• Level I Pathways</li> <li>• Cycles and Dosing</li> <li>• Clinical Trials</li> </ul>	<ul style="list-style-type: none"> <li>• Vital Signs</li> <li>• Laboratory Results</li> <li>• Concomitant Illnesses</li> <li>• Adverse Effects/Events</li> <li>• Patient Education</li> </ul>

**ROBUST DATA LEAD TO VALUABLE HEALTH OUTCOMES STUDIES**

Using this robust data pool, physicians can work with the HI and US Oncology Research teams to study, analyze and report clinical data. This data can be used in conjunction with research or outcomes studies and published in peer-reviewed journals or presented at national and international oncology conferences. Physicians affiliated with US Oncology Research published ten studies in 2008-2009 and nine additional studies have been submitted or presented at different meetings in 2010 using data collected in iKnowMed EHR.

Prior to 2008	2008	2009
<ul style="list-style-type: none"> <li>• Abstract for HOPA: A Comparison of Practice Patterns and Guideline Recommendations in the Treatment of Anemia (2006)</li> <li>• Distribution Management, 7(2): 112-123 – Lung Cancer: A Cost and Outcome Study Based on Physician Practice Patterns (2004)</li> </ul>	<ul style="list-style-type: none"> <li>• Abstract for ASCO Breast: Compliance and Persistency with Zoledronic Acid in Metastatic Breast Cancer</li> <li>• Clinical Lymphoma &amp; Myeloma (8)3: 140-145 – An Observational, Retrospective Analysis of Retreatment with Bortezomib for Multiple Myeloma</li> <li>• Abstract for HOPA: Descriptive Analysis of IgG Use in Chronic Lymphocytic Leukemia</li> <li>• Abstract for ISPOR: Cost Analysis of Immunoglobulin Prophylaxis in Lymphocytic Leukemia</li> </ul>	<ul style="list-style-type: none"> <li>• JOP Manuscript. Cost-effectiveness of non-small cell lung cancer pathways</li> <li>• Abstract – ASCO National Meeting. First-line Trastuzumab Utilization, Patterns of Care and Progression</li> <li>• Abstract + poster – ASCO Breast Cancer Symposium. First-line Trastuzumab Utilization, Patterns of Care and Progression</li> <li>• Abstract + poster – 24th Annual Clinical Cytometry Meeting. Screening for PNH</li> <li>• Abstract – ASH National Meeting. Impact of Disease Progression on Cost and Resources among Follicular NHL Patients</li> <li>• Abstract + poster – Patterns of care and outcomes among HER-2 Positive MBC Patients Receiving Trastuzumab</li> </ul>

2010
<ul style="list-style-type: none"> <li>• Impact of comorbidities on clinical and economic outcomes among patients with advanced non-small cell lung cancer (NSCLC) receiving care in the community-based outpatient setting.</li> <li>• Bevacizumab (BV) treatment (Tx) to progression (BTP) after chemotherapy (CT): Outcomes from a community practice network.</li> <li>• Economic outcomes among 2nd line advanced non-small cell lung cancer (NSCLC) patients in the outpatient community setting.</li> <li>• First line patterns of care and outcomes of HER2 (+) breast cancer patients who progressed after receiving adjuvant trastuzumab in the outpatient community setting.</li> <li>• Impact of disease progression on healthcare cost and resource use among follicular NHL patients.</li> <li>• Observational study evaluating resource utilization among metastatic renal cell carcinoma patients treated with mTOR inhibitors in the outpatient community-based setting.</li> <li>• Cost-effectiveness of 1st line chemotherapy regimens in the treatment of non-small cell lung cancer among patients receiving care in the outpatient community setting.</li> <li>• Evaluation of the reliability of electronic medical record data in identifying comorbid conditions among patients with advanced non-small cell lung cancer (NSCLC).</li> <li>• Clinical outcomes of 2nd line advanced non-small cell lung cancer (NSCLC) patients receiving monotherapy in the outpatient community setting.</li> </ul>

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In January 2010, McKesson Specialty Health published a joint study conducted with Aetna in the peer-reviewed *Journal of Oncology Practice*. This study, using patient data available within iKnowMed EHR, demonstrated that the outpatient treatment costs were 35 percent lower with equivalent health outcomes for patients with non-small cell lung cancer treated using Level I Pathways compared with patients treated off-pathway. This study is the first known study to prove cost effectiveness of evidence-based medicine and clearly demonstrates the value of health outcomes measurement.

Developed in conjunction with oncologists affiliated with The US Oncology Network, Level I Pathways assist physicians in making evidence-based treatment decisions for commonly treated cancers and provide a consistent foundation for delivering high-quality, evidence-based care. A multidisciplinary task force of nationally recognized, disease-specific oncologists and cancer-care experts use the best available scientific evidence to develop Level I Pathways, geared toward providing patients the right treatment at the right time delineated by maximum survival benefits and minimal toxicity. These pathways undergo a routine review process and are updated to ensure that the latest science and research discoveries are incorporated into patient treatment plans.<sup>3</sup>

#### **A COMMON TECHNOLOGY PLATFORM TO HELP REALIGN REIMBURSEMENT**

Cancer patients are less than 1 percent of a commercially insured population, but account for more than 10 percent of total healthcare costs.<sup>1</sup> In addition, payers are increasingly focused on finding a solution that is based on the total quality of care provided and not just the services. At the same time, cancer care providers are interested in ways to enhance patient care and align reimbursement with the quality of care provided. This creates opportunity for payers and providers to collaborate in re-aligning reimbursement that moves beyond just fee-for-service payment to pay-for-performance and other forms of value-based reimbursement. With the healthcare reimbursement landscape contemplating bundled payments, episode-based payments, and, potentially, full capitation, having robust, integrated healthcare IT systems across large groups of providers will be necessary to properly understand outcomes and to help determine reasonable reimbursement rates for various reimbursement models. In these scenarios however, physicians must be able to document, measure and report on clinical quality measures to the payer. By using a sophisticated IT platform, like iKnowMed EHR, physicians may harness the potential of healthcare technology to deliver solutions such as Level I Pathways and provide the detailed clinical documentation and reporting to support quality improvement opportunities and evidence-based medicine initiatives to payers. Reporting on these initiatives also allows physicians to meet the needs of even more complex reimbursement models, such as episode-based payments.<sup>2</sup>

#### **CONCLUSION**

The benefits of adopting a sophisticated IT platform such as iKnowMed EHR are numerous. As healthcare continues down a path of standardized care, health outcomes measurement will certainly become more integral to establishing and maintaining high quality in the care delivery process. iKnowMed EHR's complete data capture, clinical decision tools and flexibility in data segmentation, and health outcomes measurement will become more integral to establishing and maintaining high quality care in a practice or throughout a physician network.

To learn more about iKnowMed, please call 800.482.6700, Option 4 or email us at [msh.providers@mckesson.com](mailto:msh.providers@mckesson.com)

<sup>1</sup>Fitch K, Iwasaki K, Pyenson B. Cancer Patients Receiving Chemotherapy: Opportunities for Better Management. March 30th, 2010, Milliman

<sup>2</sup> Level I Pathways Performance Reports are only available to physicians who are members of The US Oncology Network or are engaged in our payer support service offering through the Onmark Select Program.

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