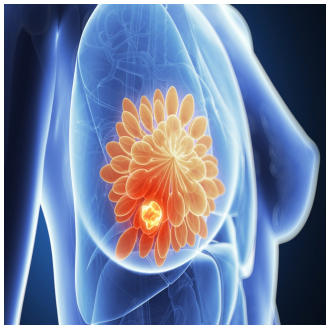
HealthManagement
Promoting Management and Leadership

Personalising Breast Cancer Care with Smart Data



Precision medicine promises personalised and right-sized care, moving beyond one-size-fits-all treatment plans. However, delivering on that promise remains challenging, particularly in oncology, where clinical guidelines evolve rapidly, and data silos hinder timely, patient-specific decisions. In breast cancer care, these challenges have contributed to the overuse of invasive procedures, despite recommendations to the contrary. A hybrid intelligence approach to data abstraction, supported by advanced technology, helps overcome these barriers by extracting actionable insights from vast amounts of structured and unstructured clinical data.

Improving Guideline Adherence through Real-Time Insights

One pressing issue in breast cancer care is the continued use of sentinel lymph node biopsy (SLNB) in older women with early-stage, ER-positive, clinically node-negative tumours, despite guidelines advising against the practice. Adherence to these guidelines has been limited, with nearly half of eligible patients still undergoing unnecessary axillary surgery. Clinicians have struggled to identify appropriate candidates in real time due to fragmented data sources and a lack of tools to synthesise nuanced tumour and patient characteristics.

To address these limitations, a precision medicine project used an intelligent data abstraction platform capable of accessing and interpreting both structured and unstructured data within electronic health records. A key feature of this system is its longitudinal patient view, which compiles a detailed, time-based narrative of an individual's healthcare journey. This includes genomic findings, treatment history and functional status, allowing for precise eligibility assessments. By consolidating data across disparate systems, the technology provides a robust, context-rich evaluation that supports personalised clinical decisions and aligns care more closely with national recommendations.

Supporting Surgical De-escalation through Hybrid Intelligence

The project employed human-in-the-loop hybrid intelligence to abstract clinical data and identify patients eligible for surgical de-escalation. A disease-specific reasoning engine was applied to extract information from physician notes, imaging reports and pathology findings, enabling researchers to determine clinical stage, tumour biology and documented outcomes, including lymphedema. This approach went beyond standard coding fields to capture more complete clinical context.

Must Read: ***Integrating Patient-Generated Data into Clinical Practice***

Findings from the analysis revealed that pathologic node positivity rates were consistently lower than lymphedema rates in patients with small tumours, even among those under 70. These results supported the broader omission of SLNB beyond existing age limits. Further, the integration of real-time decision support within clinical workflows had a measurable impact. By embedding a visual alert into the electronic health record's schedule view, surgeons were nudged to reconsider low-value procedures during pre-consultation planning. This intervention led to a nearly 50% reduction in unnecessary SLNBs, demonstrating the platform's capacity to change practice behaviour and improve patient outcomes.

Driving Operational and Clinical Value with Data Precision

The intelligent abstraction system processed more than 580,000 documents to produce structured datasets for patients with early-stage ER-positive, node-negative breast cancer. It achieved high accuracy in identifying key variables, with 95% overall per-patient accuracy and 100% sensitivity for lymphedema – a complication not consistently captured by traditional coding. These insights would have been difficult to obtain through registry data alone.

The project's success extended beyond the identification of patients eligible for surgical de-escalation. It facilitated clinical trial feasibility assessments, supported cohort discovery for research and streamlined abstraction for registries. These capabilities highlight how a data

abstraction platform, when integrated into the clinical research ecosystem, becomes more than a tool for efficiency – it becomes a critical driver of quality care. By delivering timely, guideline-concordant interventions, the technology reduced delays, improved trial enrolment and expanded equitable access to advanced therapies.

The adoption of intelligent data abstraction represents a paradigm shift in how healthcare organisations engage with clinical information. In the context of breast cancer, it has enabled more precise, less invasive care by aligning practice with evolving guidelines. The demonstrated reductions in low-value procedures and improvements in surgical decision-making underscore its clinical value. For institutions considering such technologies, the key lies in recognising their potential not merely as technical upgrades, but as foundational components of a precision medicine infrastructure. With disease-specific models, longitudinal data synthesis and validated accuracy, these tools can significantly enhance care quality and operational effectiveness across the healthcare continuum.

Source: **Healthcare IT News**

Image Credit: **iStock**

Published on : Tue, 22 Jul 2025