The HIMSS Clinically Integrated Supply Outcomes Model (CISOM) guides healthcare organizations to provide personalized care delivery to patient populations.

The stages of the model are as follows:

<table>
<thead>
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<th>Stage</th>
<th>Description</th>
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<tbody>
<tr>
<td>7</td>
<td>Point of care capture of product data proactively cues clinician teams to risk of adverse events using predictive analytics tools to enable preventive actions to strengthen quality and safety. Patient outcomes are linked to care processes, product use, and clinician teams at the point of care to identify best outcomes for population segments and conditions under which best outcomes are achieved. Patients access their personal health data with analytics tools to build health literacy, and inform decisions to support self-management. Leadership strategy is informed by the flow of clinically integrated data in real time, which creates evidence informing all strategic leadership decisions to personalize care delivery to population segments to ultimately achieve best outcomes.</td>
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<td>6</td>
<td>Product utilization during care processes is tracked at the point of care in specialty care programs only (ICU, Surgical Suite, Radiology, Cardiac Catheterization Lab). Case costing is automated and reported to program teams to inform procurement decisions. Medical errors and adverse events are tracked in real time, linked to patient outcomes, and reported - both publicly and to all program teams - to inform performance management decisions. Performance outcomes are captured and reported in real time using analytics tools to inform program leadership decisions on quality, safety, cost and financial sustainability.</td>
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<td>5</td>
<td>Inventory data analytics enable inventory forecasting based on demand to reduce cost due to product waste (e.g. shrinkage) for all programs. Product attributes are linked to patient outcomes by joining ERP data to patient care data (EMR). Clinical program quality measures are established and informed by supply chain data to measure value. Program teams are accountable for achieving benchmarked inventory optimization outcomes. Senior leadership track patient safety outcomes across the organization, supply chain expertise is viewed as a strategic asset to advance organization performance, and supply chain data informs organizational performance decisions.</td>
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Stage 4
Product use in care procedures is automatically uploaded into patient health records and clinicians participate in product decisions that focus on standardization of products and care processes to reduce variation. Adverse event reporting includes products identified using global standards, case costing is tracked and reported to clinician teams for individual patients, and consignment products are captured in inventory. Inventory optimization informs leadership decisions to advance operational performance. Clinician teams participate in procurement decisions to strengthen standardization and reduce variation to advance quality and value.

Stage 3
Product stock-outs and waste are reported to program leaders by supply chain team, and procurement contracts are consolidated centrally in the organization using a product data repository. Accounts payable is automated using Electronic Data Interchange (EDI) with suppliers based on established inventory levels. Global standards are required for all product labels for all suppliers, product attribute data is made available using the GDSN data pool, and supply chain teams ensure global standards accurately capture product attribute data. Budget and program planning is informed by supply chain data. Clinicians are engaged in decisions to standardize products to reduce variation in specialty programs only.

Stage 2
Product inventory levels are tracked automatically including waste, utilization and cost analysis to minimize inventory cost. An item master registry is established to standardize product purchasing, and electronic data exchange is established for suppliers. Products used in care procedures (e.g. preference cards in surgery) are procured based on lowest cost and utilization volumes for specialty programs. Product use, patient volumes and quality outcomes are reported and inform budget planning decisions, which identify a savings target for each program, achieved by optimizing supplies costs.

Stage 1
Utilization of products and cost analysis inform budget planning and procurement decisions to achieve lowest cost. Canceled patient care procedures due to inventory stock-outs are reported to program leaders who manage all product purchasing and inventory management for individual clinical programs. A product item master is used for all product orders managed by the supply chain (or materials management) team. Alerts and product recall data are tracked by the supply chain team, and products are removed from clinical settings when notified of alerts for product recall and expiration. The finance team determines case costing for each program based on supplies cost, labor costs and program budgets. Senior leaders view inventory management as a strategy to meet budget targets to reduce organizational costs.

Stage 0
Products are ordered independently by program teams, purchase orders are faxed or phoned to suppliers when inventory is required. Product expiration is checked during routine inventory processes by program teams, and expired products are removed from stock room shelves when required. Stock-outs of products result in cancellation of care processes, such as surgery, on occasion. Senior leadership budget planning focuses on reducing operational budget costs and strengthening performance.

For more information visit: www.himssanalytics.org/CISOM