In the last 12 years, MD Anderson has been ranked No. 1 in cancer care 10 times and No. 1 for the last seven straight years by U.S. News & World Report. Since 1990, when the survey began, it has been listed as one of the top two cancer hospitals in the nation. MD Anderson Cancer Centers served more than 115,000 people last year and nearly one third of them were new patients. About 8,500 registrants were on clinical trials exploring new treatment last year, making it home to the largest clinical trial program for cancer in the nation. In addition to MD Anderson’s main campus in the Texas Medical Center in Houston, it operates several regional care centers in the greater Houston area (Bay Area, Katy, Sugar Land and The Woodlands) and two research campuses in Bastrop County, Texas. They employ more than 20,000 people, including more than 1,600 faculty. MD Anderson has developed a network of national and international locations across the US and around the world.

**Goals and Achievements for Hematology Automation:**

- Improvement in TAT (turnaround time), efficiency and workflow
- Improvement in capacity and throughput
- Leveraging of advanced and innovative technology including the automated Immature Granulocyte (IG) parameter reporting
- Performance assurance with proven analyzer and automation reliability
- Automation of sample handling
- Consolidation of workstations including reticulocyte analysis, slide making and staining

**Background**

As volume continually increases, MD Anderson constantly strives to improve sample turnaround time that directly impacts patient care, while maximizing labor efficiency. They have been focused on improving the following:

- Handling increasing sample volume
- Improving capacity and throughput
- Decreasing turnaround time (TAT)
- Maximizing existing space utilization

These challenges provided MD Anderson an opportunity to begin to modify their hematology operations in February of 2008. MD Anderson evaluated Sysmex advanced technology, which allowed them to revise their current review criteria including manual, time-consuming slide reviews. The driving factor will always be centered on improving turnaround time.

MD Anderson’s project management team partnered with Sysmex to perform several studies including implementing a Sysmex Continuous Process Improvement (CPI) approach, which uses LEAN and Six Sigma support tools. CPI is a systematic approach that focuses on measuring and systematizing processes to achieve improvement. It was used in a common approach across all three labs to achieve a reduction in TAT that affects patient care and improves patient satisfaction scores. The CPI focused on enhancing customer satisfaction (laboratory, medical, and patient) by improving the processes that are used to develop and deliver their services (CBC reporting).

**CPI applied the following metrics for improvement:**

- Performance
- Cycle Time
- Labor Efficiency
**Workflow Improvements – R2 Diagnostic lab**

**Pre-Implementation – 10 Touches on 13 Steps**

**Process / Workflow Analysis and New Systems**
MD Anderson is now standardized on Sysmex hematology systems throughout their health care delivery network. Seven sites perform hematology testing:

- Three sites on the main campus use automation systems with XE-5000™ Automated Hematology Analyzers integrated with Cellavision® DM96 Cell Imaging Systems.
- Four regional care sites use model XS-1000™ Automated Hematology Analyzers.
- All sites are connected via Sysmex WAM™ middleware to take advantage of the Sysmex philosophy of Intelligent Automation™ and Lavender Top Management® to streamline their hematology lab operations.

**Outcome**
Through implementation of Sysmex automation solutions, MD Anderson has experienced improved turnaround time and labor efficiencies within their operational and budget constraints.

**Main Campus Laboratory Automation Metrics**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Pre-Implementation</th>
<th>Post-Implementation</th>
<th>Delta</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBC / Day</td>
<td>1,347</td>
<td>1,739</td>
<td>29%</td>
</tr>
<tr>
<td>Slide Reviews / Day</td>
<td>741</td>
<td>664</td>
<td>-10%</td>
</tr>
<tr>
<td>% Rerun / Day</td>
<td>5.0%</td>
<td>3.9%</td>
<td>-22%</td>
</tr>
<tr>
<td>TAT (Min. - Diagnostic Lab)</td>
<td>23 (median)</td>
<td>11</td>
<td>-52%</td>
</tr>
<tr>
<td>Workflow Touches</td>
<td>13</td>
<td>10</td>
<td>-23%</td>
</tr>
<tr>
<td>Workflow Steps</td>
<td>10</td>
<td>7</td>
<td>-30%</td>
</tr>
</tbody>
</table>

* Aggregate of 3 main hospital labs – Main, Diagnostic and ACB labs

---

**Workflow Improvement:**
The variety of metrics improved utilizing Sysmex WAM hematology-specific rules, freeing up technologist time to focus on the complex patient results that require additional actions.

**Throughput and technology**
“The Sysmex HST line has a much higher throughput than our previous system. That, along with the advanced technology of counting Immature Granulocytes, allowed us to improve our workflow and increase the auto-verification rate.”

**Ongoing support**
“The hotline support is very good and they were very willing to work with us to get comfortable with troubleshooting. I cannot say enough good about the Application Specialists. They are incredible and we developed a very close relationship that lasts to this day.”

**WAM Benefits – Standardized Decision Process**
“WAM has operator alerts that instruct the analyzer technologist and the differential technologist on specimen handling in order to obtain valid results, thereby releasing the results to the floor faster than ever and reducing phone call inquiries.”

---

Pat Tillman, MT(ASCP)
Lab Coordinator (Ret.)