PROCESS FOR DETERMINATION OF INFORMATION TECHNOLOGY SYSTEM TO SUPPORT BMT PROGRAM OPERATIONS

FEBRUARY 15, 2013
EXECUTIVE SUMMARY

Our Objective:
• Implement a unified IT platform across the multiple departments of BMT to provide an integrated solution for Biospecimen Management, Patient Management, Research and Data Management

• Our Approach: Enterprise-wide implementation
  • Identify a partner to develop an enterprise solution to the Blood Cancer Service Line
  • Align workflow processes across all BMT centers based on compliance and action-based rules and workflows
    • Allows for better management of regulatory compliance with the FDA, FACT, HIPAA, CIBMTR standards
    • Provides corrective action/incident management systems with auditing capabilities
  • Standardize aggregated data for research, quality, and financial Payor/RFI operations for Sarah Cannon Blood Cancer Network
HOSPITAL CORPORATION OF AMERICA (HCA)

- HCA is the largest private operator of health care facilities in the world
- 162 hospitals and 112 freestanding surgery centers in the US and UK
- Over 100,000 new cancer registry cases per year in the US
- In 2011 HCA leadership asked Sarah Cannon to form a global oncology service line to
  - Develop and refine an integrated oncology service line model
  - Ensure delivery of best-in-class offerings for our patients, referrers, and physicians
- Sarah Cannon is the global oncology service line for HCA
SARAH CANNON HIGHLIGHTS

SCRI
- One of the most prominent drug development programs in the US
  - Conducted over 100 “first in man” clinical trials
  - Contributed to the approval of 30+ commercially available drugs
  - Recognized with largest solid tumor scientific presence at ASCO
  - 27 abstracts accepted at 2012 ASH
  - First private Drug Development Program in UK

Blood Cancer Network
- > 800 transplants in 2012, and over 8,000 transplants to-date
- > 50,000 discharges with a blood cancer diagnosis per year

Quality
- 6 FACT accredited programs
- 74 CoC-accredited programs which provide oncology services at 98 HCA facilities
  - 15 received Outstanding Achievement Award (OAA)

Radiation Oncology
- Third largest provider of radiation oncology services in the nation
  - Ranks behind 21st Century and US Oncology
- 51 Centers
  - 32 Stereotactic surgery (SRS) capable assets (9 Cyberknife; 9 GammaKnife)

*Revenue and Volumes according to public 10k filing
HCA has built significant BMT capabilities across its 7 BMT centers:

- **Hospital Inpatients**: 162 hospitals in 20 states
  - Blue states have HCA Hospitals

- **BMT Programs**:
  - Dallas: Medical City of Dallas Hospital
  - Denver: Colorado Blood Cancer Institute
  - London: Harley Street at UCH
  - Nashville: Sarah Cannon Center for Blood Cancer
  - New Orleans: Tulane Medical Center
  - Oklahoma City: Oklahoma University Medical Center
  - San Antonio: Texas Transplant Institute
INTEGRATION IS THE KEY TO SUCCESS

SCRI Hem Consortium
- Research asset base
- Cancer science expertise
- Strong pharma interest

Leukemia:
- Leukemia patients have better outcomes in BMT centers
- Consolidation will increase quality, efficiency and profitability

Hem/BMT Network
Quality, Growth and Finance Strategy
collectively provide the ability to leverage
the national network on
a regional level

Quality
- Outcomes
- Disease Focus (Leukemia)

FACT Accreditation
Pathway Development

Growth
- Regional Referrals
- Aging Population
- Reduce Leakage
- Geographical Platform

Finance
- Employers
- Revenue Cycle
- COEs
- Vendors

Network Benefits
- COEs, employer programs and geographic consolidation
- Vendor contracting for network volume

Prognosis for Growth
- Autologous: Aging population will level set new therapies
- Allogeneic: Baseline growth through rising incidence of MDS, primary and secondary leukemias and autoimmune disease (Denver)

Standardization of Care:
- Pathways and SOPs across a network will drive opportunity to establish and measure quality outcomes opportunity
CONSOLIDATION OF ACCREDITATION, TRAINING AND DATA COLLECTION ACTIVITIES PROVIDES COST SAVINGS AND IMPROVE FACILITY OPERATIONS

<table>
<thead>
<tr>
<th>Opportunity area</th>
<th>Hem/BMT opportunities</th>
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<tbody>
<tr>
<td>Accreditation support</td>
<td>• Build shared resource to support facility accreditation – FACT and other accreditations</td>
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<td></td>
<td>• Develop accreditation best practices – data, application process, requirements, etc.</td>
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<td>• Standardized quality plan and metrics – audits, outcome analysis, corrective actions and regulatory reporting</td>
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<td>Standardized training and on boarding</td>
<td>• Adopt standard operating procedures (SOPs) and training</td>
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<td>• Build BMT specific HealthStream training – annual and new hire</td>
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<td>• Set metrics for staffing level and skill mix</td>
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<tr>
<td>Centralized BMT data</td>
<td>• Develop centralized BMT database</td>
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<td></td>
<td>• Integrate BMT data with other shared data resources (e.g. cancer registry)</td>
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<td></td>
<td>• Assist with national reporting and managed care RFIs</td>
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<tr>
<td></td>
<td>• Identify quality and treatment improvement opportunities</td>
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<tr>
<td>Quality and financial analytics</td>
<td>• Provide centralized data tracking and analytics</td>
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<td></td>
<td>• Develop BMT program benchmarks - outcomes, cost</td>
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<tr>
<td>Network purchasing</td>
<td>• Provide savings from shared purchasing – supplies, equipment, outsourced lab services, pharmacy, IT and systems</td>
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<tr>
<td>Standards of practice</td>
<td>• Common clinical protocols</td>
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<td></td>
<td>• Standard order sets</td>
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</table>
Current Solutions being developed by Sarah Cannon IT&S

• Oncology Navigator Solution
• Clinical Trial Management System
• Radiation Oncology Solution
• Cancer Registry Solution
• BMT Solution

Future Targeted Solutions

• Mobile Clinical Applications for Research
• Clinical Data Management System & Analytics
• Genomics/Gene Sequencing Support Software
TOPICS TO BE COVERED

- **Project Planning RFI/RFP Process:**
  Outlining our current state, illustrating our needs, aligning BMT Services with fundamental Strategic Pillars of our company’s strategic plan.

- **Identifying a strategic partner in Technology:**
  Develop our platform solution to enhance our operations and quality outcomes throughout the service line.

- **Building towards the future state:**
  Creating a “Pilot” environment to develop the solution, integrate technology into our daily operations and work towards a future state platform.
PROJECT PLANNING
CREATING A BUSINESS CASE/PROJECT CHARTER

• **Background**
  • Understanding current state functionality and capabilities

• **Challenges/Opportunities**
  • Liabilities in processes
  • Areas for Improvement
  • Future State

• **Business Objectives**
  • Improve quality of care to include: process, outcomes, efficiency, safety, and experience
  • Competitive Market Advantage
Current State at BMT Centers

Apheresis/Cell Therapy Lab

- Lack of Standardization and Technology
- Manual tracking of products/Biospecimen Management
- “Silos”-Inability to share meaningful Patient data/information with other BMT departments effectively.

Inpatient/Outpatient Units

- Multiple centers using paper tracking, homegrown databases, and a variety of software to manage their patient population
- No true Patient Management tool in our EMR that focuses on the intricacies of managing BMT Patients

Research/Data Management

- Research and Data Management are largely a manual function
- Aggregation of data for research is entirely manual and multi-faceted in the origin of data
- Input of information into the CIBMTR is also a manual function that is time-consuming
- Regulatory/Compliance auditing a reactive measure rather than a proactive assessment
RFI/RFP PROCESS

• **Stakeholder Analysis**
  - Steering Committee
  - Project Work Group (Roles)
• **Diagnostic Assessment**
  - Capturing the Current State of Business and IT&S
  - Workflow Processes, Regulatory Standards, Data Management
• **Requirements Document Development (Preliminary RFI)**
  - Interface capabilities from Hospital and Physician EMR Systems
  - Performing a Needs-based Assessment
  - Data We Collect exercise
• **Preliminary Vendor Demonstrations/Discussions**
  - Demonstration/Discussion with potential Software Solution vendors via teleconference/WebEx
• Narrowing potential Vendors based on “best-fit” from initial Vendor Demonstrations
  • Does the vendor meet preliminary requirements within their solution?
  • Narrow Vendors based on “best-fit” that aligns to the vision and strategy of the solution
• Requirements Document (Final Version)
  • Understand and identify areas of compromise for final selection
  • Prioritization of current needs and requirements to be fulfilled by the solution
• Onsite Demonstration by Vendor
  • Vendor provided a real-time demonstration of the software
  • Technical vs. Clinical Requirements Demonstrations
<table>
<thead>
<tr>
<th>Item</th>
<th>Requirement</th>
<th>Vendor 1</th>
<th>Vendor 2</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The system is intuitive to use</td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>I can view desired information within the system easily and quickly</td>
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<td>3</td>
<td>The system would provide a major improvement over current system (if any)</td>
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<td></td>
<td><strong>Ease Of Use</strong></td>
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<tr>
<td>4</td>
<td>The system includes functionality that can help me complete daily tasks more quickly</td>
<td></td>
<td></td>
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<tr>
<td>5</td>
<td>The system includes functionality that is superior to my current workflow</td>
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<tr>
<td>6</td>
<td>The system will be able to create and send orders or receive them via upload</td>
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<td></td>
<td><strong>Functionality</strong></td>
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<tr>
<td>7</td>
<td>The system will allow me to quickly access research information</td>
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<tr>
<td>8</td>
<td>I can easily create custom reports within the system</td>
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<td></td>
<td><strong>Data Management</strong></td>
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<td></td>
<td>After you have assessed both vendors, please rank the vendors in order of best solution by entering their rank in the space to the right with 1 being the highest to 2 being the lowest.</td>
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</table>
BMT Registry: Physician Feedback

Name: 
Date: 

Observers' Feedback

1. How do you rate the different vendor’s interaction with demo participants from standpoint of communication style, responsiveness, and mastery of subject matter?

2. Which vendor solution is the most acceptable?

3. Which product best aligns with HCA's approach and practices within the BMT space?

4. The following important product features or components were not demonstrated or explained (please specify the vendor):

5. What aspects of each product offering did you like best, and why?

6. What aspects of each product offering did you like least, and why?

7. From your clinical perspective, what will be HCA’s satisfaction with adopting either product solution? High/Low, AND why?
BMT Registry Vendor Selection: Overall Rating and Comments

Reported Vendor Preference

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<tr>
<th>Vendor</th>
<th>Reported Preferred Choice</th>
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<tbody>
<tr>
<td></td>
<td>64%</td>
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<td></td>
<td>36%</td>
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Demonstrated Requirement Compliance

<table>
<thead>
<tr>
<th>Service</th>
<th>% of total points awarded</th>
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<tbody>
<tr>
<td>Hem-Onc</td>
<td>65%</td>
</tr>
<tr>
<td>Clinical Trials</td>
<td>43%</td>
</tr>
<tr>
<td>Cell Therapy Lab</td>
<td>52%</td>
</tr>
<tr>
<td>Apheresis</td>
<td>52%</td>
</tr>
<tr>
<td>Adult BMT</td>
<td>41%</td>
</tr>
</tbody>
</table>

Illustrative Comments
ARCHITECTURE AND SECURITY SCORING

BMT: Architecture/Security Ratings

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Reported Preferred Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60%</td>
</tr>
<tr>
<td></td>
<td>50%</td>
</tr>
</tbody>
</table>

Demonstrated Requirements Compliance

% of total points awarded

- Architecture Complexity: 60%
- Architecture Risks / Concerns: 60%
- Security Risk: 60%
- HCA Ability To Support: 20%
- Integration Capabilities: 60%

Illustrative Comments
BMT SOFTWARE INTEGRATION PROJECT
OVERALL SCORECARD: EVALUATION CRITERIA

Evaluation Criteria

**Directional/Objective**
- Culture-fit
- Partnership
- Vendor Behavior/track record

**Calculated Assessment**
- Total implementation /cost
- Annual on-going cost
- Benefits – competitive advantage, cost avoidance, efficiencies & effectiveness

**Vendor Fit**

**Product Capabilities**
- Scorable Event
  - Functions & features, workflow, interoperability
  - Ease of use and adoption

**Costs & Benefits**

**Technical Architecture**
- Scorable Event
  - Technical - Architecture, infrastructure, integration, performance, & scalability, security
• **Subject Matter Experts from each BMT center participated in the Vendor Scoring process:**
  
  • **Quantitative Analysis:**
    – Technical vs. Clinical Scoring
    – Rate Requirements
    – Rank Requirements
  
  • **Qualitative Analysis:**
    – Vendor Attributes
    – Clinical Functionality
  
  • **Technical Functionality**
  
  • **Financial Impact**
  
  • **Contract Agreement**
  
  • **Legal Assessment**
PRODUCT BUILD OUT: PILOT PHASE PREPARATION

- **Statement of Work**
  - Technical and Clinical build-out of finalized, detailed Pilot requirements and deliverables to be met during the Pilot phase
  - Standard Licensing Agreement
  - Architecture/Security Review Process

- **Strategic Product Roadmap**
  - Lifecycle of the Product
  - Strategic Rollout for Enterprise Deployment

- **Site Assessments conducted at each BMT center**

- **Executive Steering Committee and Workgroups**
Clinical/Research Workgroup
- Comprised of Physicians and Nursing Staff from each BMT Center that are appointed as SME's for the BMT Product line
- Research and Data Managers
- Meeting Monthly

Operations Workgroup
- Comprised of Administrators, VP's of Oncology, and Senior Leaders from each BMT Center
- Meeting Monthly

IT&S Workgroup
- Comprised of Director of Application Services from each BMT Center or appointed person(s)
- Meeting monthly

Ancillary Services Workgroup
- Lab, Apheresis, Blood Bank, Facilities Management Work-group members from each center
- Quality/Data Managers
- Meeting Monthly

BMT Executive Steering Committee
(Quarterly Onsite Meeting)

Vendor
- Senior Leadership
- Developers
- Product Managers
LESSONS TO SHARE

- Communication is key
  - Aligning the Business Administrators, Clinical team, and IT&S team together to create a strategy around a proposed solution
  - Ongoing communication with Key stakeholders

- Understanding and Managing Expectations
  - Be very clear on what core issues you are trying to resolve by implementing a new software solution
  - What are key indicators of success to the project?

- Building a Strategic Plan
  - Building a strategy around the evolution of the platform and a roadmap that helps to support the phases of implementation
  - Identifying a core team that has a high level of investment in creating a solution that works best for your center’s operations.
<table>
<thead>
<tr>
<th>San Antonio</th>
<th>Oklahoma City</th>
<th>Nashville</th>
<th>Dallas</th>
<th>Denver</th>
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<tbody>
<tr>
<td>• Dr Carlos Bachier</td>
<td>• Dr George Selby</td>
<td>• Dr Michael Savona</td>
<td>• Dr Brian Berryman</td>
<td>• Dr Tara Gregory</td>
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<tr>
<td>• Juan Huerta</td>
<td>• Kristen Kratochvil</td>
<td>• Leigh Ann Stamps</td>
<td>• Maria Custudio</td>
<td>• Mary Kay Nalty</td>
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<tr>
<td>• Gayla Nagy</td>
<td>• Nancy Kohrt</td>
<td>• Carol Santoro</td>
<td>• Rodney Moffett</td>
<td>• Jaime Sidle</td>
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<tr>
<td>• Wilma Cain</td>
<td>• Tasha Manning</td>
<td>• Melissa Darnall</td>
<td>• Katie Chen</td>
<td>• Michelle Kosik</td>
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<tr>
<td>• Mary Krivoy</td>
<td>• Margaret Dalton</td>
<td>• Heather Sperling</td>
<td>• Cathy McLaughlin</td>
<td>• Betsy Blunk</td>
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<tr>
<td>• Jo Meekins</td>
<td>• Judy Hanna</td>
<td>• Heather Carillo</td>
<td>• Kristin James</td>
<td>• Tonya Cox</td>
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<tr>
<td>• Laura Milstein</td>
<td>• Patti Cunningham</td>
<td>• Jaime Delashmit</td>
<td>• Lisa Carter</td>
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<tr>
<td>• Lety De LaZerda</td>
<td>• Regina Ward</td>
<td>• Kathleen Murphy</td>
<td>• Leah Atwood</td>
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<td>• Kim Arellano</td>
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<td>• Charlotte Stambough</td>
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<td>• Daniele Pastieri</td>
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<tr>
<td>• Dr Kawah Chan</td>
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<tr>
<td>• Dr Paul Shaughnessy</td>
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Thank you for your time

Rocky Billups, VP Operations, Sarah Cannon

Jesse Jawanda, BMT Product Manager, Sarah Cannon