Supply On Demand – Reducing Non Value-Added Time in a Large Vascular Interventional Radiology Practice

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Background
Inventory management in Vascular Interventional Radiology (VIR) has been a major issue that influences the physician’s ability to provide the highest quality of patient care by having the right medical supplies at the right time. One of the most difficult aspects of the inventory management process is the search time required to locate supplies either in the supply room and procedure rooms (this includes types of supplies, quantities, layout, and replenishment practices). This causes a significant amount of time to be wasted by both the radiology technicians and lab assistants as they search for the requested supplies, potentially causing delays in the patient’s procedure. In addition, the lack of standardization has also led to increased time and effort spent training new personnel on the location of supplies.

The goal of this project was to reduce the amount of non-value-added time that the lab assistants and radiology technicians spend searching for supplies in the supply and procedure rooms.

Methods
DMAIC adheres to a data-driven quality strategy for improving processes and is an acronym for the five interrelated phases: Define, Measure, Analyze, Improve, and Control.

Value Stream Mapping is a visual tool that helps one see and understand the flow of material and information as a patient or service makes its way through the process, as well as the management and information systems that support the basic process.

Kaizen Events are structured, short cycle (usually 1 week in duration), improvement efforts with tightly scoped objectives that align with higher level project goals.

5S is a Lean tool that is used to improve the performance and safety of a process by implementing and maintaining high standards for cleanliness, organization, visualization, and standardization.

Visual Management is a system that conveys process flow, operations standardization, schedules, and problems instantly identifiable to even the untrained employee.

In a Vascular Interventional Radiology Department, standardization and visual management have been utilized in the cath lab, surgery, and procedure rooms to ensure easy access to medical supplies. Diagrams of each room are displayed, material storage bins, labeling, and color-coding of medical devices provide easy access.

Figure 1: Vascular Interventional Radiology – High Level Process Mapping

Figure 2: Identify Current State

Figure 3: Red-tagging and Organizing

Figure 4: Biax for Action and Real-time Change

Figure 5: RESULTS (Verify, Sustain, Diffuse)

Critical Success Factors for Kaizen Event:
- Align with Department / Institution goals
- Improvement need felt by management and team members
- Existing process defined, documented, routine and stable
- Access, available and self-contained process
- Sponsor who is supportive, active, and engaged is identified (Physician participation)
- Project team of 6-10 process experts, including a department co-leads and expert facilitator
- Empowerment given to Kaizen team
- Management commitment and support (should be daily report input)
- Workforce involvement
- Communication of purpose and benefits
- Dedicated resources (full-time participation with probable overtime)
- No observers?
- Dedicated workspace for team, slow to work location, for duration of event
- Budget for event (has department for small supplies, food, overtimes, and team recognition)
- Support services (Facilities, IT, materials, etc) can available and empowered to make REAL TIME changes to team needs identified during try-out meeting

Conclusion
Standardization of supplies in the procedure rooms and the storeroom, in addition to color-coded labeling, has resulted in quicker retrieval of supplies, a more efficient method of restocking supplies, and an increase in material flow.

Quote from team members and staff:
“Loved to appreciate the storeroom lab assistants, techs and radiologists who have been very helpful. We have found more so far as our own jobs and do not make the storeroom phones (SN).

‘I really like the layout of the storeroom now. There are a lot less wasted steps’ (LA)

‘The task at the beginning of the Kaizen event seemed overwhelming but it was nice to see how much time was saved’ (O&M, Supply Management Coordinator)