



# Middle-Trac process solution improves ED patient flow at St. Mary Medical Center

## Who/where

St. Mary Medical Center (SMMC), a 212-bed community hospital with a 44-treatment space emergency department that receives approximately 82,800 annual visits. Apple Valley, CA.

## Challenge

SMMC asked Philips to provide interim ED leadership and lead a process improvement program to reduce left without being seen (LWBS) volume and increase patient throughput capacity.

## Solution

Philips onsite consultants provided interim leadership and a comprehensive ED performance assessment, followed by implementation of performance improvement initiatives.

The ED at St. Mary Medical Center in Apple Valley, California was challenged with significant volume growth, recurring gaps in ED leadership, prolonged lengths of stay, and high LWBS rates. In 2015, SMMC asked Philips to provide interim ED leadership and performance improvement in the emergency department.

Philips provided an Interim ED Manager, Interim ED Director, and led an intensive multidisciplinary performance improvement initiative that identified several opportunities to increase process efficiency. As a result of the engagement, LWBS rates improved by 85.3%, arrival-to-provider improved by 66.2%, and ED discharge patient length of stay (LOS) was reduced from more than 6 hours to less than 4.\*

St. Joseph Health   
St. Mary

## Results\*



↓ **Reduced ED discharge patient length of stay 34.3%** (361 to 237 mins)



↓ **Reduced arrival-to-provider by 66.2%** (74 to 25 mins)



↓ **Reduced LWBS by 85.3%** (7.5% to 1.1%)

The St. Mary Medical Center (SMMC) ED was operating at 168% capacity, resulting in a mean door-to-triage time of 31 minutes, a door-to-provider time of 74 minutes, and overall admitted and discharge lengths of stay at 871 and 361 minutes, respectively. Philips was engaged to provide interim ED leadership as well as help address the issues of efficiency, timely care, and patient/staff satisfaction.

### **Strong interim leadership**

In 2015, Philips consultants joined SMMC as Interim ED Manager and ED Director. They focused on day-to-day operations and staff management and quickly became valuable leaders of the Emergency Services team.

An assessment team completed a comprehensive review of key operational metrics and recommended a dedicated performance improvement (PI) engagement. A third consultant joined SMMC to focus primarily on leading teams toward improving key performance indicators.

Integrating the PI program allowed the interim leaders to focus on team management while supporting the operational efficiency process changes. Leadership responsibilities included staff communications/relationships/support; hiring vacant staff positions and resource planning; staff development and training; assisting with conflict resolution; team mentoring, and more. SMMC has requested that the consultants continue to manage their ED team for the long-term.

### **ED performance assessment**

The performance assessment included a thorough analysis of data collected for volume, arrival patterns, staffing patterns, ESI level distribution, ED billing visit level distribution, disposition breakdown, and length of stay. The consultants conducted interviews with administrators, departmental leaders, and staff, addressing topics such as intake, triage, processes, and education. They also spent considerable time observing patient workflow, departmental processes, and communication.

Upon completion of this detailed assessment, several areas were identified as needing improvement, and resulted in the following actions:

- Revise front-end processes to include the intake and triage processes
- Re-educate staff on the ESI 5-level triage system
- Restructure leadership and clarify roles of each member of the ED team to increase accountability, increasing accountability for standards of practice and quality of patient care

- Examine use of existing space to optimize workflow
- Implement standard work processes to address the frequent capacity issues in the ED
- Create a shared vision and mission for leadership team

### **Review and recommendations**

Following the assessment, a PI work team was convened. It was led by Philips consultants and included SMMC physicians, administrative leaders and ED ancillary staff. The task was to arrive at an action plan focused on improving the walkout rate as well as the length of stay.

The work team completed a deep dive review into each area identified in the assessment and leveraged the data analysis and stakeholder input gathered earlier. They developed recommendations for process change, with priority given to the change initiatives that could make the greatest impact.

Performance improvement recommendations covered a broad range of topics categorized into several areas including front-end and triage; standards; turnaround time; leader support and development; environment of care and safety; use of daily dashboard; ED leadership, and accountability.

Each recommendation was carefully considered before implementation, with particular attention paid to compliance with California's mandated nurse-to-patient staffing ratios. The team agreed to a plan and took dozens of recommendations through implementation.

## Middle-Trac process flow

Key to supporting these recommendations was development of a new process solution called ‘Middle-Trac’. Derivative of a split-flow process where patients are triaged quickly into parallel care streams, Middle-Trac focuses on patients in the middle (ESI level 3) – those who do not require immediate lifesaving treatment. The Middle-Trac patient flow keeps these patients vertical and moving through the department while not occupying valuable treatment spaces until a disposition decision is made.

Similar to an assembly-line, elements of the Middle-Trac process work cohesively, one to the other, occupying 14 treatment spaces. A triage nurse classifies arriving patients into one of three categories: immediate bed needed; fast track appropriate; and remaining Middle-Trac patient population. A carefully detailed process flow maximizes continuity of care, manages essential resources, and minimizes provider hand-offs.

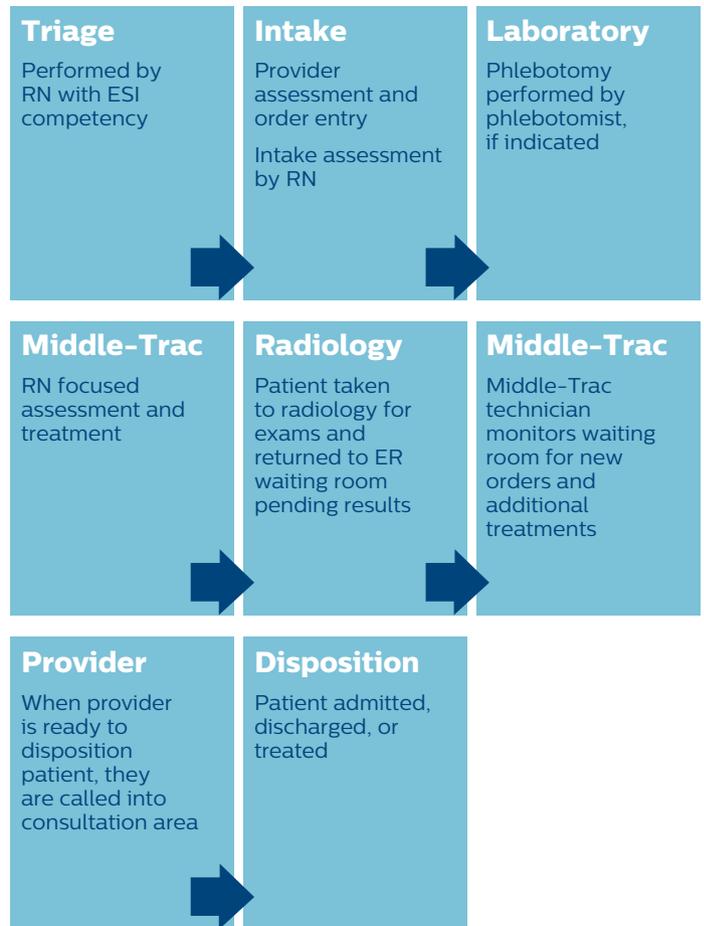
## ED Care Card for increased patient communication

An Emergency Department Care Card was developed to accompany the Middle-Trac patient each step of the way through their ED visit. It details what labs, scans, and treatments have been ordered with provider/nurse names and time stamps. It is used as a way to communicate to the patient where they are in the process, noting approximate times for longer activities. A feedback area is included for patient comments.

The intent is to assure patients (and family members) that they have not “fallen through the cracks” even though they may be sitting in a waiting room. At the end of a visit, at the time of discharge, they are invited to drop their card in a secure box. The Middle-Trac team reviews cards weekly for staff compliance as well as any comments.

Ordered	Done/Missing Time
<input type="checkbox"/> Blood Test	
<input type="checkbox"/> STAT	
<input type="checkbox"/> Specimen Cup	
<input type="checkbox"/> Urine Test	
<input type="checkbox"/> Other	
<input type="checkbox"/> Electrocardiogram	
<input type="checkbox"/> X-Ray	
<input type="checkbox"/> Ultra Sound	
<input type="checkbox"/> Cell Scan	
<input type="checkbox"/> Other	
<input type="checkbox"/> IV	
<input type="checkbox"/> IV Fluids	
<input type="checkbox"/> Medications	
<input type="checkbox"/> Respiratory Treatment	
<input type="checkbox"/> Other	
<input type="checkbox"/> Registration Completed	

Approximate Time to Results	
Lab	Up to 90 minutes
CT Scan	Up to 3 hours
US	Up to 2 hours
X-Ray	Up to 45 minutes



SMMC Middle-Trac process flow.

“The Philips consultants provided exceptional leadership and became part of our team. They helped identify, develop, and implement process change which has had a significant impact on our patient throughput as well as patient and staff satisfaction.”

Marilyn Drone, MSN, RN  
Executive Vice President, Chief Operating Officer,  
and Chief Nursing Officer  
St. Mary Medical Center



## Engagement results\*

The PI work team was successful in implementing process changes that significantly improved door-to-provider times, ED length of stay, and the left without being seen rate for Middle-Trac patients:



↓ **Reduced ED discharge patient length of stay**  
**34.3%** (361 to 237 mins)



↓ **Reduced arrival-to-provider by**  
**66.2%** (74 to 25 mins)



↓ **Reduced LWBS by 85.3%**  
(7.5% to 1.1%)

Philips recommendations and the Middle-Trac process solution have proven to be successful in enhancing the patient experience, speeding throughput/proper treatment options.

### Learn more

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