Using Lean Six Sigma to Improve Discharge Times

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Abstract

Many hospitals wrestle with the issue of throughput; how to ensure beds are available daily for admissions, such that incoming patients do not have to wait for a bed. A key element in creating capacity is having a critical mass of patients discharge early in the day.

Nurse leaders and physicians at a 277-bed tertiary care hospital located in northwest Houston completed a collaborative Lean Six Sigma pilot project to identify and remove barriers preventing early discharge. The project included several changes to the discharge process. Interventions included proactive identification of patients expected to discharge within a day and increased physician ownership in the discharge process with hospitalists completing medication reconciliation and communicating with consultants to confirm each patient's discharge plan. Ultimately, these interventions were successful in improving discharge times, creating bed capacity and reducing delayed admissions.

Using retrospective chart reviews, baseline data was obtained for November and December 2013. The intervention was piloted over a 2-week period of time from February 19 – March 4, 2014. A comparison of the baseline (N=170) and pilot data (N=36) demonstrated improvement in the percentage of discharge order times before 11 am from 20% to 67% and the percentage of discharge before 1 pm from 7.6% to 22%. Length of stay (LOS) was also reviewed to ensure improvement did not come at the expense of LOS; in fact, LOS was reduced.

Goal / Target Statement

Use Lean Six-Sigma to improve discharge process and therefore increase the percentage of IPC patients on 7W and 3 Med/Surg discharged before 1pm

Project Sponsors

HLT Sponsors: Sheila Fata, RN, MBA, VP, CNO, NEA-BC,HMWB

Process Owner: Garry R Thompson, RN Unit Manager

Black Belts: Dennis Tan, Lean Six Sigma Chief Faculty & Senior Analyst

White Belt Project Leader: Barbara Quandt, RN, MSN, NE-BC, Director Medical Surgical Nursing

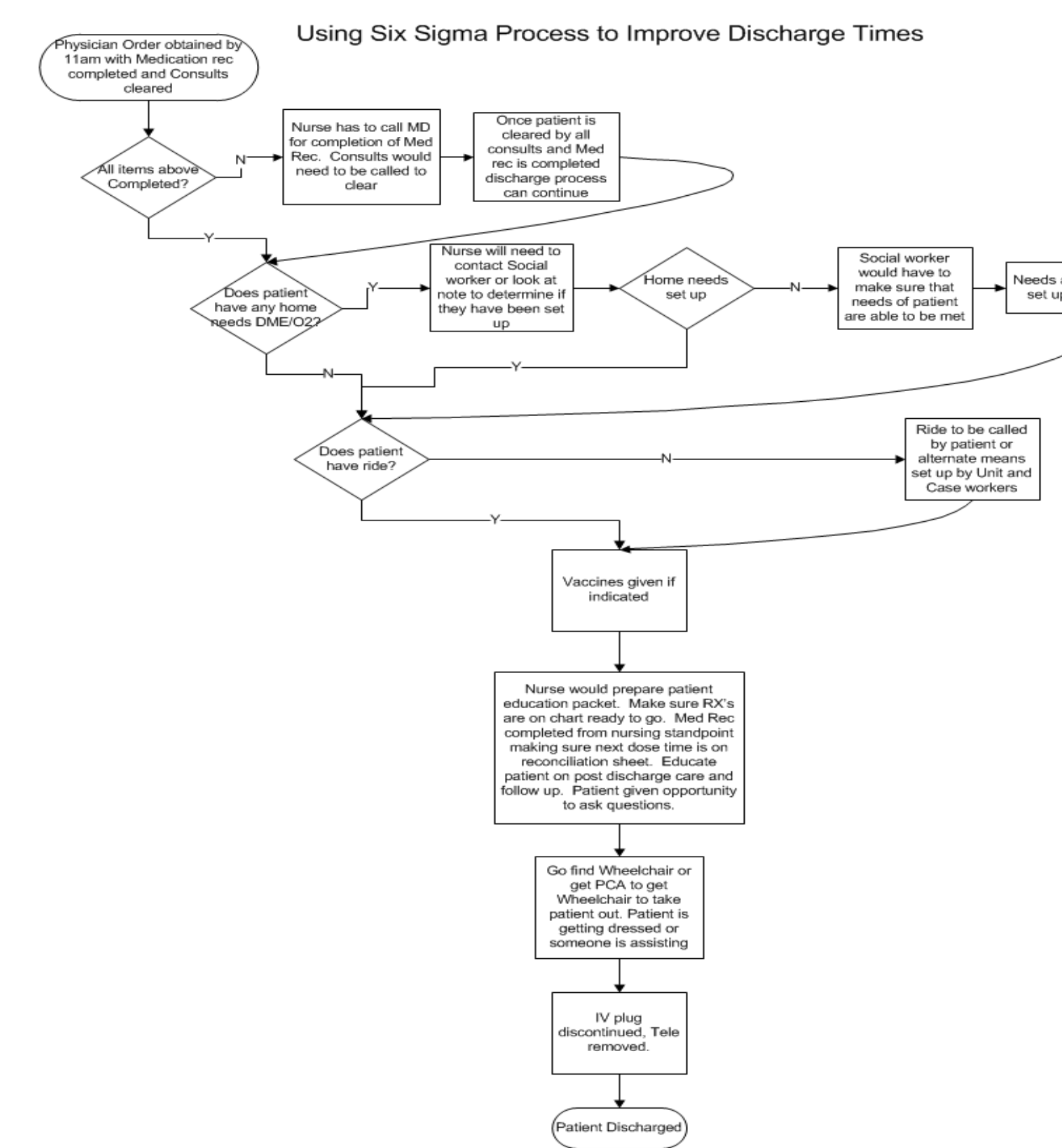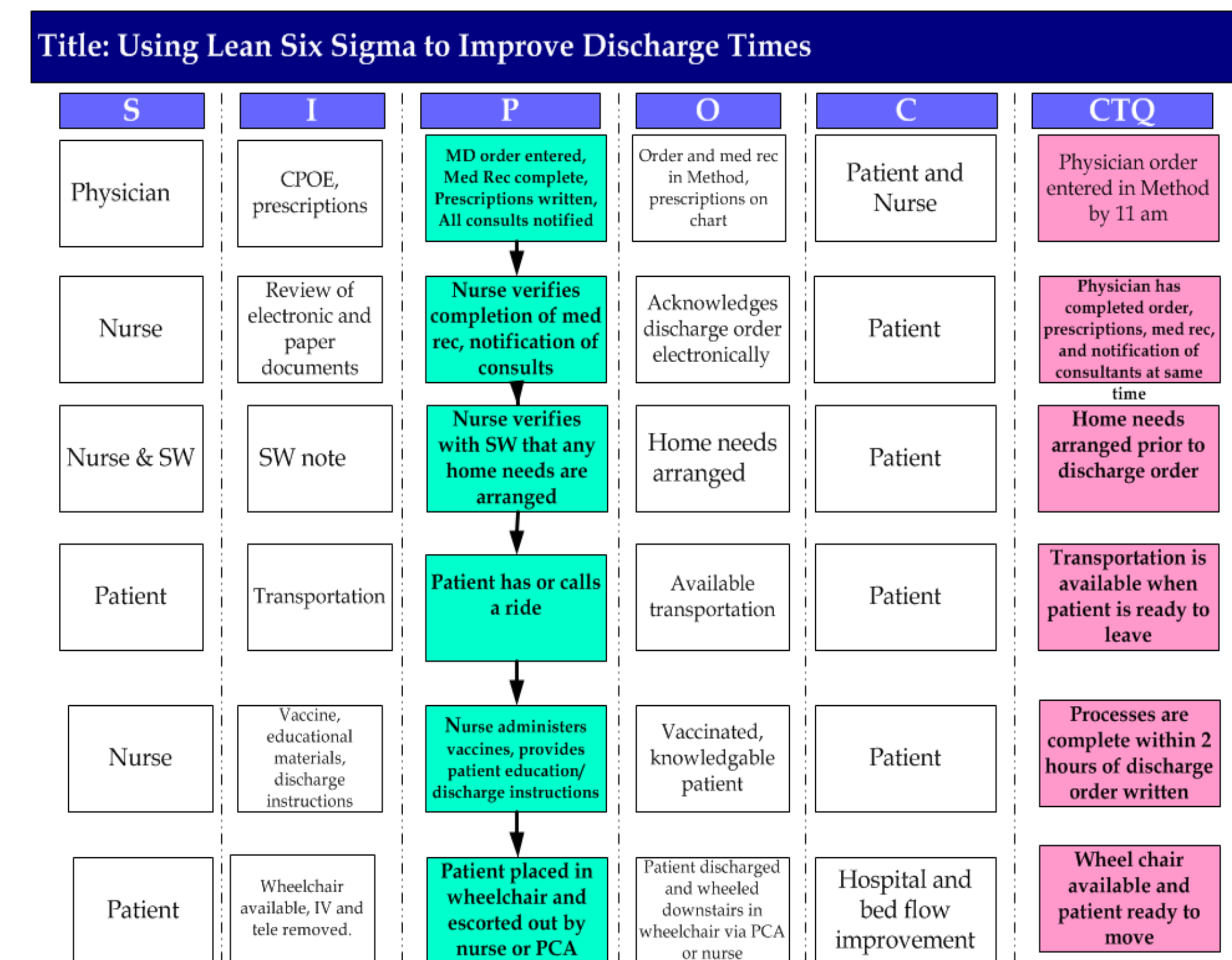**Resources/ Team Members:** Nitish Kosaraju, MD, Practice Group Leader, IPC Hospitalists

Define

Voice of Customer (VOC) – " The hospital needs more beds earlier in the day", " Increased ER wait times"
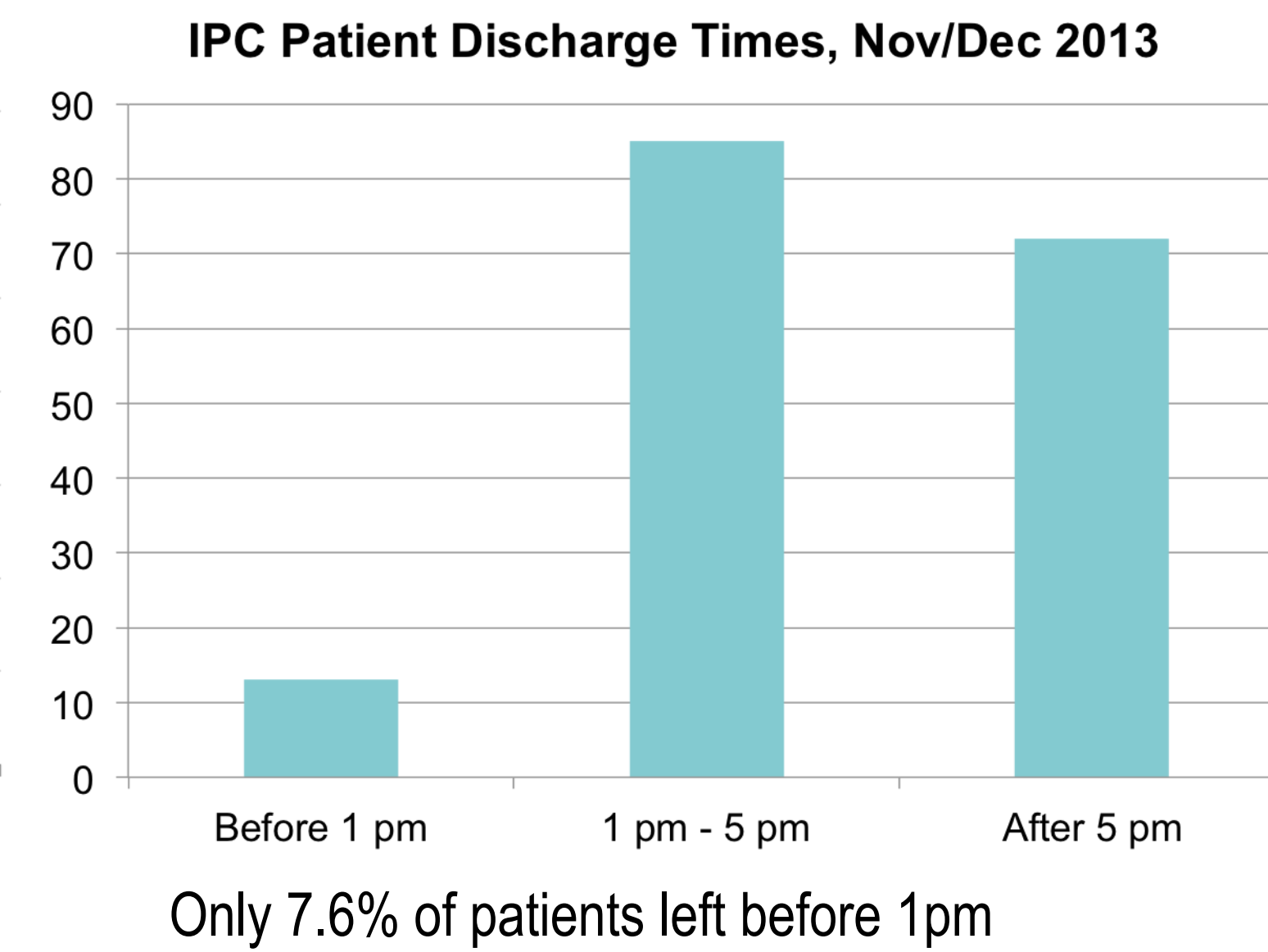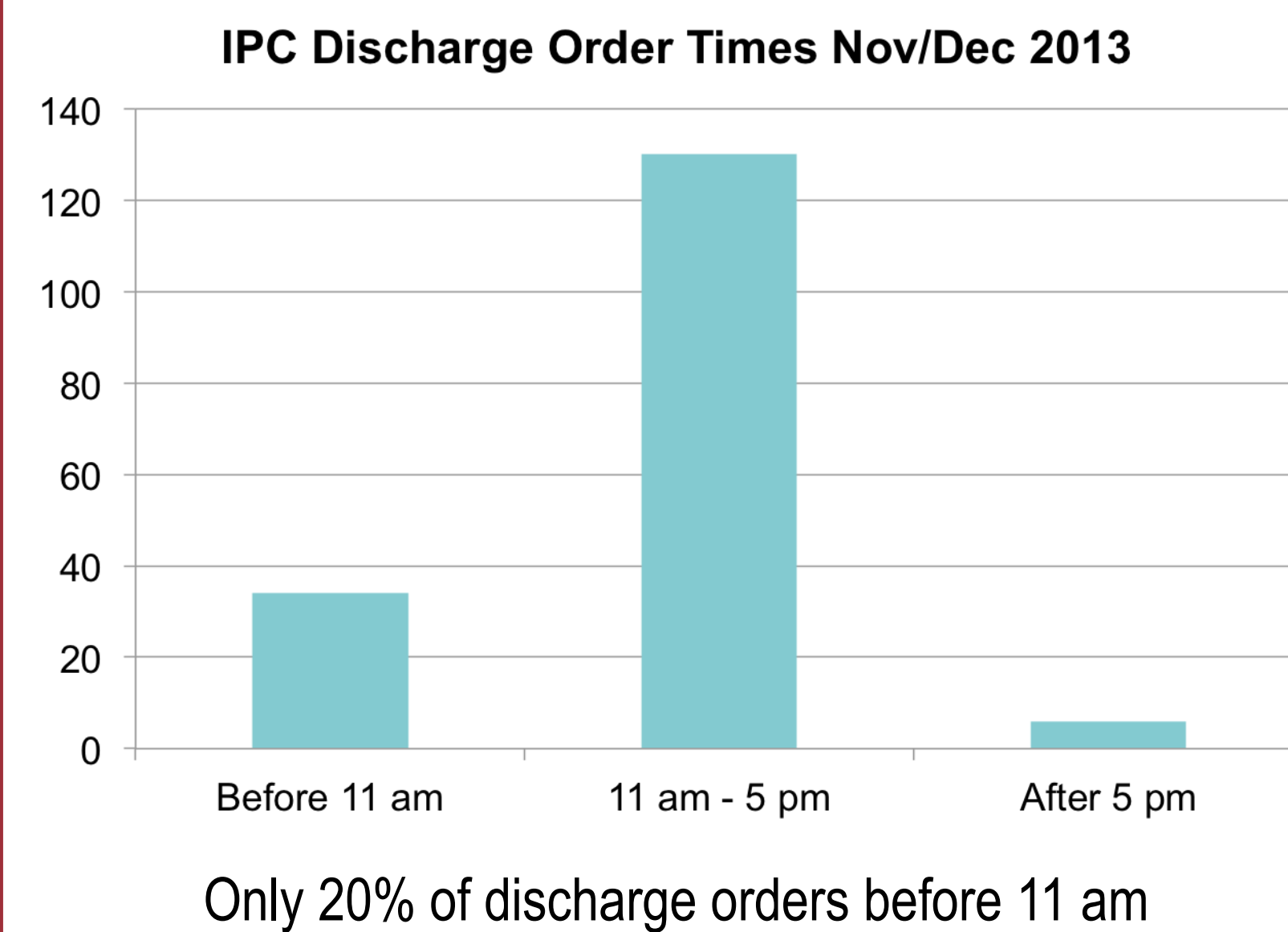
Critical to Quality (CTQ) – Percentage average discharge order time before 11 am , Percentage average discharge time before 1pm, Discharge response time

**Key Stake Holders –** C-suite, Unit Manager, Nursing, Case Management, Social Worker, IPC Physicians

Measure

Analyze

IPC Discharge Order Times Nov/Dec 2013

Only 20% of discharge orders before 11 am

IPC Patient Discharge Times, Nov/Dec 2013

Only 7.6% of patients left before 1pm

Data Sources

Discharge order times	MethOD report	Time of physician discharge order
Discharge times	HIS	Time when patient leaves the unit
Discharge response time	Patient On Trac	Time difference between discharge order and when patients leave the unit

Improve

Discharge order times comparison
Baseline (blue) vs Pilot Feb/Mar 2014 (green)

Nearly 70% of discharge orders before 11 am
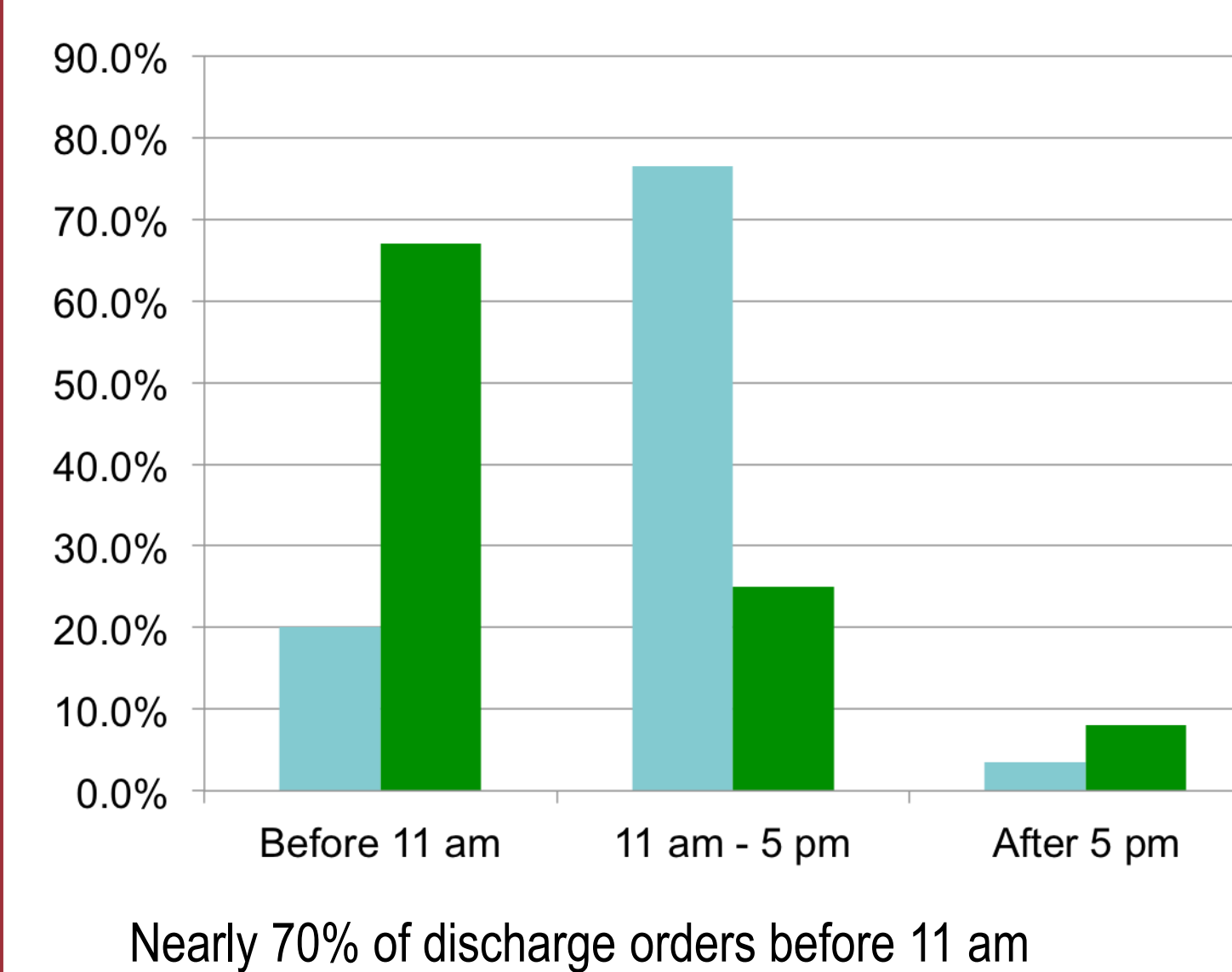
Patient discharge times comparison
Baseline (blue) vs Pilot Feb/Mar 2014 (green)

22% of patients left before 1pm
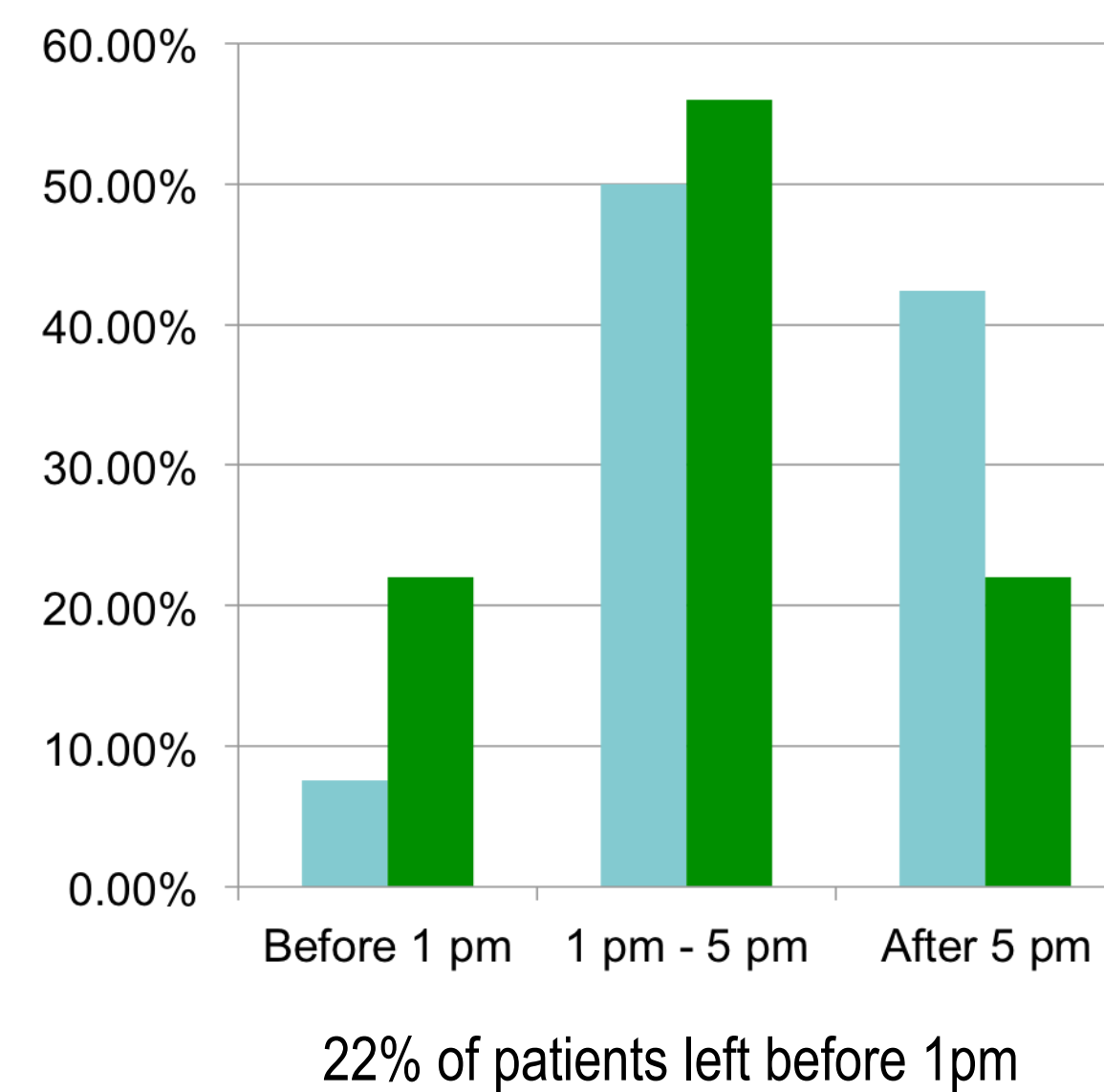
300% improvement in early discharges

Improved process

Unit	LOS During Baseline	LOS During Improvement
Med/Surg 3	4.77	3.41
7 West	3.22	3.24

	Average Discharge Response Time -- Baseline	Average Discharge Response Time -- Improvement Phase
	3:31 (3 hours, 31 minutes)	3:21 (3 hours, 21 minutes)
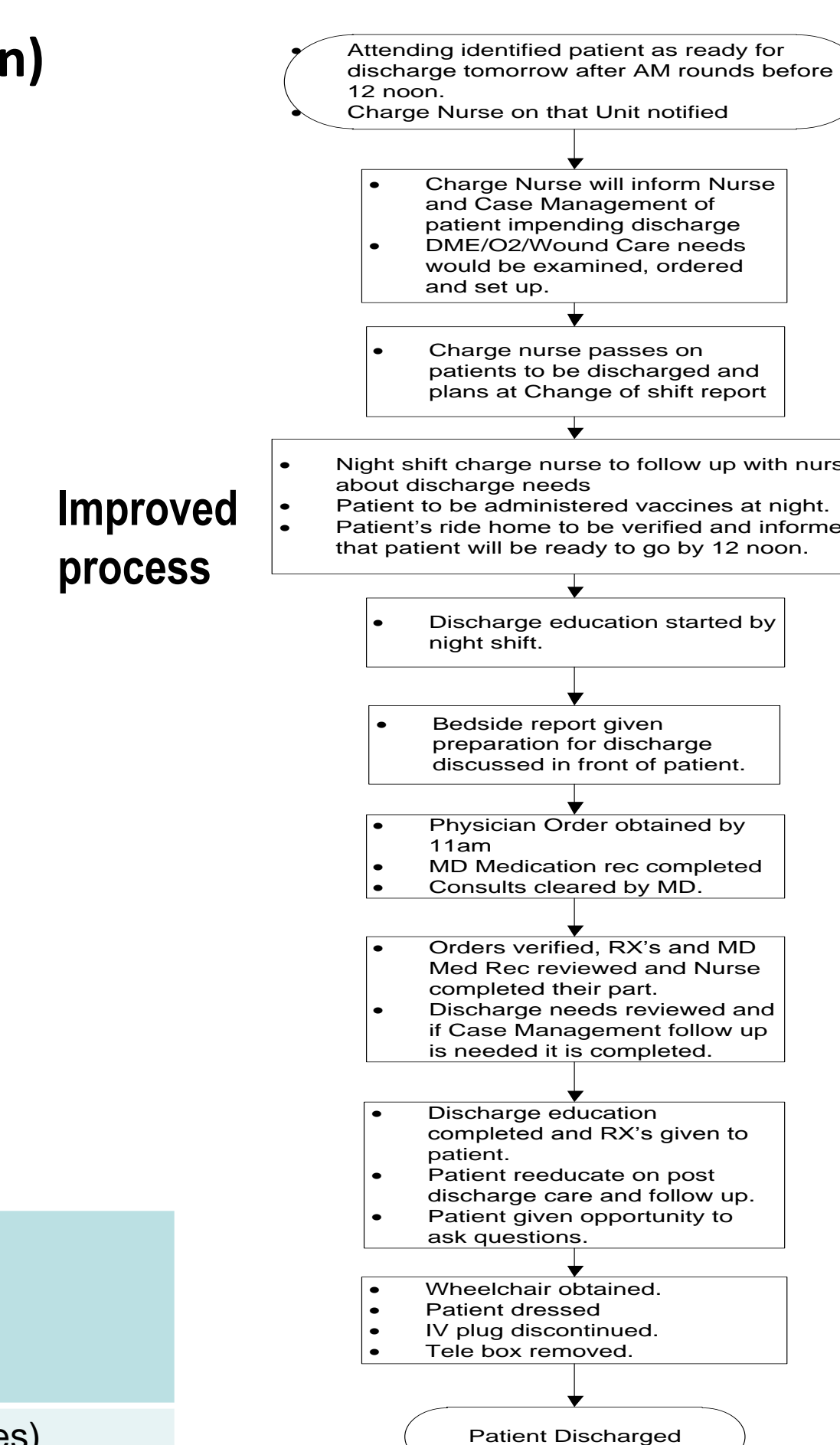
Control

IPC Physicians continue to focus on entering discharge orders before 11 am and clearing patients for discharge with consultants on all units

IPC Physicians to inform Nursing of anticipated discharges at least 24hours before discharge

Staff on 7W and 3MS continue to work on improving average discharge response time by collaborating with physicians and Case managers/ Social workers on the units

Conclusion

If patients are discharged earlier, we could get patients placed in rooms more quickly and efficiently. This would not only mean greater patient satisfaction but would increase our bed capacity without physically adding beds. That, in turn, would help improve the hospital's financial performance.

To make this happen, we need physicians to place discharge orders earlier in the day preferably before 11 am and clear with all the consultants for discharge.

Physicians should communicate with Nursing and case management team the anticipated day of discharge. This will give the team at least 24 hours to educate patients, arrange necessary DME, home health, oxygen, wound care or nursing home placement. An electronic solution for communication of anticipated discharge day is ideal.

We need to set expectations with patients about an anticipated discharge date and time at least 24 to 48 hours prior. The entire team should communicate the same message to the patient or family member.

Through this lean six sigma white belt project , we were able to improve early discharge order times before 11 am from 20% to 67%. Also we were able improve average patient discharge times before 1 pm from 7.6% to 22%. We achieved this without increasing LOS. Also, we were able to eliminate decision points and reduce discharge process steps.

Despite early orders, several factors contributed to delay in discharges including contingent physician orders, patient waiting for ride, nursing delays and availability of DME.

Discharge Planning should start from day of admission. The 24 hour period before discharge will make the biggest impact on a successful early discharge.

A multidisciplinary team approach towards discharge is absolutely critical to success.