

SIX SIGMA APPROACH TO REDUCE ERROR IN PATIENT SHIFTING AT SHALBY HOSPITAL, AHMEDABAD

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Introduction

- During an episode of disease or period of care, a patient can potentially be treated by a number of health-care practitioners and specialists in multiple settings, including primary care, specialized outpatient care, emergency care, surgical care, intensive care, and rehabilitation. Additionally, patients will often move between areas of diagnosis, treatment, and care on a regular basis and may encounter three shifts of staff each day—introducing a safety risk to the patient at each interval.
- The hand-over (or hand-off) communication between units and between and amongst care teams might not include all the essential information, or information may be misunderstood.
- These gaps in communication and incomplete information can cause serious breakdowns in the continuity of care and inappropriate treatment. Inadequate patient shifting can also cause a potential harm to the patient. But due to lack of training and lack responsibility most error reported at Shalby hospital.
- This project reports the result of a six sigma study to reduce the error of patient shifting at shalby hospital. Incomplete information in patient transfer sheet and improper use of safety belt and side rails are described and six sigma level for the same determined.

OBJECTIVE:

- To implement a safe patient shifting and develop an effective communication between patient and healthcare provider at shalby hospital.
- To reduce the the error in patient shifting using six sigma approach.

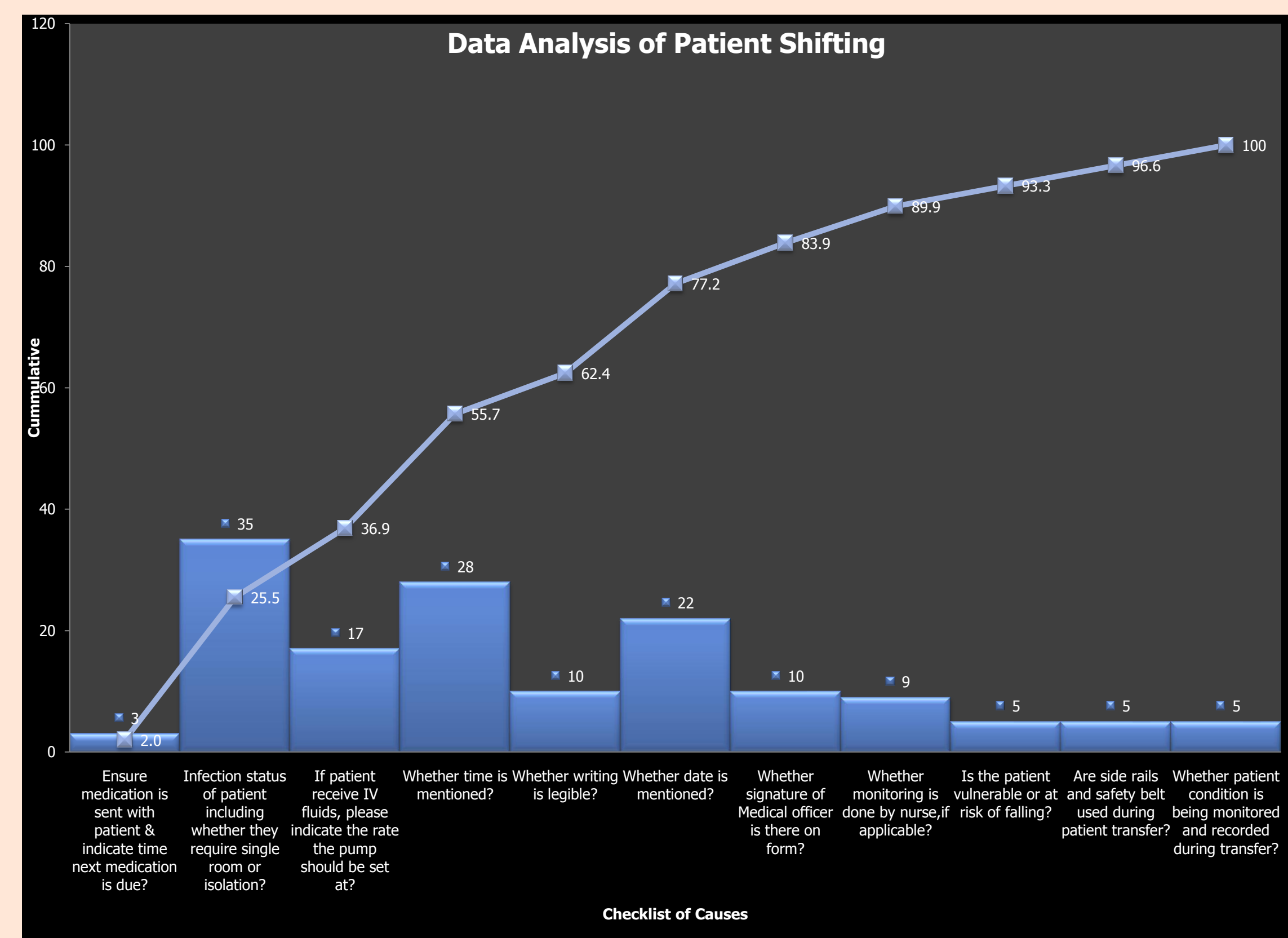
Research Methodology

- Type of study** - Descriptive study.
- Setting** - Shalby Hospital, Ahmedabad.
- Duration of Study** - 2 months.
- Sample Size** –35
- Sampling Technique** - Simple Random Sampling.
- Data source** –Personal observation, discussion with department head and past and current records.

Measure Phase

Pareto Analysis:

Pareto Chart to determine the high impact defects.



Most important issues are-

- Infection status of patient including whether they require single room or isolation not mentioned in transfer sheet.
- Information of patients who received IV fluids, and indication of the rate the pump should be set at is not mentioned in transfer sheet.
- Time is not mentioned in transfer sheet.
- Handwriting is not legible in many transfer form.
- Medical officer's signature isn't present in the form.
- Side rails and safety belt isn't used during patient transfer.
- Patient condition isn't monitored and recorded during transfer.

Sigma Calculation:

- Total Number of parameters=14
- Total number of defects observed=149
- Total number of parameters in which error observed=11
- Total number of error in parameters=Total number of parameters * Total number of parameters in which error observed=11 * 14 = 154
- The Defects per unit (DPU): Total number of error observed/ Total number of error in parameters = 149/154=0.7602
- The Defects per opportunity (DPO): 149/196*1/14=0.054278
- The Defects per million opportunities: DPO*10^6=0.054278*10^6=54278
- Yield= e^-m= e^-0.05=0.9512
- Percentage yield is =95.12%
- As per the ppm and sigma standard table the process sigma is with 1.5 sigma shifted distributions= 1.7
- Sigma (σ) level of the process is = 1.7

Analyze Phase:

Analysis for most critical parameter:

The following causes have been analyzed which further trigger for appropriate action plan.

- Infection status of patient including whether they required single room or isolation not mentioned?

Reason: Criteria not mentioned in transfer sheet.

2. Time and date is not mentioned?

Reason:

- Not aware about to fill out this information.
- Not willing to fill out this information.
- Staff doesn't have time.

3. If patient receive IV fluids, please indicate the rate the pump should be set at?

Reason:

- Transfer sheet doesn't have enough space to fill out this information.
- Sometimes patient don't require IV fluids.

4. Signature of Medical officer isn't there on form?

Reason:

- Medical officer not take responsibility for this.
- Blaming other staff.

5. Side rails and safety belt is not being used?

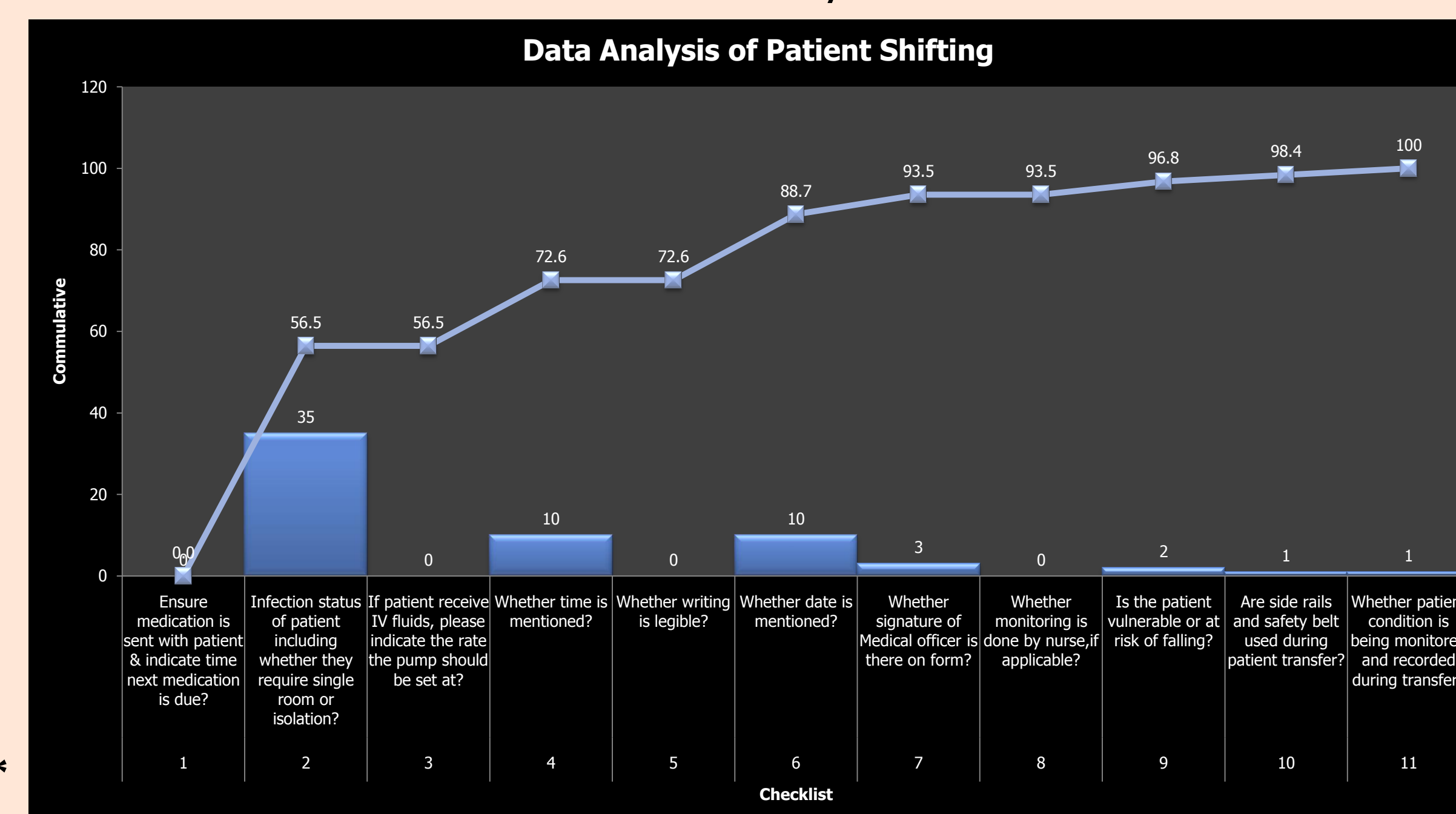
Reason:

- Sometime side rails not available.
- Some rooms have small size of entrance so side rails cannot be used while patient is transfer.
- Sometime attendant staff is not willing to use side rails and safety belts.

Improve Phase:

Pareto Analysis:

After immediate implementation of recommendation, data for reduction in errors collected and analyzed.



- ✓ Number of error reduced during patient shifting.
- ✓ Attendants has been started use of side rails and safety belt during patient shifting.
- ✓ Transfer sheet has been filled out completely.

Calculation Of Sigma Level:

- Total Number of checklist=14
- Total number of error observed=62
- Total number of parameters in which error observed=11
- Total number of error in all parameters=Total number of parameters * Total number of parameters in which error observed=11 * 14 = 154
- The Defects per unit (DPU): Total number of error observed/ Total number of error in parameters = 62/154=0.4025
- The Defects per opportunity (DPO): 62/196*1/14=0.3163*0.07142=0.022397
- The Defects per million opportunities: DPO*10^6=0.022397*10^6=22397
- Yield= e^-m= e^-0.02=0.9801
- Percentage yield is =98.01%
- As per the ppm and sigma standard table the process sigma is with 1.5 sigma shifted distributions= 1.9
- Sigma (σ) level of the process is = 1.9

Recommendation

- Arrange a training session for patient care facilitator for below safe practice.
 - Use of safety belt and side rails
 - Patient monitoring
 - Fill out the transfer sheet correctly and properly.
- Update in patient transfer sheet.
 - Infection status criteria must be mentioned.
 - Provide sufficient space to fill out sheet.

Conclusion

- Patient shifting at shalby Hospital is now improved. The attendant staff started takes precaution towards patient shifting. Use of safety belt and side rails has been increased and because of that vulnerability among patient has been reduced .Monitoring of patient is improved and level of patient satisfaction increased. The necessary updating in patient transfer sheet has been implemented. Transfer sheet has been filled out completely and properly.
- Although the change in sigma level of process is 0.22 (1.7 - 1.9) but the yield of process has increased by 2.89% (98.01% - 95.12%), resulted in reduction in error from 54278 to 22397.
- Thus keeping the above improvement in view we can expect further improvement in the process with more training sessions followed by continuous audits.

Limitation

- All the critical few of the process were identified and rectified, which resulted in a slight improvement in sigma level of the process, but to get the real improvement in the process, continuous training for at least 6 months needs to be imparted and then sigma level of the process has be recalculated and reviewed.
- Data collected for analysis also limits the scope of project; hence to look further process improvement, data for at least 6 months needs to be collected.