

Veterans Health Administration

PROCESS CAPABILITY ANALYSIS

Group 1

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Process Capability Analysis

- To check if the organization's process meets its quality standards
- Estimators: Process capability ratio C_p , Capability Index C_{pk}

Problem Statement

Process

- Time from Patient applying for VA medical benefits until the first doctor's visit.

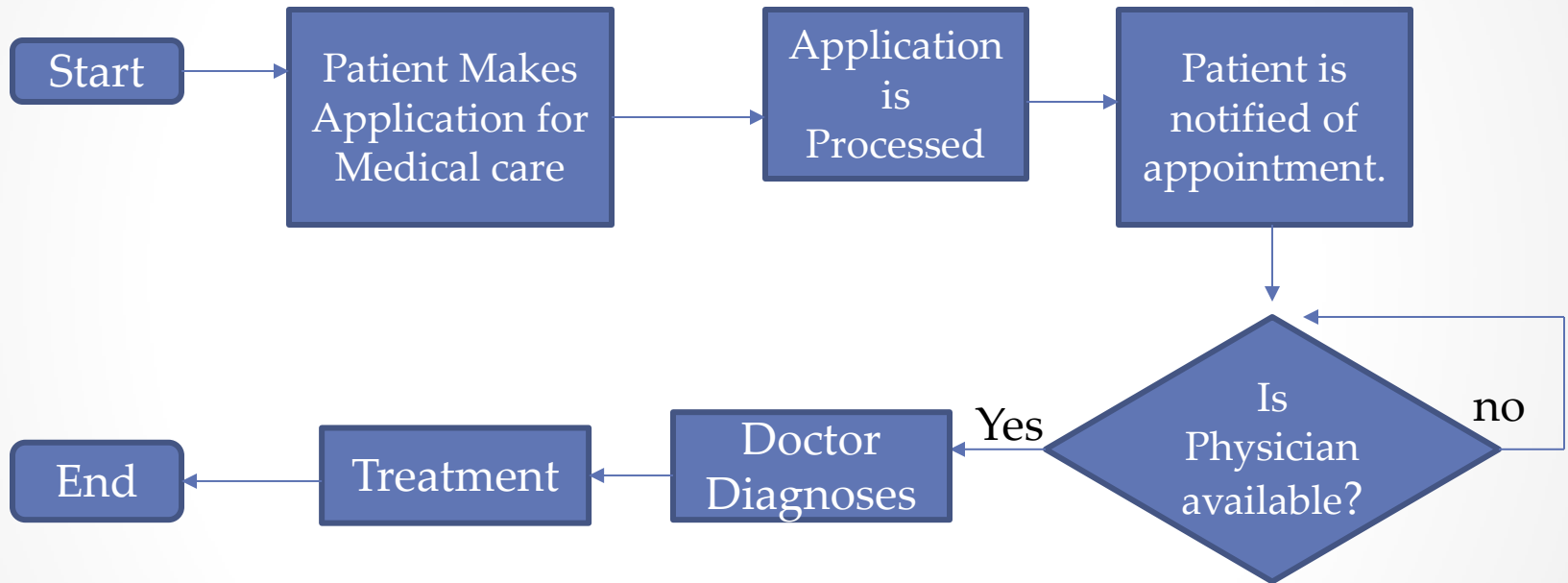
Problem Statement

- Time taken for Veterans to receive first medical appointment after registration is too long.

Problem Areas

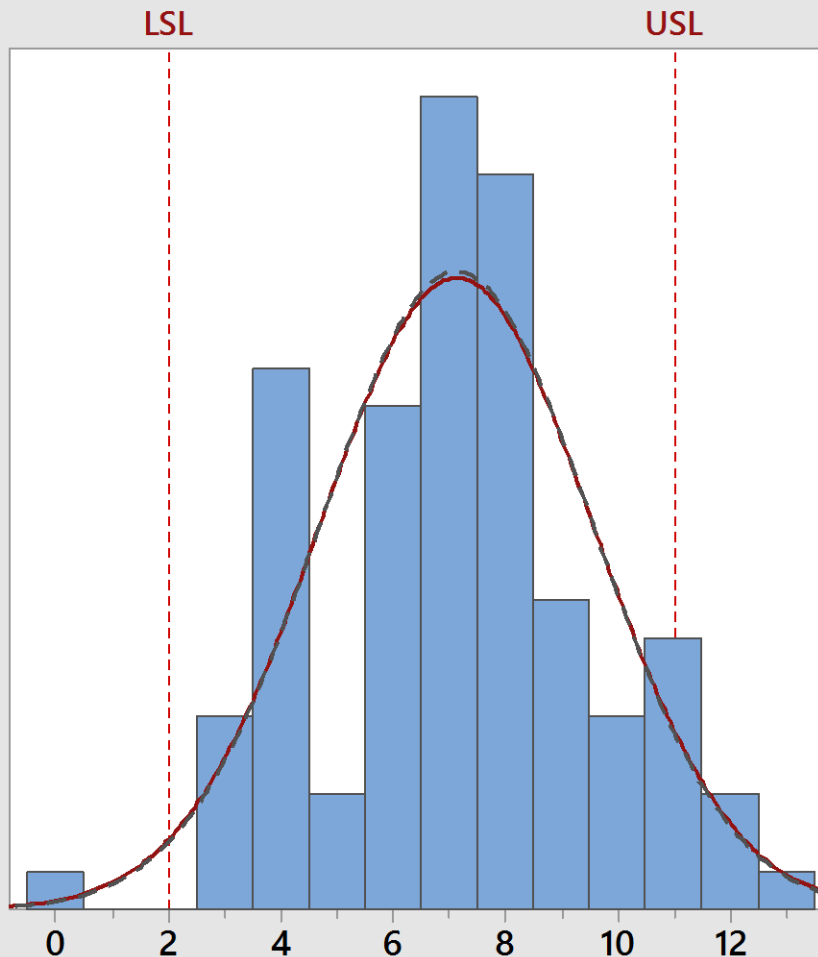
- ❖ Veteran status check
- ❖ Disability Check
- ❖ Shortage of employees to process the applications
- ❖ Unavailability or Shortage of Specialists

Process Flow



Process Capability Report for Wait time (Before)

Process Data	
LSL	2
Target	*
USL	11
Sample Mean	7.13213
Sample N	100
StDev(Overall)	2.44379
StDev(Within)	2.41861



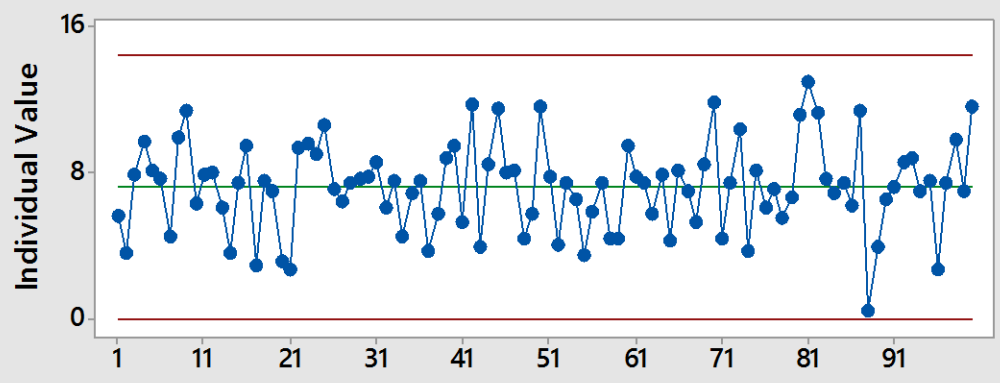
—	Overall
- - -	Within

Overall Capability	
Pp	0.61
PPL	0.70
PPU	0.53
Ppk	0.53
Cpm	*
Potential (Within) Capability	
Cp	0.62
CPL	0.71
CPU	0.53
Cpk	0.53

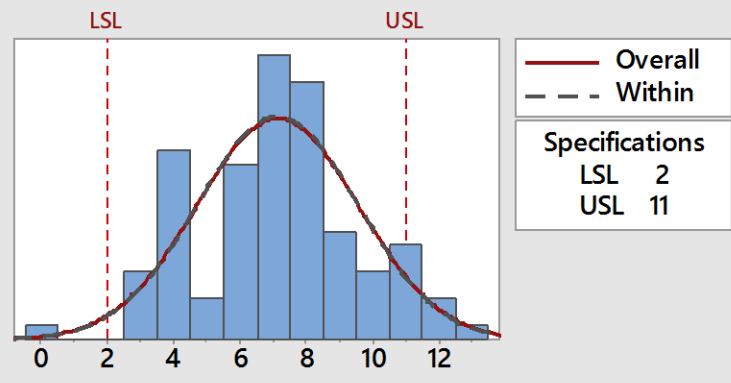
Performance			
	Observed	Expected Overall	Expected Within
PPM < LSL	10000.00	17861.36	16921.67
PPM > USL	100000.0	56740.69	54886.43
PPM Total	110000.00	74602.05	71808.10

Process Capability Sixpack Report for Wait time (Before)

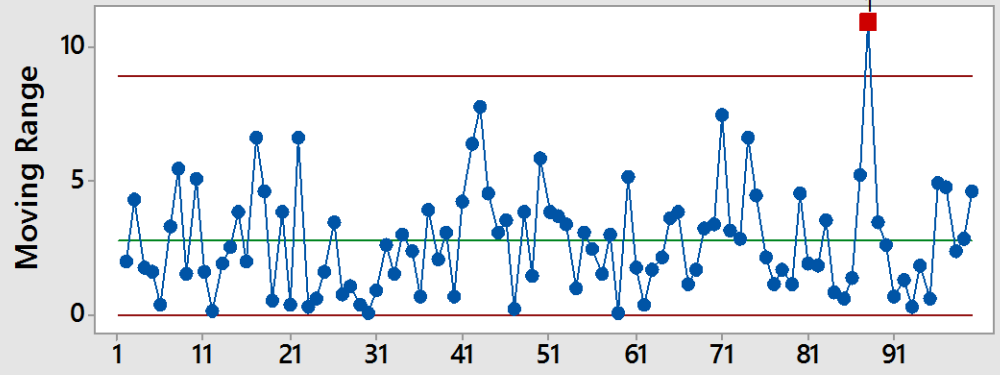
I Chart



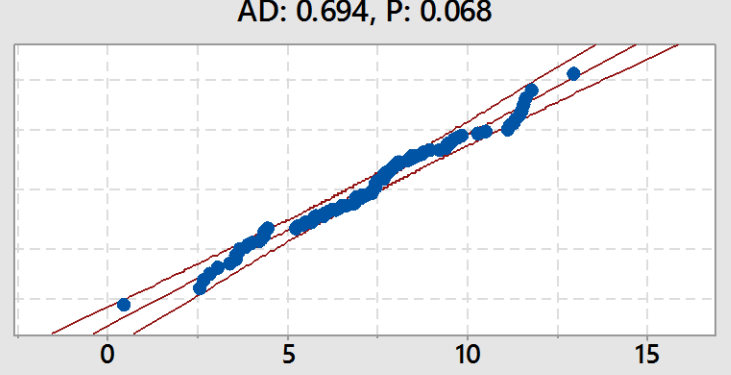
Capability Histogram



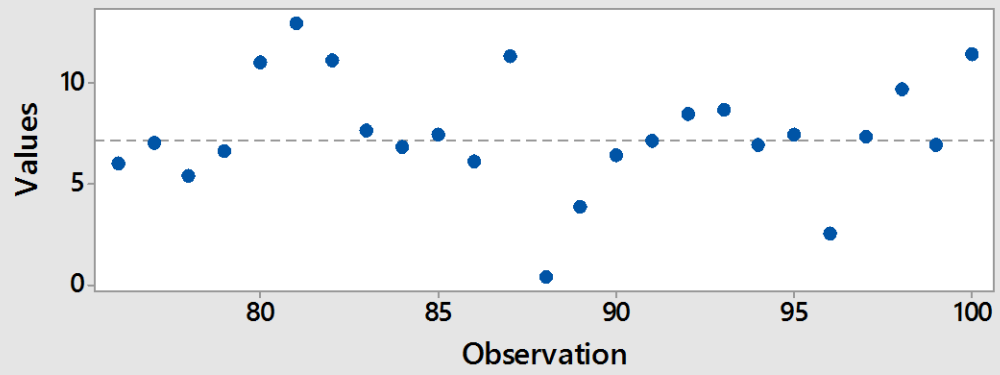
Moving Range Chart



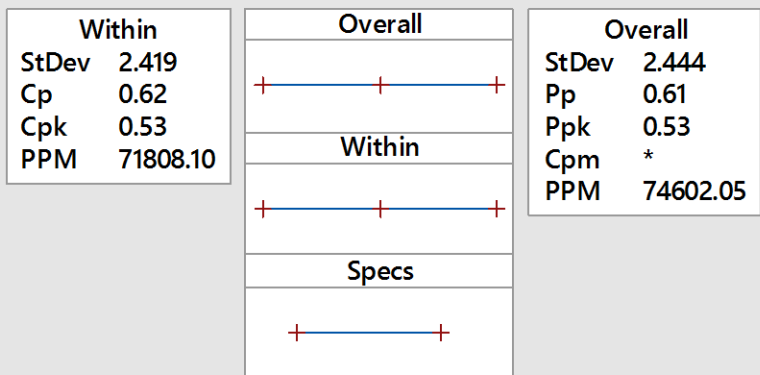
Normal Prob Plot



Last 25 Observations

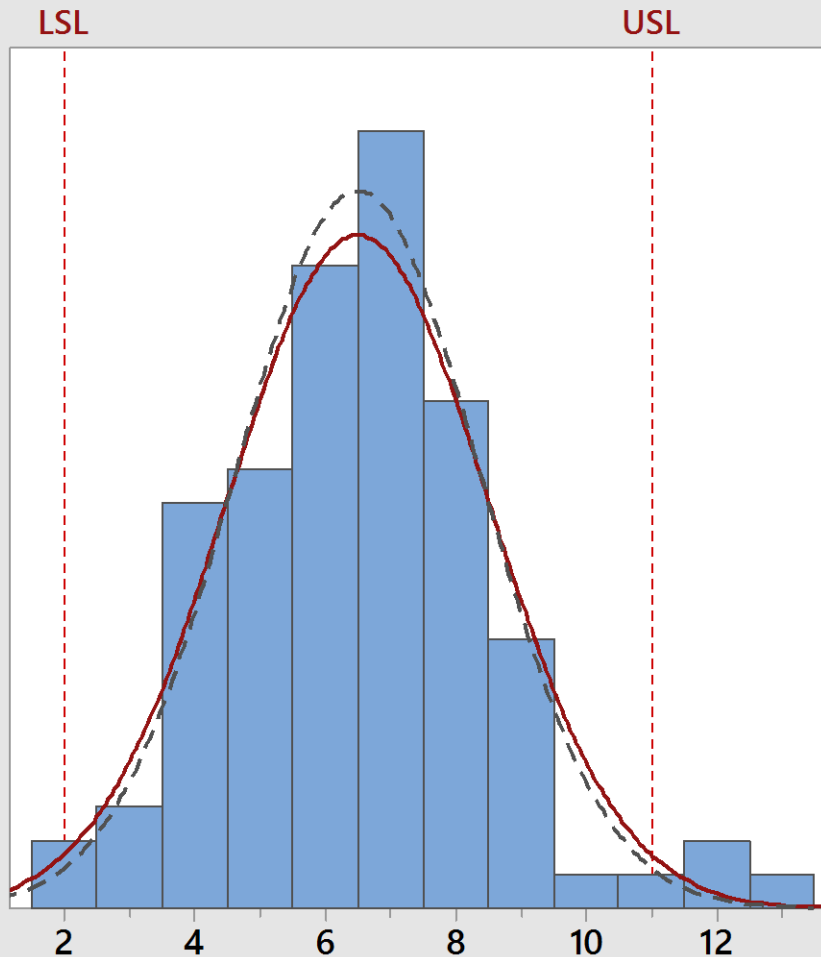


Capability Plot



Process Capability Report for Wait time (After)

Process Data	
LSL	2
Target	*
USL	11
Sample Mean	6.49955
Sample N	100
StDev(Overall)	2.00478
StDev(Within)	1.88054



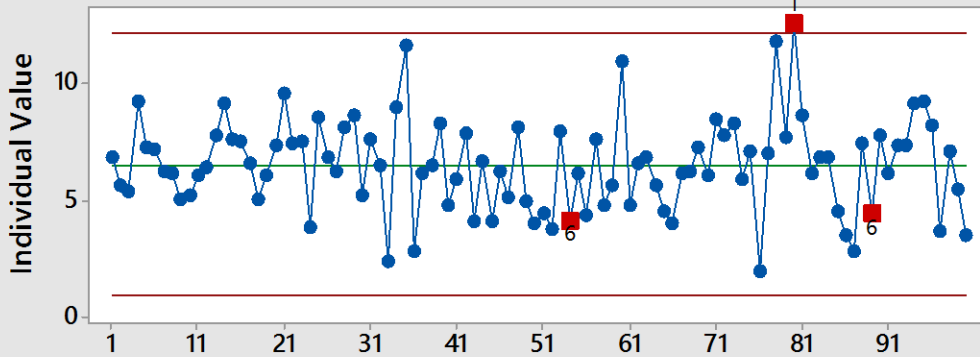
—	Overall
- - -	Within

Overall Capability	
Pp	0.75
PPL	0.75
PPU	0.75
Ppk	0.75
Cpm	*
Potential (Within) Capability	
Cp	0.80
CPL	0.80
CPU	0.80
Cpk	0.80

	Performance		
	Observed	Expected Overall	Expected Within
PPM < LSL	10000.00	12403.14	8362.82
PPM > USL	30000.00	12388.62	8351.85
PPM Total	40000.00	24791.77	16714.67

Process Capability Sixpack Report for Wait time (After)

I Chart

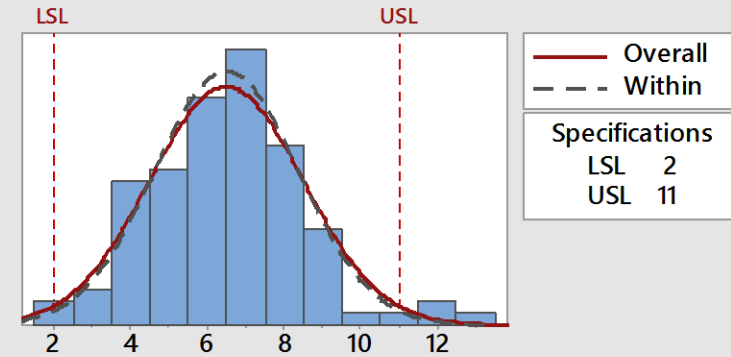


UCL=12.14

\bar{X} =6.50

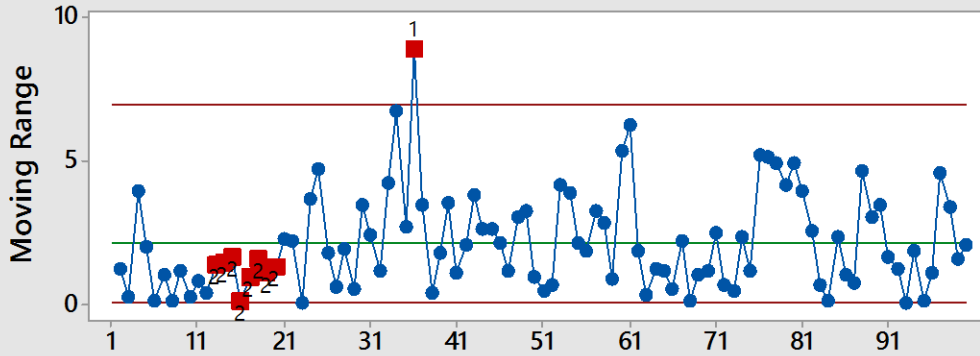
LCL=0.86

Capability Histogram



—	Overall
- - -	Within
Specifications	
LSL	2
USL	11

Moving Range Chart



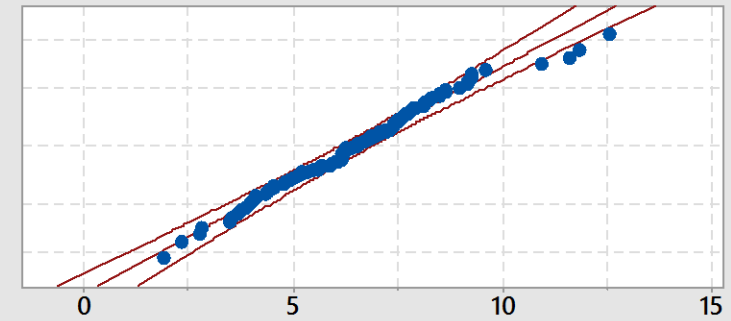
UCL=6.93

\bar{MR} =2.12

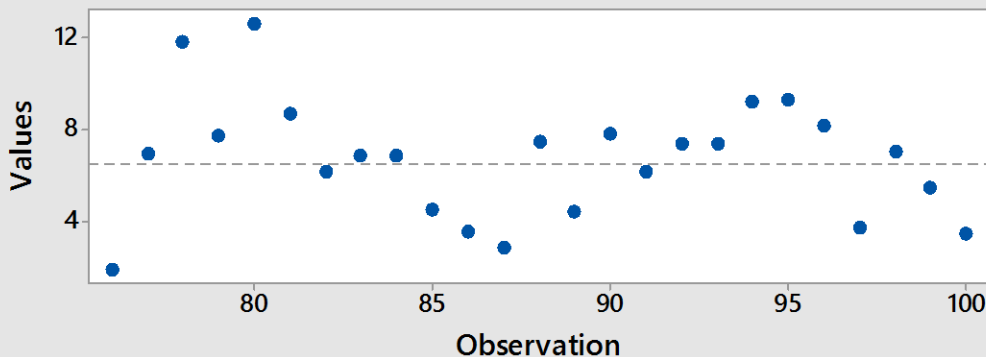
LCL=0

Normal Prob Plot

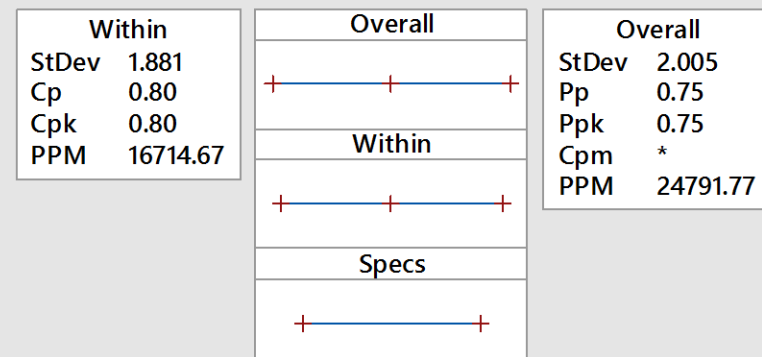
AD: 0.384, P: 0.389



Last 25 Observations



Capability Plot



Conclusion

- The Cpk value of the process has increased from 0.53 to 0.80 .
- The improved process is also not recommended because the Cpk value is still low.

THANK YOU