



Large scale

How do we know a \wedge change is an improvement?



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Summary of Best Practices

1. Measures Reflect the Current System
2. Measurement throughout the Organization
3. Cascade of Measures
4. Use of Real Time Data
5. Appropriate Data Display
6. Plan of Action



1. Measures Reflect the Current System

- Whole system view
- Current strategic objectives



Could an observer determine what is important in your organization, by seeing your scorecard?

Do the measures reflect the same thing that people hear your CEO talk about? That staff talk about?

Can the directors and leaders explain how each measure is used to make decisions?



2. Measurement throughout the Organization

- Senior leaders: measures of strategic goals
- Front line: measures that work for them



3. Cascade of Measures

- Reduce burden of data collection
- Staff see importance of their own data



Cascade of Measures – from front line to Senior Leaders/Boards

% of patients with antibiotics received 1 hour before surgery (MICRO)



% of surgical teams using the surgical checklist (MESO)



SSI Infection Rate (MACRO)



Complication Rate (MACRO)

System measures that span time frames and service lines.



4. Real Time Data

- Real time decisions

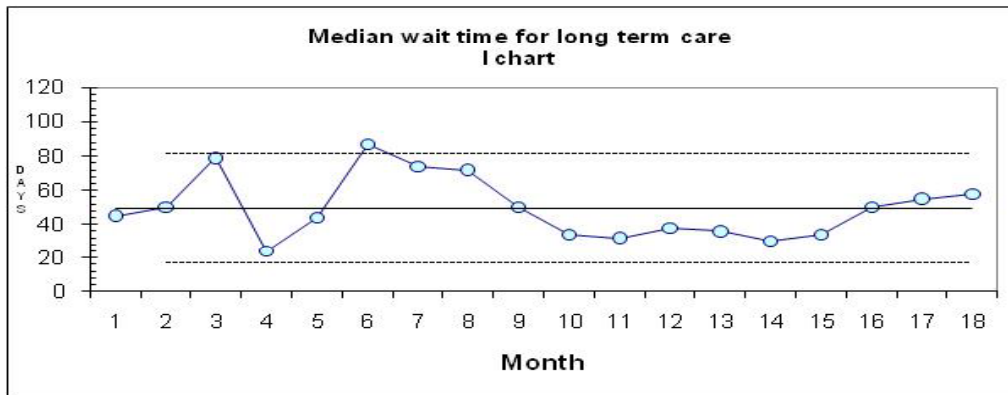


5. Appropriate Data Display (and Analysis)

- Data over time
- Statistical Process Control
 - *Understanding* performance and what is needed to improve
 - *Predicting* future performance



What is it telling us?

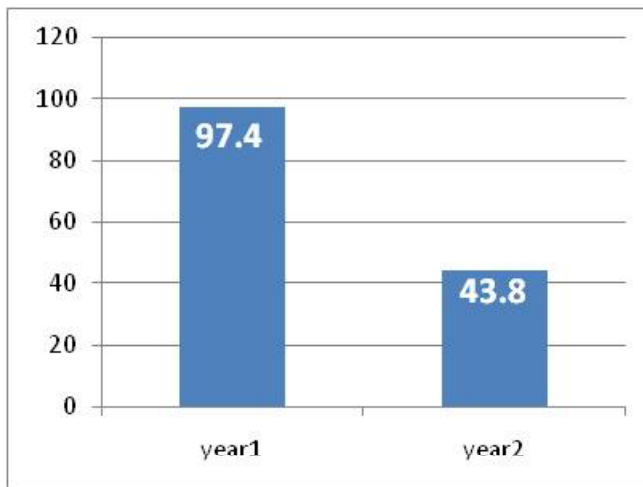


month	days
1	45
2	50
3	79
4	24
5	44
6	87
7	74
8	72
9	50
10	34
11	32
12	38
13	36
14	30
15	34
16	50
17	55
18	58

Not visually intuitive

No test of change in the system

No predictor of future performance



pre-post test, $p < .01$

Don't see times increasing in last months





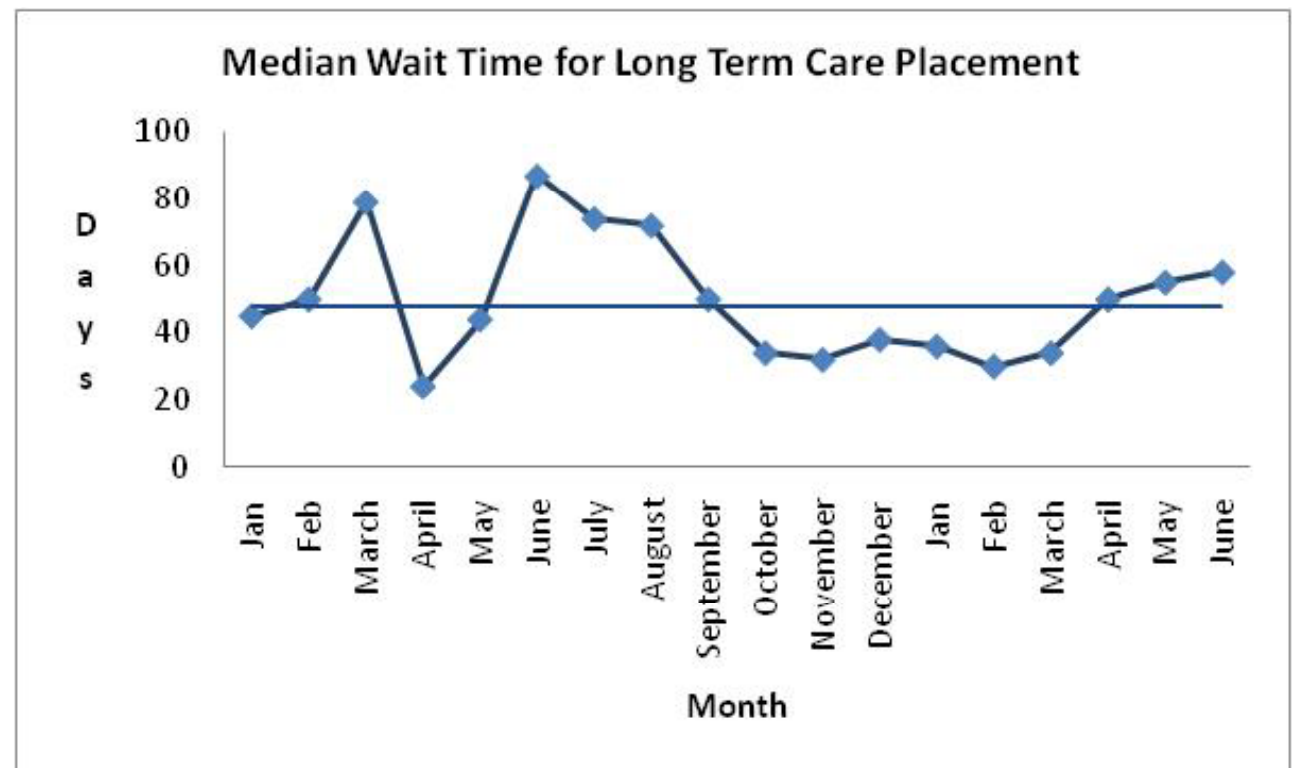
Run Charts – what they tell us

-How much variation is there?
Is it stable?

-Is process changing significantly over time? >>
probability based rules

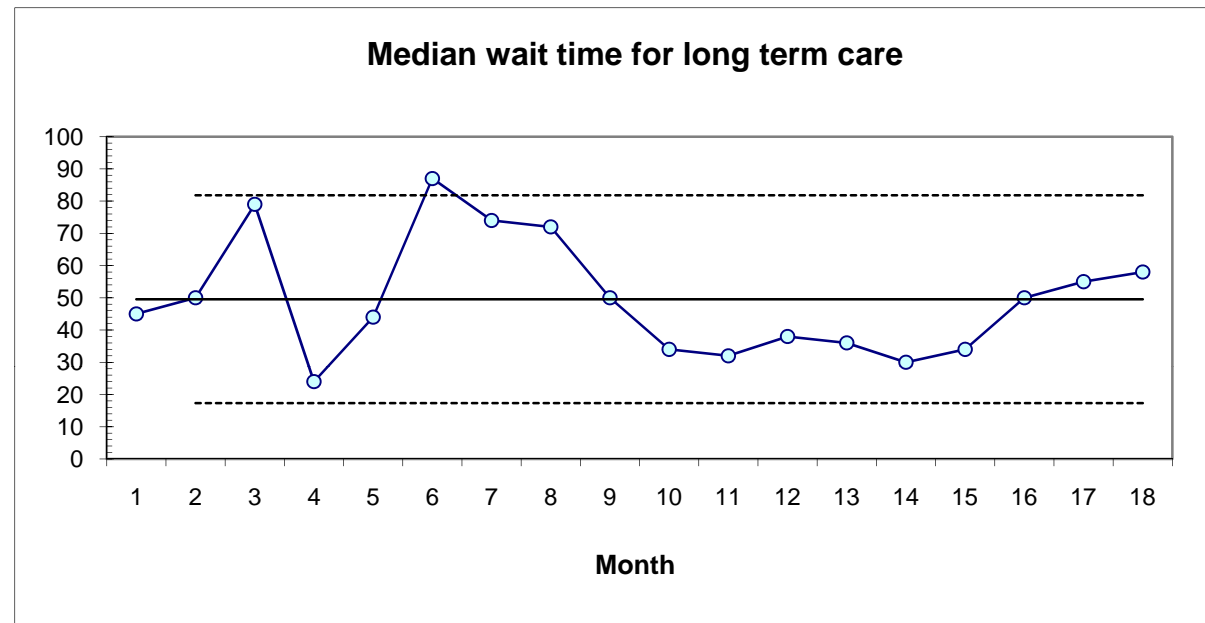
-Is the improvement holding?

-Have our specific changes resulted in an improvement?





Control Chart



Is there really something different going on? Should we expend resources to understand what's happening?

What will the wait time be next month, next year?



Key Messages – learning from data:

1. If you find *Common Cause Variation*, the only way to improve performance is to make fundamental changes to the system.
2. If you find *Special Cause Variation*, there is a specific cause – something different is going on in that month, week or day. Investigate and take appropriate management action.



Sampling versus Whole Population

Examine trade-offs:

-Feasibility

-Timeliness of Data

-Purpose of Data

Key Aspects of Performance Measurement by Type

Aspect	Accountability	Research	Improvement
Measurement Aim	Comparison, choice, reassurance, spur for change	New knowledge	Improvement of care
Measurement Methods Test observability	No test, evaluate current performance	Test blinded or controlled	Test observable
Bias	Measure and adjust to reduce bias	Design to eliminate bias	Accept consistent bias
Sample size	Obtain 100% of available, relevant data	"Just in case" data	"Just enough" data, small sequential samples
Flexibility of hypothesis	No hypothesis	Fixed hypothesis	Hypothesis is flexible; it changes as learning takes place
Testing strategy	No tests	One large test	Sequential tests
Determining if a change is an improvement	No change focus	Hypothesis, statistical test (t-test, F-test, chi-square) with p-values	Run charts or Shewhart control charts (use statistical process control methods)
Confidentiality of the data	Data available for public consumption and review	Research subjects' identities protected	Data used only by those involved with improvement

Source: Institute for Healthcare Improvement



Typically, for Accountability measures

<i>100%</i>	<i>Sample</i>
Utilization measures (e.g. LOS)	Patient Safety measures if chart review is required
Safety events	Patient Experience
	Staff Experience
Access and Flow Measures	



6. Plan of Action

- Act on data
- Rapid course corrections
- Set priorities for improvement



Is there a plan set out ahead of time?

What happens when indicators don't meet targets?

How do leaders provide support for an area that isn't meeting a target?

How is the indicator and action plan followed up?



Table Discussion

1. IT systems: What ***first steps*** need to happen so your IT system will support the measurement system as described?
2. Innovative solutions: What can your organization do ***now*** to achieve a measurement system as described?