Making data count

22nd January 2019

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Where we are now...
The importance of focus

One month trend......

Is an increase from 95.36% to 95.76% important or distracting narrative?

Caring

7 Family and Friends Test (FFT) (data up to February 2018)

7.2 The Trusts ‘Would Recommend’ for Friends and Family returns increased to 95.76% for February 2018 from 95.36% in January 2018. The percentage of patients who stated they ‘Wouldn’t Recommend’ decreased to 0.85% in February 2018 from 1.07% in January 2018.
% Delayed transfers of Care by Type - source SITREPS 7/1/02-31/08/03

- %Other Reasons
- %Patient Family choice
- %Await Domiciliary package
- %Await Residential
- %Await Further NHS care
- %Await Public Funding
- %AwaitAss >7 days
- %AwaitAss<7 days
Activities summary from the monthly measures: Mar'02

<p>|                         | Mar '02 change from last month | Mar '02 change from last month | Mar '02 change from last month | Mar '02 change from last month | Mar '02 change from last month | Mar '02 change from last month | Mar '02 change from last month | Mar '02 change from last month | Mar '02 change from last month | Mar '02 change from last month | Mar '02 change from last month | Mar '02 change from last month | Mar '02 change from last month | Mar '02 change from last month | Mar '02 change from last month | Mar '02 change from last month | Mar '02 change from last month |
|-------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Patients within the    |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| scope of the project   |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| treated this month     |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| Patients in scope of   |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| the project treated    |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| this month under an    |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| agreed Care Pathway    |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| Time* from referral to |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| first definitive        |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| treatment (days)       |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| Maximum wait* for 1st  |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| specialist appointment |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| Average wait* for 1st  |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| specialist appointment |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| Booked appointments    |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| through new clinics    |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| Booked admissions      |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| through new clinics    |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| Number of Patient      |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| Discovery Interviews   |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
| Team self-assessment   |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |                                 |</p>
<table>
<thead>
<tr>
<th></th>
<th>Assessment</th>
<th>Medical</th>
<th>Stroke</th>
<th>Surgical</th>
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<tr>
<td></td>
<td>Current month</td>
<td>Last month</td>
<td>Year to date</td>
<td>Current month</td>
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<tr>
<td><strong>Day fill rate</strong></td>
<td>104</td>
<td>80</td>
<td>99</td>
<td>101</td>
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<tr>
<td><strong>Night fill rate</strong></td>
<td>94</td>
<td>70</td>
<td>101</td>
<td>105</td>
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<tr>
<td><strong>Sickness</strong></td>
<td>20</td>
<td>39</td>
<td>24</td>
<td>30</td>
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<tr>
<td><strong>Vacancy</strong></td>
<td>23</td>
<td>21</td>
<td>35</td>
<td>39</td>
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### Improving Access to Psychological Therapies – performance against target

<table>
<thead>
<tr>
<th>Metric</th>
<th>Target</th>
<th>Jan-17</th>
<th>Feb-17</th>
<th>Mar-17</th>
<th>Apr-17</th>
<th>May-17</th>
<th>Jun-17</th>
<th>Jul-17</th>
<th>Aug-17</th>
</tr>
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<tbody>
<tr>
<td>IAPT Treatment 18 Weeks</td>
<td>95%</td>
<td>100.0%</td>
<td>99.5%</td>
<td>99.9%</td>
<td>99.8%</td>
<td>99.4%</td>
<td>99.7%</td>
<td>99.6%</td>
<td>99.7%</td>
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<tr>
<td>IAPT Treatment 6 Weeks</td>
<td>75%</td>
<td>86%</td>
<td>84%</td>
<td>83%</td>
<td>81%</td>
<td>75%</td>
<td>80%</td>
<td>81%</td>
<td>81%</td>
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<tr>
<td>IAPT Recovery Rate</td>
<td>50%</td>
<td>59%</td>
<td>57%</td>
<td>54%</td>
<td>55%</td>
<td>54%</td>
<td>52%</td>
<td>55%</td>
<td>55%</td>
</tr>
<tr>
<td>EIS First Episode Psychosis</td>
<td>50%</td>
<td>100%</td>
<td>100%</td>
<td>83%</td>
<td>63%</td>
<td>100%</td>
<td>89%</td>
<td>100%</td>
<td>85%</td>
</tr>
</tbody>
</table>
IAPT recovery rate

Upper Control Limit
120%

Mean 88%
Actual 85%

Lower Control Limit
56%

Target

IAPT Treatment 6 Weeks

EIS - First Episode Of Psychosis

Actual 55%
Mean 55%

Target

IAPT Treatment 18 Weeks

Upper Control Limit
92%

Mean 88%

Lower Control Limit
84%

Actual 81%

Target

Making data count
Did green provide true assurance?
Introducing John and Mary
Now John comes back...
Mary arrives at 18:50

John asks, why have you arrived 10 minutes early?
Mary arrives at 19:00.

John asks: yesterday you arrived at 18.50 – why have you arrived at 19:00 today?
Mary arrives at 19:05

John asks: yesterday you arrived at 7pm – why are you late?
Mary arrives home at 18:55.

John: Yesterday you arrived at 19:05, why are you early today?
Thoughts on John & Mary?

Minutes vs Days

Days

Minutes

Making data count
Frequently seen in the NHS

Spuddling

To make a lot of fuss about trivial things, as if they were important

Tampering
Scenario

We’re going to simulate some **real data** in a healthcare setting.

We’ll be thinking about **how people react to patterns and trends** in data.

Can you spot an **improvement or decline** when it occurs? We’ll begin plotting our data in a **run chart**.
Six months of data, can you see any improvement or decline?
What do you think a linear trend line would show?

Has something good happened, should we intervene?

Negative trend of 4, should we intervene?

We now have enough data for robust process limits, lets change our run chart to an SPC chart
Serious Incidents

7 points below mean line put your hand if you think the improvement is successful
This data set was randomly generated using the number of letters and consonants in Beatles number 1 singles

**First 22 Beatles number 1 hit singles in chronological order**

- I Want to Hold Your Hand, 19
- A Hard Day's Night, 15
- Eight Days a Week, 14
- We Can Work It Out, 14
- Ticket to Ride, 12
- Paperback Writer, 15
- Yellow Submarine, 15
- All You Need Is Love, 12
- Eleanor Rigby, 8
- Hello, Goodbye, 9
- Lady Madonna, 8
- Penny Lane, 7
- Get Back, 6
- Hey Jude, 5
- Help!, 5
- I Feel Fine, 9
- From Me to You, 11
- Can't Buy Me Love, 14
- She Loves You, 11
- Love Me Do, 8
The problem with red, amber, green: the need to avoid distraction by random variation in organisational performance measures

Jacob Anhøj, Anne-Marie Blok Hellesoe

INTRODUCTION
Many healthcare organisations now track a number of performance measures like infection and complication rates, waiting times, staff adherence to guidelines, etc. Our own organisation, the Capital Region of Denmark, provides healthcare for 3.7 million people and runs 6 hospitals and 11 mental health centres. Measures of clinical quality have been widely used in our region locally at hospital and departmental levels for many years. Recently, our region started to systematically define and track strategic key performance measures at the top management level. Approximately 24 measures on a wide range of subjects from hospital infections to public transportation are being tracked by the top management and the Regional Council.

The measure-strategy for hospitals involves a bottom-up approach allowing each hospital and department to, if needed, define its own performance measure that feeds into one or more of the overall measures. For example, bacteremia is one of the overall measures, and some acute-care departments, who rarely see hospital-acquired bacteremia, have started to work on reducing the use of Haldex catheters in order to reduce the risk of bacteremia from catheter-related urinary tract infections diagnosed after their patients have been transferred to other departments. To support their work, they have developed a handful of measures that track the use of catheters and staff compliance with standard procedures related to catheter use.

We welcome this development very much. The choice of relatively few overall measures combined with the bottom-up approach is a helpful strategy that focuses and aligns improvement work and stimulates the use of data at all levels of the organisation while leaving room for meaningful local adaptations of performance measures.

However, we do not at all welcome the widespread use of red, amber, green approaches to data analysis that is everywhere in our organisation. By ‘red, amber, green’, we are referring to graphical displays that use colour coding of individual data values based on whether this value is on the right (green) or wrong (red) side of a target value. Often amber or yellow is used to indicate data values that are somewhere between ‘right’ and ‘wrong’.

The problem with red, amber, green

Figure 1 was captured from the February 2015 report on regional performance measures. It shows the monthly count of a certain type of unintended incident in mental healthcare. The horizontal line represents the target value of 30.5. That is, we do not want more than 10 incidents per month. Red bars show months above target. Green bars show months below target.

The data display in Figure 1 is formally correct (green is better than red). However, it fails to convey a very...
The anatomy of a SPC chart

Time series line chart with 3 reference lines

≈ 99% of data

20 plus data points for a robust analysis
SPC rules: special cause variation

**A single data point outside the process limits**

**Two out of three points close to the process limits**

**Shift of points above / below mean line**

**Run of points in consecutive ascending / descending order**
Why is 7 points significant?

A trend of 2 has the probability of 25% occurrence (one in four)

A trend of 4 has the probability of 6.25% occurrence (one in sixteen)

A trend of 6 has the probability of 1.56% occurrence (one in sixty-four)

A trend of 7 has the probability of 0.8% occurrence (one in one hundred and twenty-eight)
If there is special cause.....

Run of points in consecutive ascending / descending order
In control but unacceptable variation
(common cause variation)

Redesign the system
Has the change worked?

Fig 2. Reducing patient wait for active recovery from a hospital bed. AR = Active Recovery; CICS = Community Intermediate Care Service; STIT = Short Term Intervention Team
What extra insight could SPC provide?
What do you think when you see this?

<table>
<thead>
<tr>
<th>Domain</th>
<th>Indicator</th>
<th>Jul-17</th>
<th>Aug-17</th>
<th>Sep-17</th>
<th>Jul-17</th>
<th>Aug-17</th>
<th>Sep-17</th>
<th>Jul-17</th>
<th>Aug-17</th>
<th>Sep-17</th>
<th>Jul-17</th>
<th>Aug-17</th>
<th>Sep-17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training</td>
<td>Mandatory training compliance (Target: &gt;90%)</td>
<td>95.4%</td>
<td>86.1%</td>
<td>85.5%</td>
<td>64.6%</td>
<td>85.2%</td>
<td>86.5%</td>
<td>85.7%</td>
<td>85.1%</td>
<td>86.2%</td>
<td>85.6%</td>
<td>85.7%</td>
<td>84.8%</td>
</tr>
</tbody>
</table>
Presentation influences discussion

Mandatory Training

Target ( > 90% )

- Actual 85.5%
- Upper Process Limit 84.9%
- Mean 82.6%
- Lower Process Limit 80.4%

Feb-15  |  Aug-15  |  Feb-16  |  Aug-16  |  Feb-17  |  Aug-17
Can you spot improvement?

**Turnover trust wide (target 10%) source ESR**
This **remains high** for a number of factors, which includes service decommissioning and termination of a number of fixed term contract worker across numerous operational and corporate services.

<table>
<thead>
<tr>
<th>Quarter 1</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Quarter 2</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Apr-17</td>
<td>Apr-18</td>
<td>May-17</td>
<td>May-18</td>
<td>Jun-17</td>
<td>Jun-18</td>
<td>Jul-17</td>
<td>Jul-18</td>
<td>Aug-17</td>
<td>Aug-18</td>
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<tr>
<td></td>
<td>18.08%</td>
<td>11.19%</td>
<td>17.86%</td>
<td>11.95%</td>
<td>18.31%</td>
<td>12.40%</td>
<td>17.91%</td>
<td>12.20%</td>
<td>18.15%</td>
<td>12.10%</td>
</tr>
</tbody>
</table>
Improvement through the red

Turnover trust wide (target 10%) source ESR
This remains high for a number of factors, which includes service decommissioning and termination of a number of fixed term contract worker across numerous operational and corporate services.

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<tr>
<th></th>
<th>Quarter 1</th>
<th></th>
<th>Quarter 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Apr-17</td>
<td>Apr-18</td>
<td>May-17</td>
</tr>
<tr>
<td></td>
<td>18.08%</td>
<td>11.19%</td>
<td>17.86%</td>
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</table>
Encourages knee jerk reactions?

<table>
<thead>
<tr>
<th>Caring Standards</th>
<th>Month 10</th>
<th>Month 11</th>
<th>Month 12</th>
<th>Month 1</th>
<th>Month 2</th>
<th>Month 3</th>
<th>Month 4</th>
<th>Month 5</th>
<th>Month 6</th>
<th>Month 7</th>
<th>Month 8</th>
<th>Month 9</th>
<th>Month 10</th>
<th>Month 11</th>
<th>FYTD Actual</th>
<th>YTD Target</th>
<th>Trend on Month</th>
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</thead>
<tbody>
<tr>
<td>Friends and Family Test - % Likely to Recommend A&amp;E</td>
<td>33.7</td>
<td>33.8</td>
<td>33.6</td>
<td>33.5</td>
<td>33.4</td>
<td>33.3</td>
<td>33.2</td>
<td>33.1</td>
<td>33.0</td>
<td>32.9</td>
<td>32.8</td>
<td>32.7</td>
<td>32.6</td>
<td>32.5</td>
<td>32.4</td>
<td>32.3</td>
<td>32.2</td>
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</table>
System not capable

Upper Control Limit
97.4

Actual
93.4

Mean
92.3

Lower Control Limit
87.2

Target
Serious incidents: 3 years

Number of Serious Incidents reported each month from 2016 - 2018

<table>
<thead>
<tr>
<th></th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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<td>2016</td>
<td>24</td>
<td>21</td>
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<td>27</td>
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<td>6</td>
<td>10</td>
<td>11</td>
<td>16</td>
<td>15</td>
<td>9</td>
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<tr>
<td>2018</td>
<td>12</td>
<td>10</td>
<td>14</td>
<td>11</td>
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</tbody>
</table>
Improvement (?)

Serious Incidents

- Upper Control Limit: 28
- Mean: 17
- Lower Control Limit: 6
- Actual: 11

Making data count
Spotting improvement and decline

Only one of these areas has seen special cause variation, which one?
Was it green?

Is this significant? Count the dots....
What was significant?

It wasn’t Green

It was Blue

7 months of improvement

Patients waiting 12 hours for a bed

Home
Are things improving?

![Diagram showing Serious Incidents as a % of clinical incidents](image)
20 serious incidents a month acceptable?
Changes being made at Avon

The table to the left highlights the levels of OOA placements on a weekly basis over the last 50 weeks (updated) and highlights the initial drop from 20+ down to a level of circa 7 for a 2 month period before the advent of winter and bed closures shifted the average back up to 13. Although numbers have dropped over the last three weeks of the period (below the 10 beds originally budgeted for), this doesn’t yet represent a sustained shift in activity levels.
A new shift pattern was introduced in September 2017 and this improved the average DToC performance. However, SPC analysis shows that as the mean is 12.4% and the data is predicted to vary between 5.1% and 19.8% the Trust is unlikely to consistently achieve the threshold. Progress sheet 2.2.2 details improvement actions being taken.
Sussex Partnership Trust

Quality Indicators

TARGET: 50%

The SPC Chart for EIP 2 weeks to treatment indicates that the level of variation in the process is of common cause, except for the period between April 2017 and October 2017 where a period of special cause variation improvement was indicated. Given that the lower process limit is 576, the mean is 64% and the target is 50%, it is likely that the service will continue to achieve the 2 week waiting times target.

The benchmarking information indicates that the Trust is consistently performing in the upper quartile.

TARGET: 75% 6 Weeks; 95% 18 Weeks

The IAPT SPC charts indicate that the service is operating within a narrow variance for both targets, and performing consistently above the target.

The IAPT SPC chart for 6 week wait shows that, since December 2016 the service has been operating about a mean of 85.3% and a lower limit of 85.4% against a target of 75%. There was also a period of special cause improvement between August 2017 and April 2018.

The IAPT SPC chart for 18 week waits shows that since December 2016 the service has been operating to a mean 93.7% and a lower process limit of 98.3% against a target of 95%

The process exhibits common cause variation during this period.

Alternative summary report

<table>
<thead>
<tr>
<th>Variation</th>
<th>Assurance</th>
<th>Target Capability</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>High (H)</td>
<td>P</td>
<td>Consistently hit</td>
<td>Shift change in August 2017 showing increase in sickness - staff survey review indicated….</td>
</tr>
<tr>
<td>Low (L)</td>
<td>?</td>
<td>Hit and miss target subject to random</td>
<td></td>
</tr>
<tr>
<td>Special Cause Concern</td>
<td>Common Cause</td>
<td>Consistently fail target</td>
<td></td>
</tr>
<tr>
<td>High (H)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note/Investigate</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>High (H)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low (L)</td>
<td></td>
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<td></td>
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</tbody>
</table>

Single line per key performance indicator with icon and automated text to support decision making.
What could good look like?

For those indicators that cause concern – ability to find out more and ask questions of the system....
# SPC SOF dashboard

## Operational Performance

<table>
<thead>
<tr>
<th>Metric</th>
<th>Month</th>
<th>Value</th>
<th>Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>A&amp;E performance</td>
<td>July 2018</td>
<td>87.4</td>
<td>95.0</td>
</tr>
<tr>
<td>A&amp;E Quarter Performance</td>
<td>July 2018</td>
<td>87.4</td>
<td>95.0</td>
</tr>
<tr>
<td>Cancer GP Performance</td>
<td>June 2018</td>
<td>78.9</td>
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<tr>
<td>Cancer NHS Performance</td>
<td>June 2018</td>
<td>68.8</td>
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<tr>
<td>Diagnostic Performance</td>
<td>June 2018</td>
<td>0.8</td>
<td></td>
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<tr>
<td>RTT Performance</td>
<td>June 2018</td>
<td>90.2</td>
<td>92.0</td>
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## Quality of Care

<table>
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<th>Value</th>
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</thead>
<tbody>
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<td></td>
</tr>
<tr>
<td>FFT - Community</td>
<td>June 2018</td>
<td>95.9</td>
<td></td>
</tr>
<tr>
<td>FFT - Inpatient</td>
<td>June 2018</td>
<td>94.9</td>
<td></td>
</tr>
<tr>
<td>FFT - Maternity Qtr2</td>
<td>June 2018</td>
<td>97.6</td>
<td></td>
</tr>
<tr>
<td>FFT - Staff</td>
<td>March 2018</td>
<td>70.8</td>
<td></td>
</tr>
<tr>
<td>MRSA - InfectionRate</td>
<td>March 2018</td>
<td>0.7</td>
<td></td>
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<tr>
<td>MSSA</td>
<td>June 2018</td>
<td>7.5</td>
<td></td>
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<tr>
<td>NRRLS - UnderReporting</td>
<td>May 2018</td>
<td>46.2</td>
<td></td>
</tr>
<tr>
<td>VTE - Risk</td>
<td>March 2018</td>
<td>1.0</td>
<td></td>
</tr>
</tbody>
</table>

## Workforce - Staff Sickness

<table>
<thead>
<tr>
<th>Metric</th>
<th>Month</th>
<th>Value</th>
<th>Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workforce</td>
<td>March 2018</td>
<td>3.8</td>
<td></td>
</tr>
</tbody>
</table>

## Common Cause Variation

- Common cause variation which is the type of variation expected
- Concerning special cause variation (on the high side of the scale) - investigate to understand the cause
- Concerning special cause variation (on the low side of the scale) - investigate to understand the cause

## Making data count
Tools

This type of chart (SPC) allows us to identify statistically significant changes in data. The dotted lines (control limits) represent the range in which we expect the data to fall if the variation is within expected limits, i.e., normal.

Points which fall outside the green dotted lines are unusual and should be investigated. There is 1 data point which is above the line.

When more than 6 sequential points fall above or below the mean that is unusual and may indicate a significant change in the process. There is a run of points above the mean.
Free SPC tool
Making data count

Now take a few minutes to discuss these different presentations.

- Do you often see data presented in either style?
- Which did you like/dislike?
- Which was the most useful?
- Which prompted the most useful conversation with your colleagues?

Have you ever arrived at work an hour late because your train broke down or there was a strike? These are examples of 'special cause' variation – the event that caused you to be late is already understood. In other cases the reason for unexpected variation may need to be investigated.

While SPC has its roots in manufacturing, increasingly SPC is being used in healthcare. By recognising which type of variation you are dealing with, you can take the best action to deliver improvements. There are countless examples of SPC being used to demonstrate improvements in patient care. SPC also has an important role in clinical governance and avoiding harm.

The science and theory that underpins statistical process control

Dr Thomas Woodcock, Information Theme Lead for CLAHRC Northwest London, describes the science and statistics that underpin the analytical approach called statistical process control (SPC). He explains the principles of SPC and how they can be applied to improve processes in the medical environment.

Scenarios for analysts

Scenario 1: Understanding variation

The assistant director of performance has come to see you to discuss the graph below ahead of the board performance report.

Successful outcomes

The trust observed a significant drop in performance in December 2017.

Follow the conversation and think about the answers you might give now and what you might have said in the past.
Pledges for action

Sign me up to #plotthedots and great work being done by @samriley @NHISImprovement to encourage a more sensible use of data

We are loving the new @NHISImprovement Making Data Count resource. Here’s how we’re supporting @samriley #plotthedots #specialcause. We’re going live to tell you why!
Making Data Count network

To register go to: https://www.source4networks.org.uk

Welcome!
Here you will find the latest intelligence on networks, you can connect to other health and social care networks in a learning community, you can access resources that help you 'take the temperature' of your network and decide how you can be even more effective by seeing what other networks are doing, and provide you with 'know how' to help you make the best contribution to your network.

Networks in Health and Care
Welcome to Source4Networks, a free platform committed to curating and sharing the most comprehensive and best knowledge around network leadership in health, social care and charity sectors. Building on the first toolkit, we have co-designed the new platform with users working at the cutting edge of network leadership from a range of specialties. You can find out more about how to use this site here.

We want the platform to continue to resonate with individuals leading networks, share the latest academic research and reflect current practice through practical case studies. The platform will be continually developing to accommodate that fast-paced return of network leadership. Explore, digest, comment and share your learning through the platform.

Join the growing international community of practice around network leadership and make a difference to health and social care today.
SPC has provoked new questions & made us realise the key issues that we should be discussing.

Huge added value – a game changer.

All Trusts should do this. It’s like switching the light on so you can see the data.
• Samantha.riley1@nhs.net

• @samriley

• #plotthedots