

Measurement for Improvement

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The Royal College of
Emergency Medicine



Royal College
of Nursing



Agenda for the day

- Welcome, introductory info and aims for the day
- Measurement for improvement
- Work our way through the 7 step model for measurement for improvement - including some practical work for you to do today
- Some homework for you before the next national event

Ground Rules

- “Chatham House” rules
- Engagement and interaction
- Willingness to learn
- Openness and honesty
- Mutual respect
- Timekeeping - stop exercises when asked, we have a big group today so try to be on the ball in breaks

Aims of today

- To share knowledge and expertise around data collection and analysis – with the aim of gearing you up to demonstrate the local impact of SAEC
- Go through the seven steps to measurement
- Look at what you aim to achieve and what measures you will need to know how you are doing
- Look at trends/patterns

Our approach to measurement



Measurement for judgement

Have to hit a target – set by someone

Using data provided or told what to collect

Measurement for research

Discover new knowledge. Well constructed trial, lots of data.
Distinguish between effects of new drug and existing treatment



MODEL FOR IMPROVEMENT

* WHAT ARE WE TRYING TO ACHIEVE?

* HOW WILL WE KNOW THAT A
CHANGE IS AN IMPROVEMENT?

* WHAT CHANGE CAN WE MAKE THAT WILL
RESULT IN AN IMPROVEMENT?

Reference: Langley et al 1996

Measurement for improvement

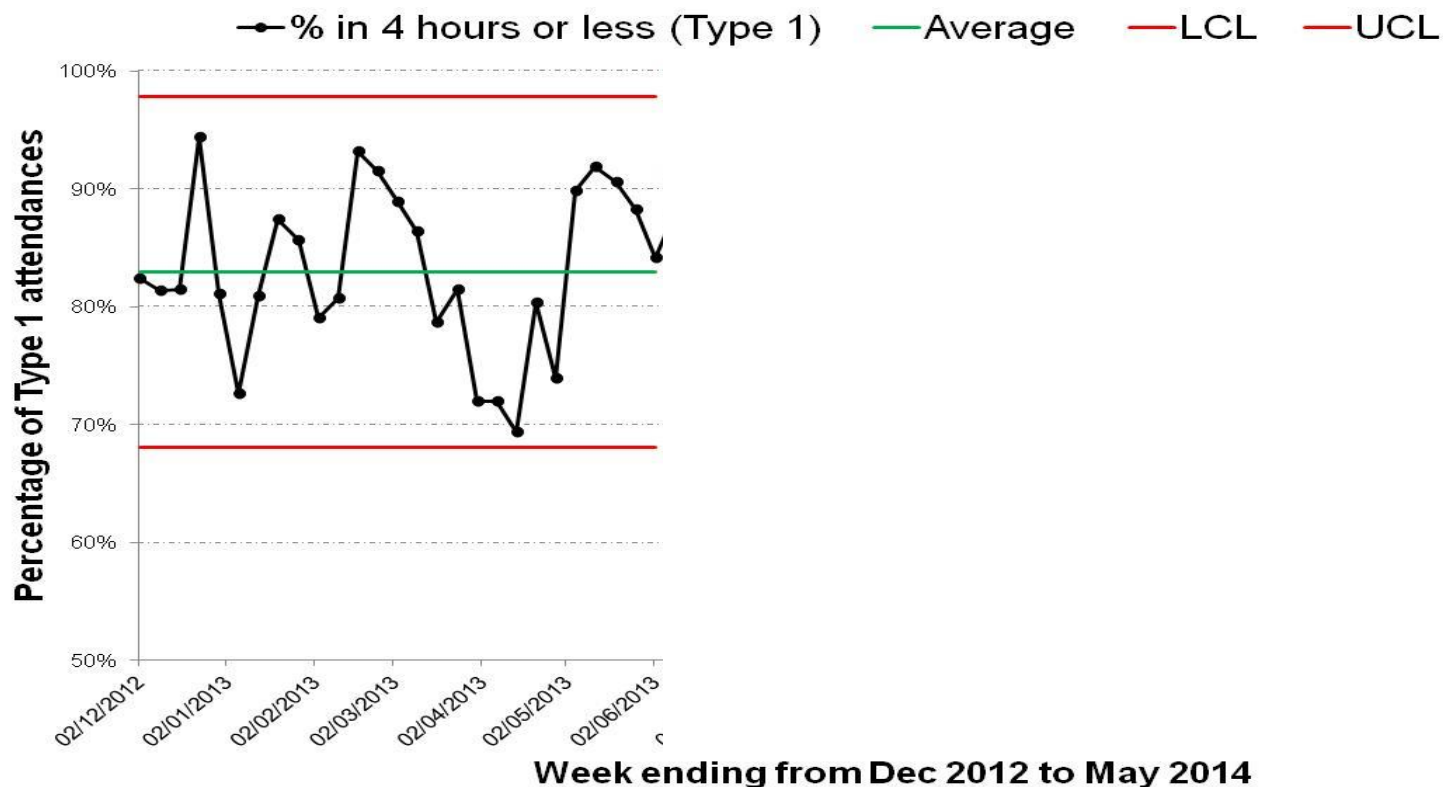
- “You can’t fatten a cow by weighing it”
- Improvement is not about measurement, you have to make some sort of change to the system.
- But.....
- “If you can’t measure it, you can’t improve it”



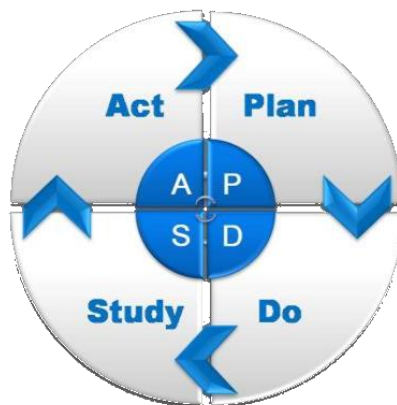
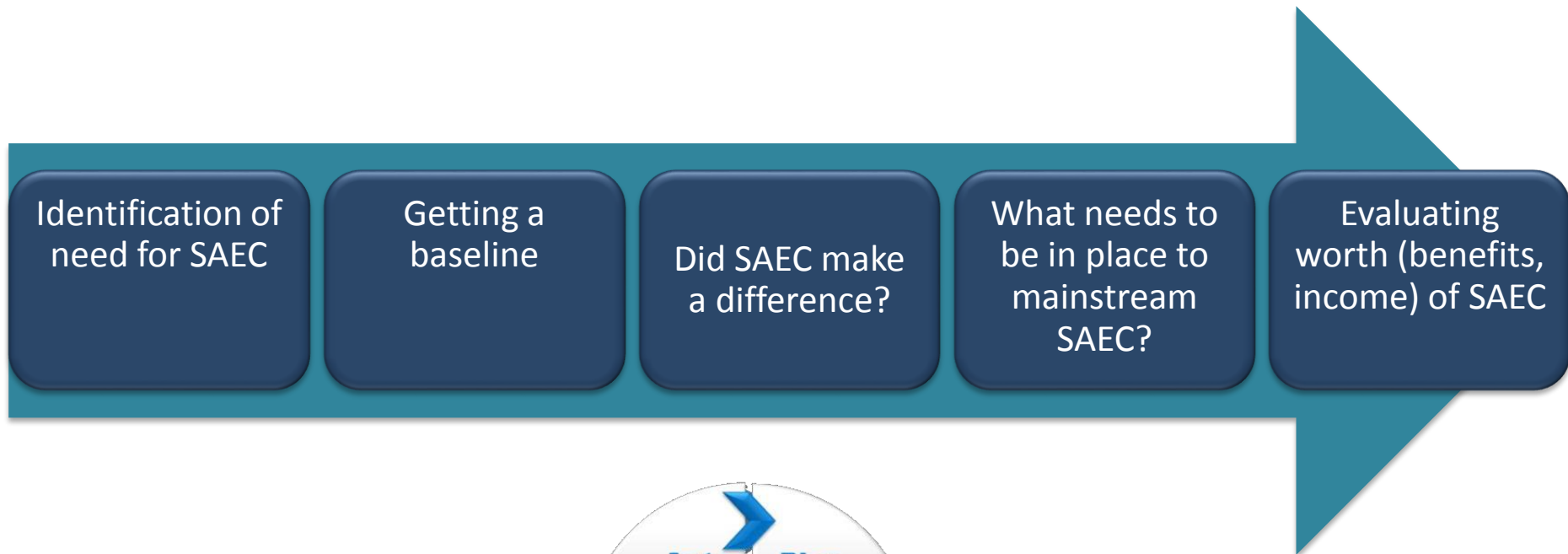
Measurement for improvement

Ambulatory Emergency
Care Network

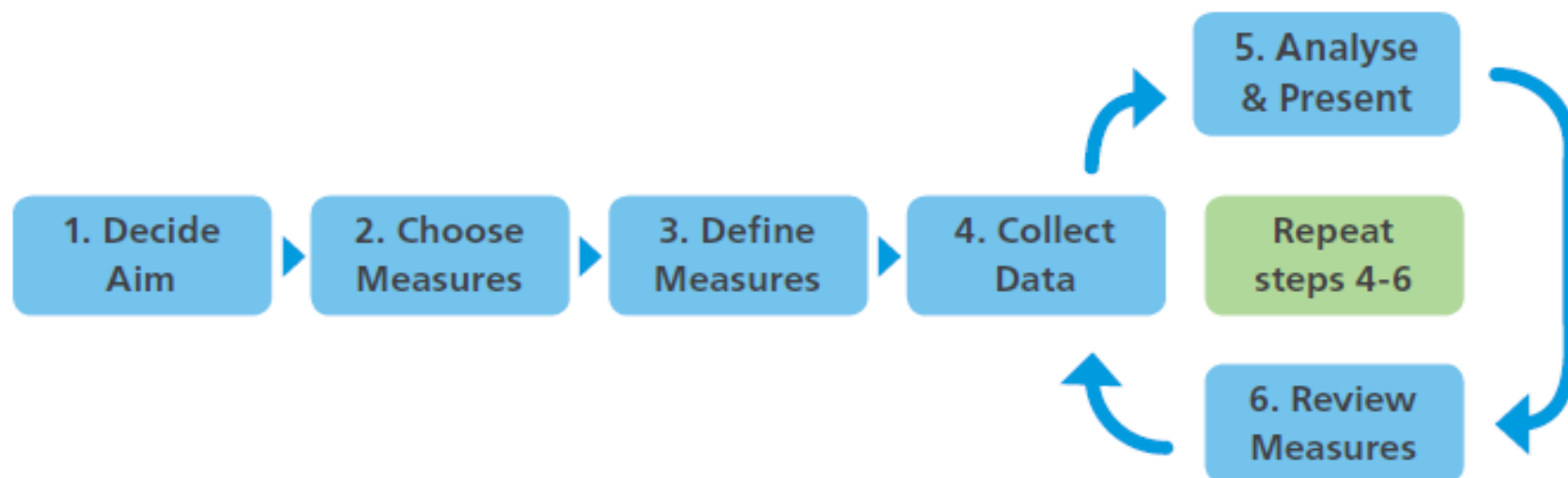
Percentage of Type 1 A&E attendances dealt with in 4 hours or less



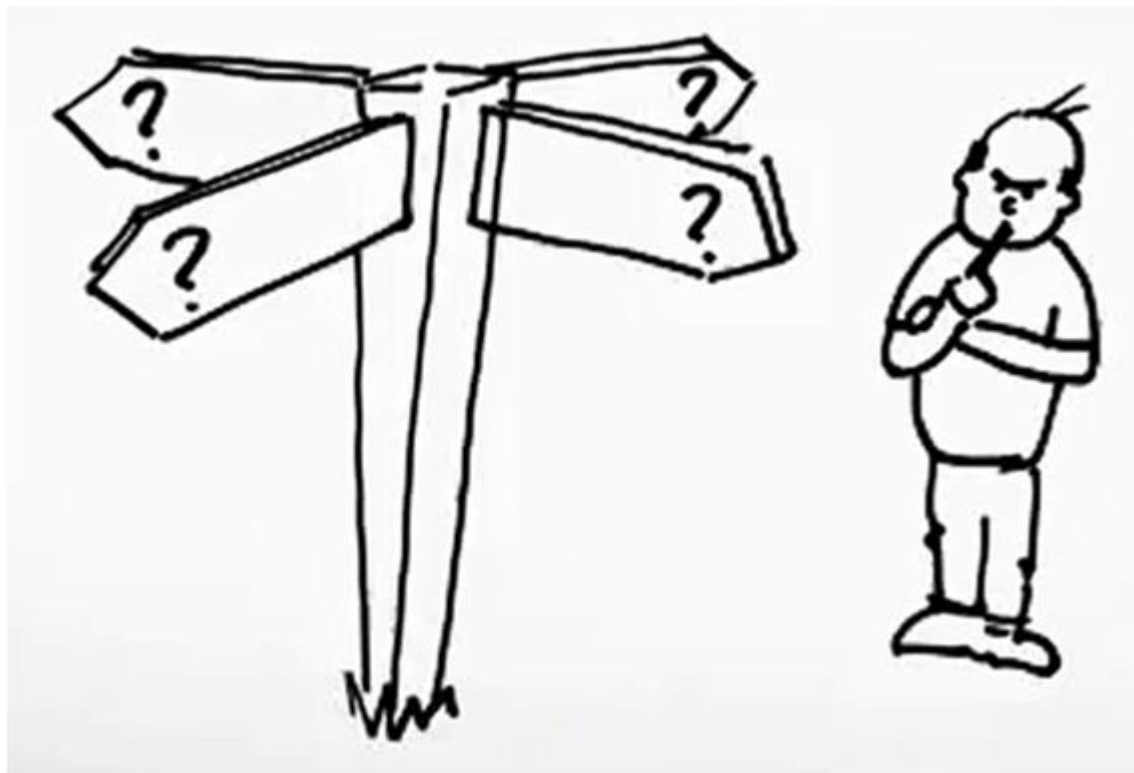
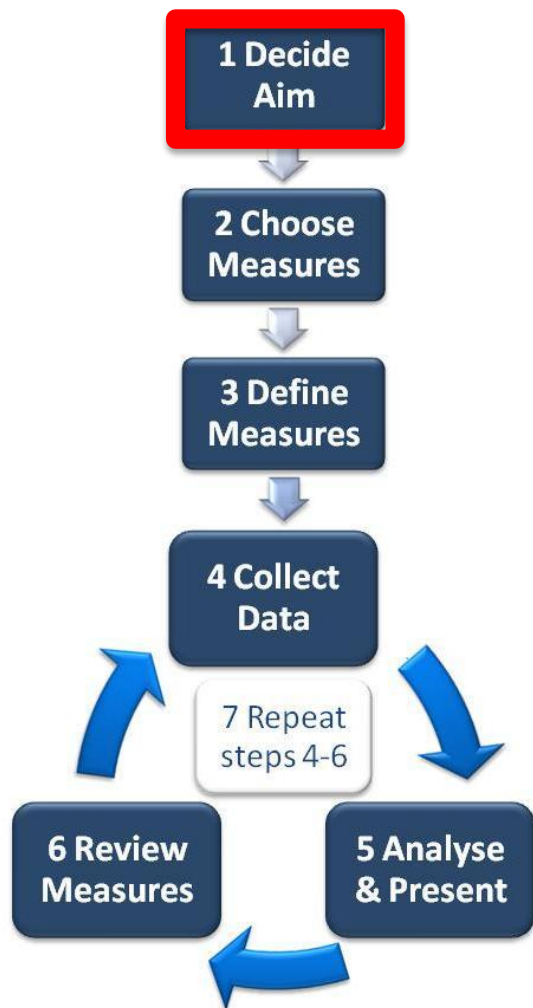
Measurement throughout SAEC



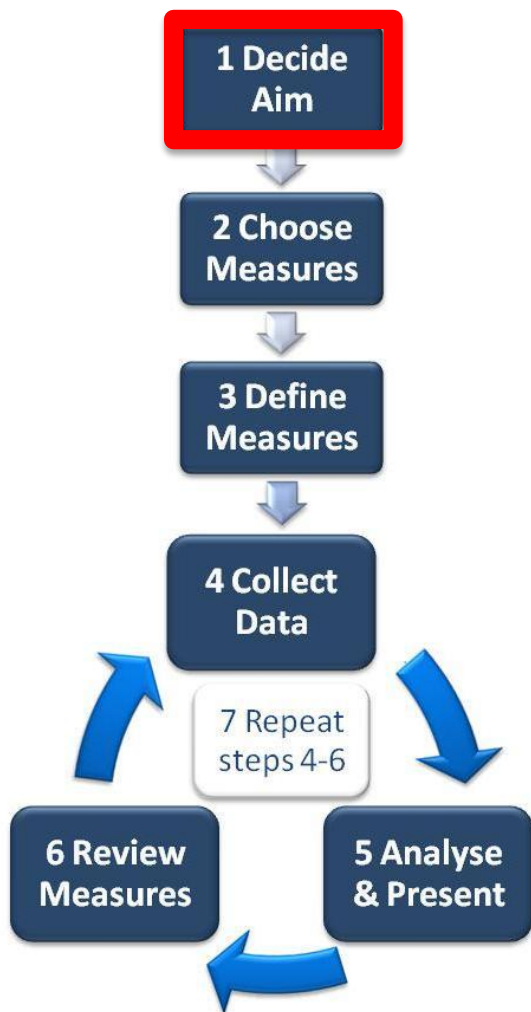
7 Steps to Measurement for Improvement



Step 1 - Decide Aim



Step 1 - Decide Aim



Project Goals

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Use **SMART** to aid in goal setting

S	Specific	Clear-cut objectives
M	Measurable	Capable of being measured
A	Achievable	Can get a result
R	Relevant	Applicable to what you want to achieve
T	Time-bound	Clear dates for reviews and end of project

Exercise 1 - What is your aim?

You've got the amount of time it takes for the lift to go from the ground to the third floor to explain what your project is trying to do

5 minutes: discuss in your group, agree and write down a clear, unambiguous aim for your project



Helpful Tool : Aims template

Ambulatory Emergency Care Network

Surgical AEC Measurement ~~Masterclass~~

Developing an Aim Statement #1 - An example

Think about the change you would like to see happen in your workplace or on your project. What outcome would you like to see as a result of your improvement project? How would things have changed and what would be the tangible results? What resources are available to achieve this change, what is a realistic goal, and what is the time frame?

When answering these questions, you should remember that your goals should be ambitious, but achievable. An ambitious goal that is not realistic will demotivate you and your colleagues while a realistic goal that is not ambitious will fail to motivate you and make as much of a change as you are capable of making.

Q1	Where will the change be implemented? A location such as a hospital, clinic or office	Any Town Hospitals NHS FT	(A)
Q2	What outcome are we trying to change? Should be a tangible result, such as a decrease or increase in some factor	Improve patient flow in emergency care	(B)
Q3	By what amount are we trying to change it? Should be a percentage or some other numerical value	20%	(C)
Q4	When do we want to see this result happen? An amount of time or by a certain date	31 st March 2015	(D)
Q5	What will we do/use to achieve this result? What tool, method or resource will you employ to make the change?	Improving and extending ambulatory emergency care	(E)

Put together your responses to complete the aim statement for your improvement project:

In (A)	Any Town Hospitals NHS FT	We Will (B)	Improve patient flow in emergency care
By (C)	Converting 20% of our emergency admissions to same day emergency care	Within/By	31 st March 2015
Using/By/Through	By Improving and extending ambulatory emergency care		

Surgical AEC Measurement ~~Masterclass~~

Developing an Aim Statement #2 - Blank sheet

Think about the change you would like to see happen in your workplace or on your project. What outcome would you like to see as a result of your improvement project? How would things have changed and what would be the tangible results? What resources are available to achieve this change, what is a realistic goal, and what is the time frame?

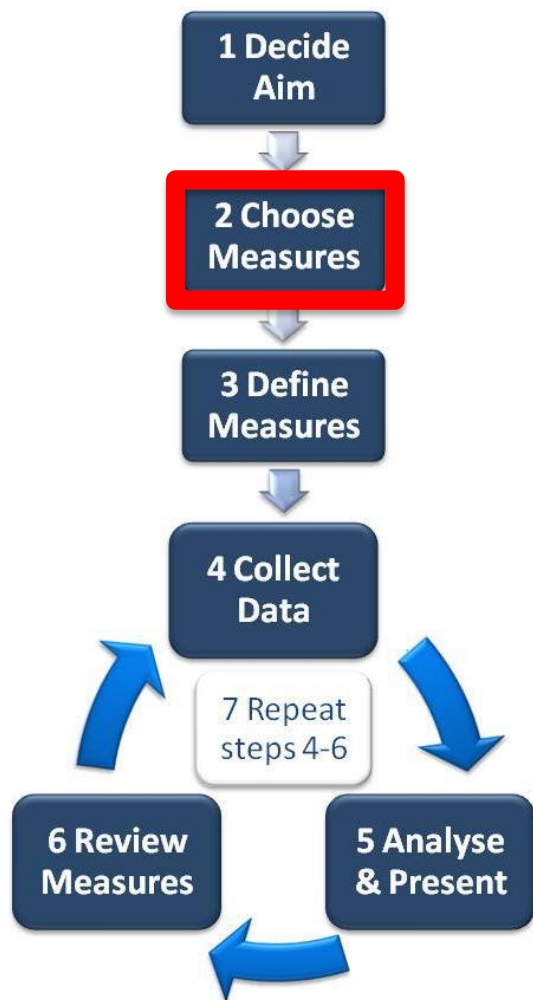
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Q1	Where will the change be implemented? A location such as a hospital, clinic or office		(A)
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Q5	What will we do/use to achieve this result? What tool, method or resource will you employ to make the change?		(E)

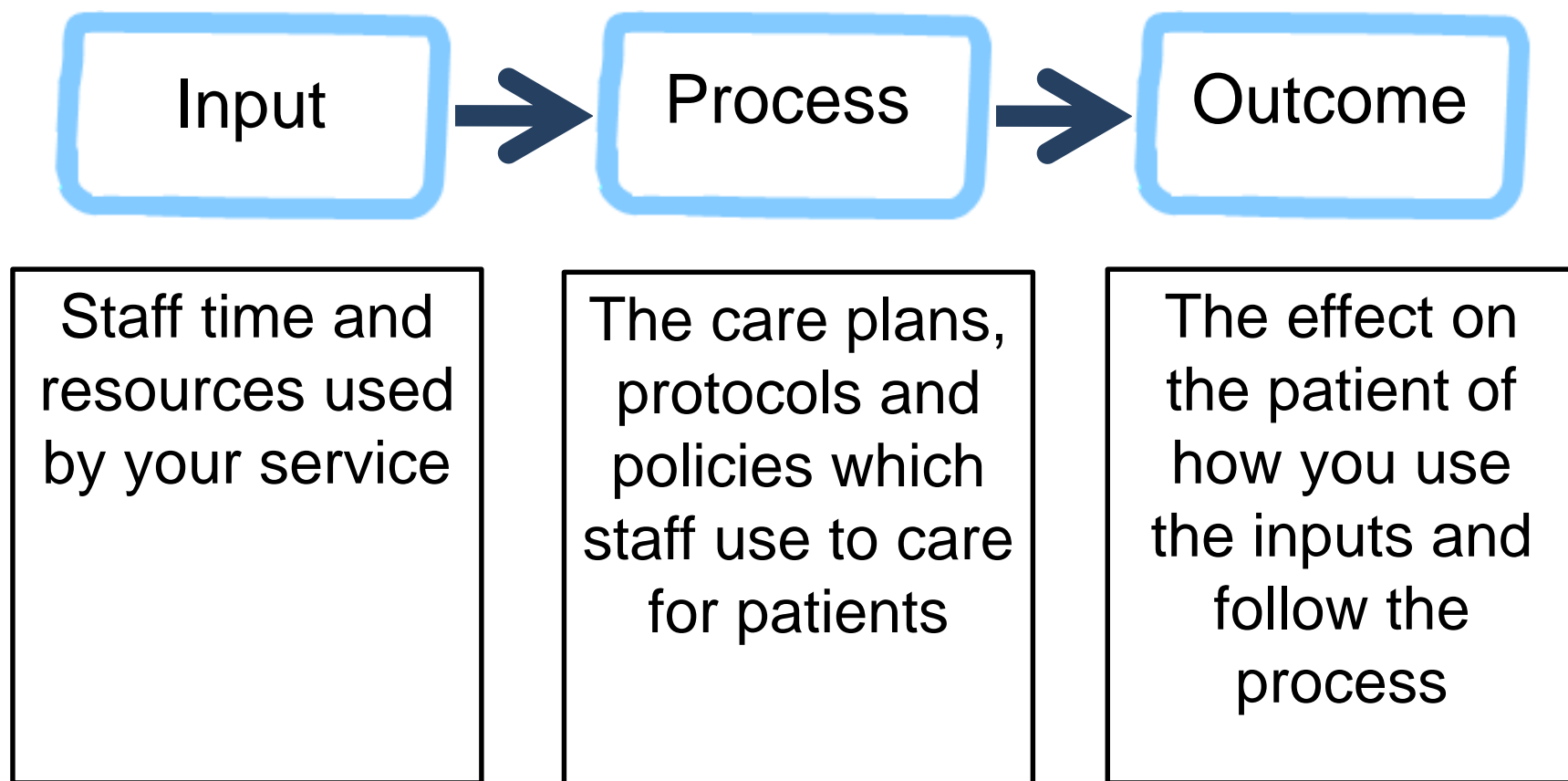
Put together your responses to complete the aim statement for your improvement project:

		We Will (B)	
		Within/By	
Using/By/Through			

Step 2 - Choose measures

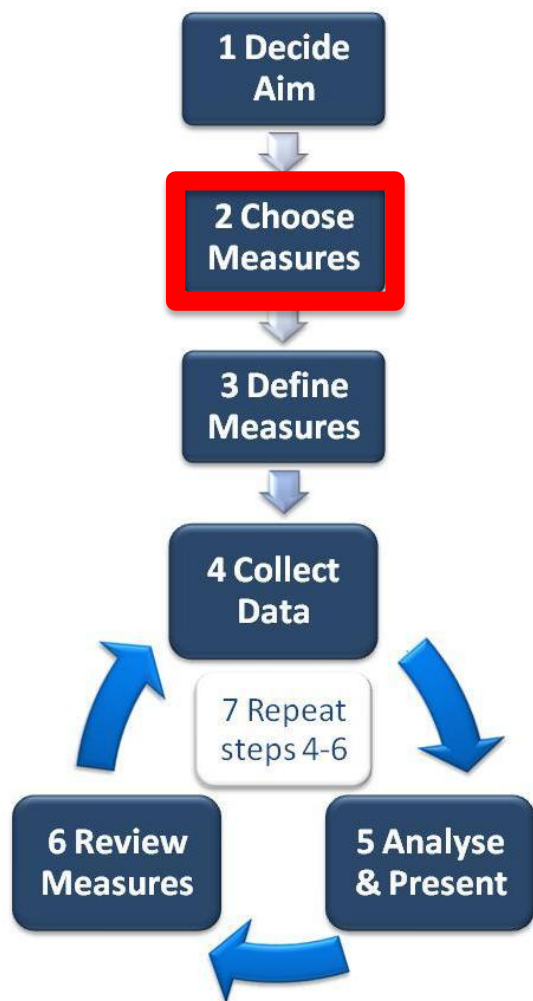


Systems thinking



Source: "Evaluating the Quality of Medical Care", Donabedian A, 1966

Three types of measures



Process
measure

Process measures show how well we do what we say we do

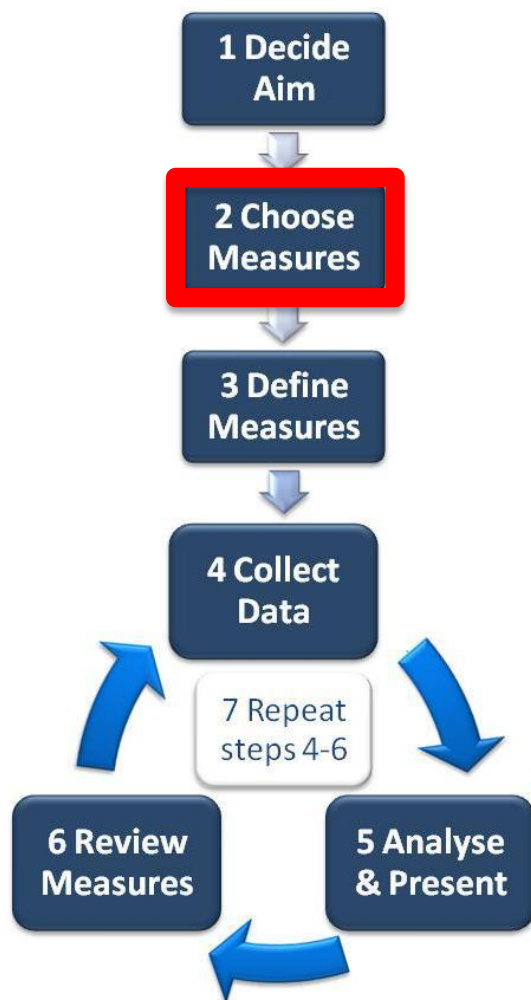
Outcome
measure

Outcome measures show the impact on patients/our aim

Balancing
measure

Balancing measures show any unintended consequences

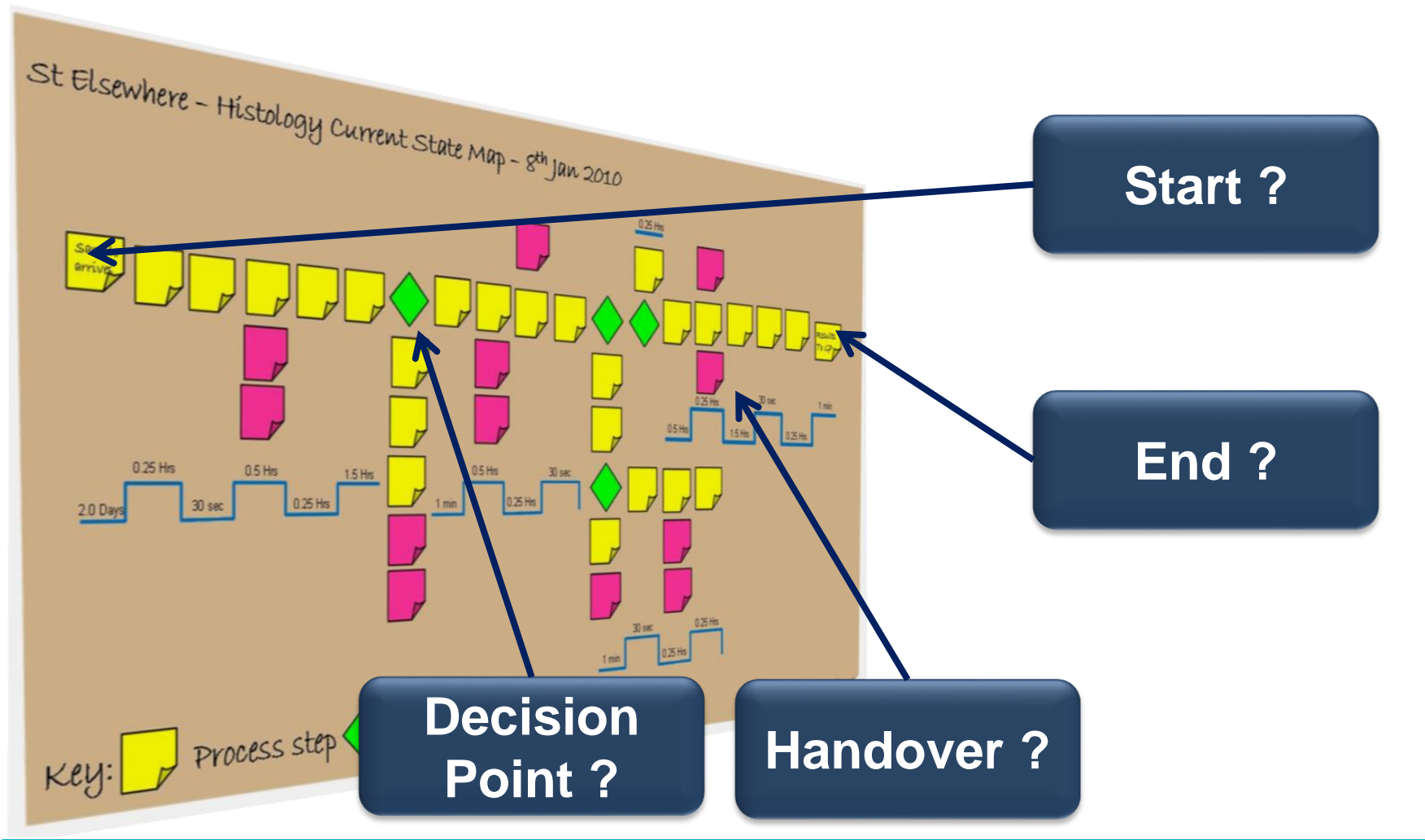
Step 2 - Choose measures



There are two tools to help you choose measures

- Process Mapping
- Driver Diagrams

Step 2 - Choose measures



Step 2 - Choose measures

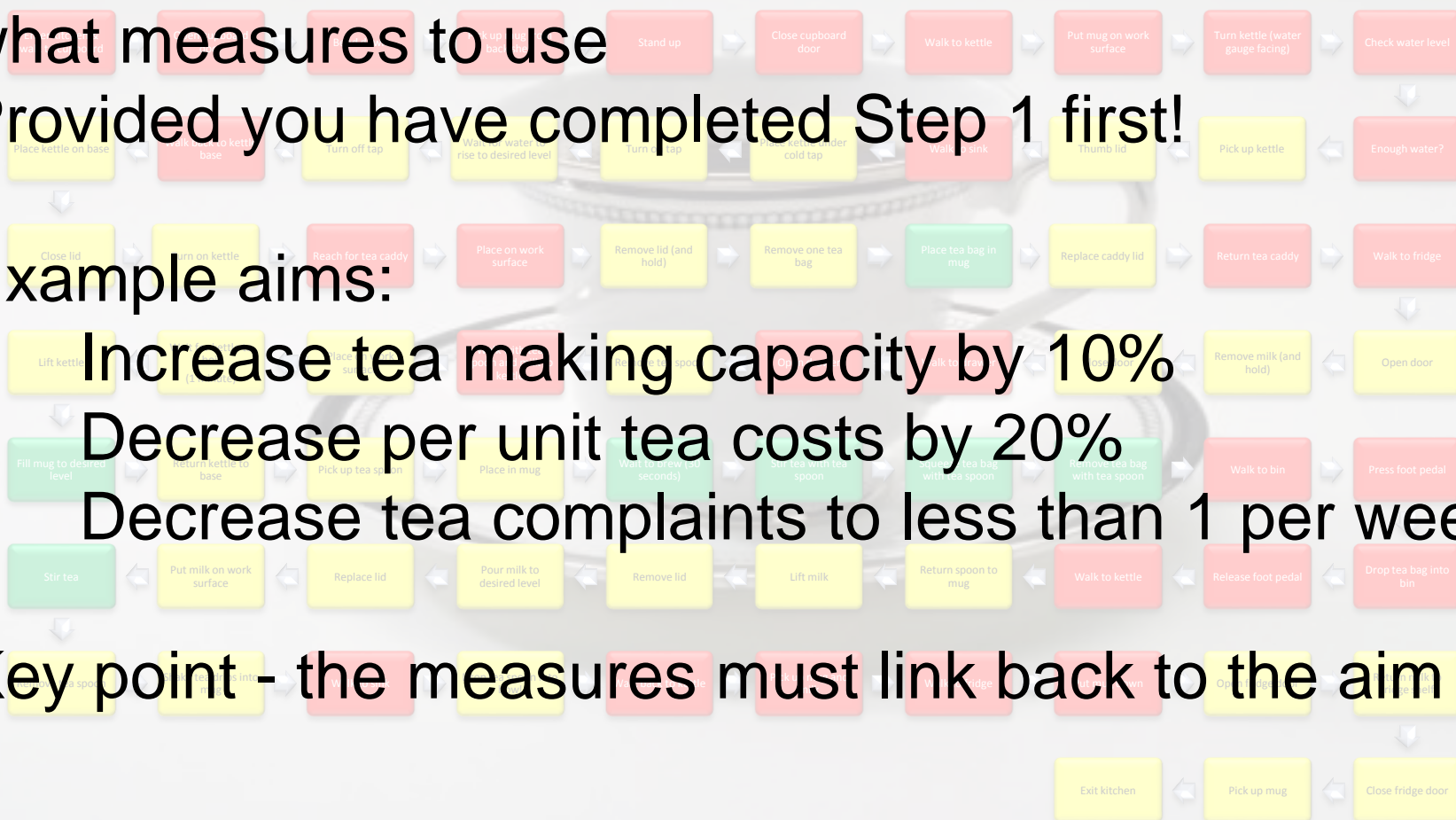
You could use this map as a reference point to decide what measures to use

Provided you have completed Step 1 first!

Example aims:

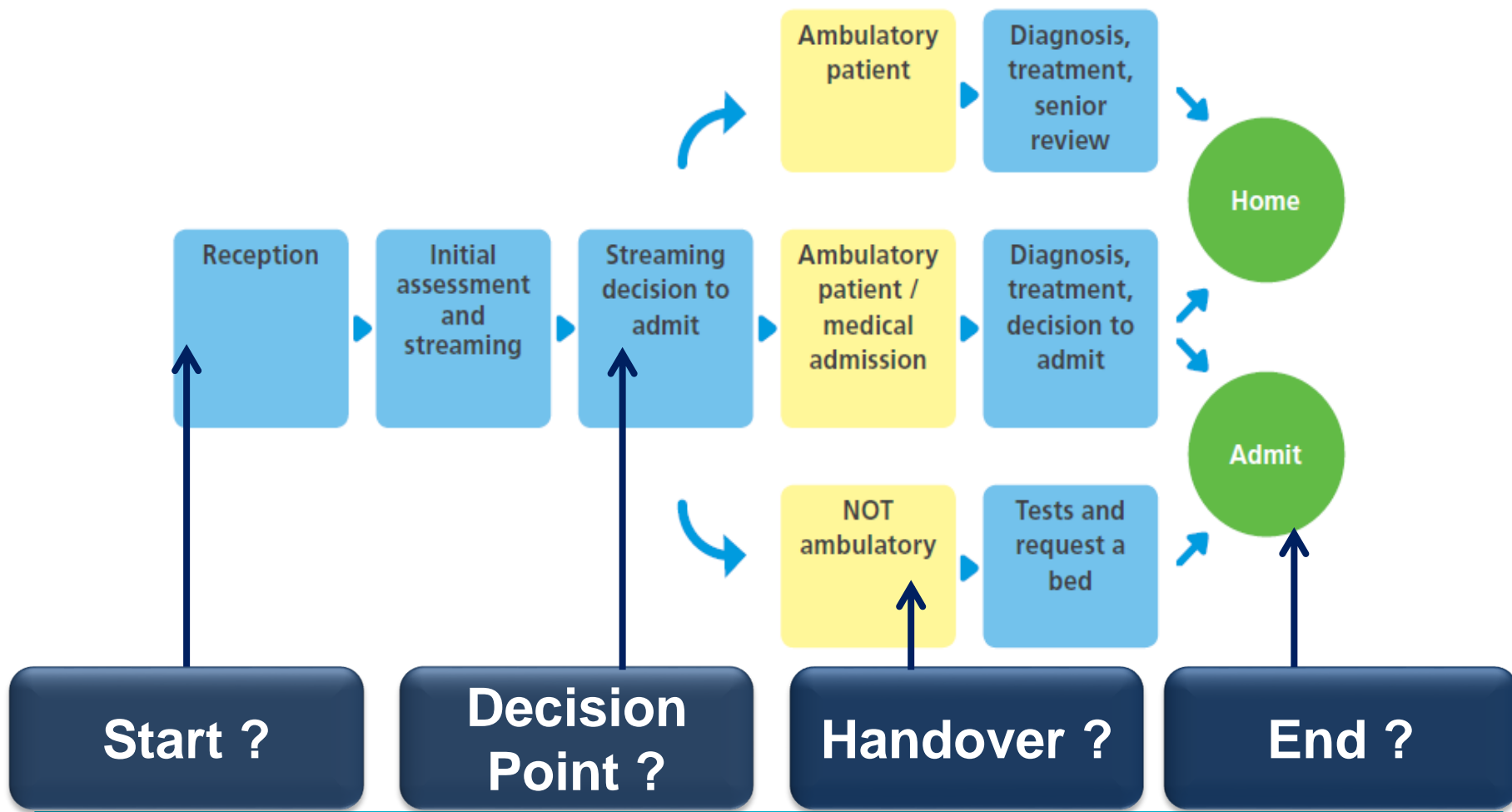
- Increase tea making capacity by 10%
- Decrease per unit tea costs by 20%
- Decrease tea complaints to less than 1 per week

Key point - the measures must link back to the aim



Step 2 - Choose measures

Ambulatory Emergency Care Network

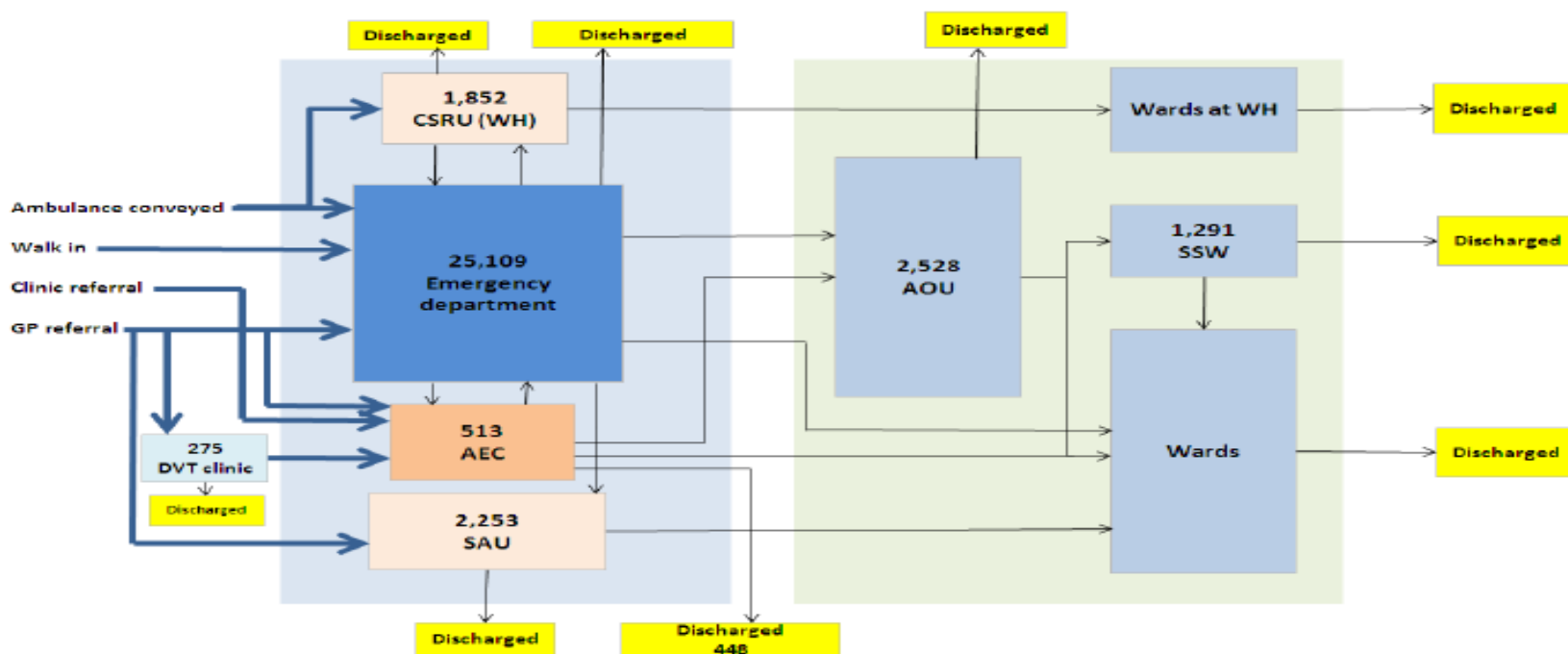


An AEC example

Ambulatory Emergency Care Network

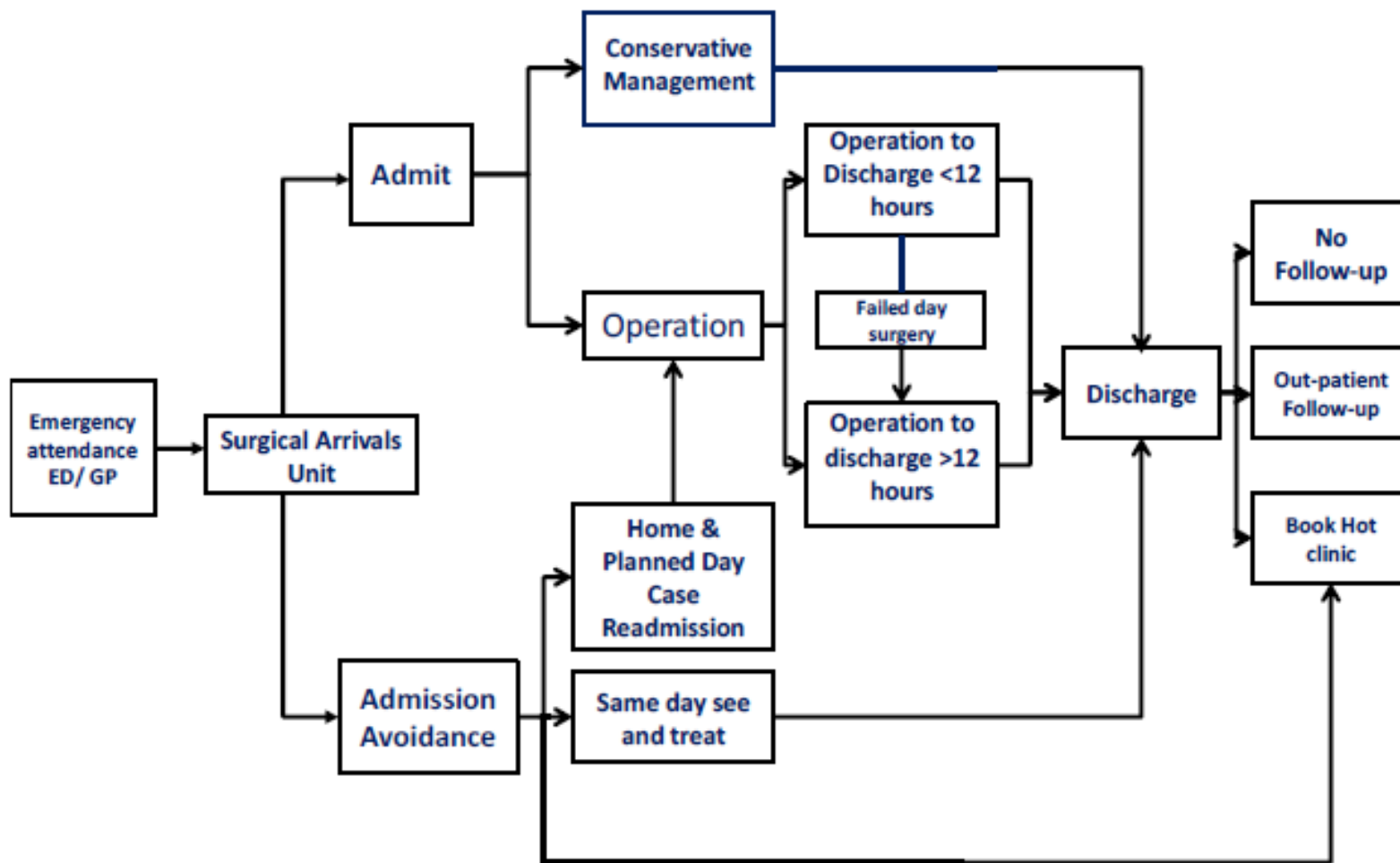
Patient flow at Stoke Mandeville after AEC

1st December 2014 – 31st March 2015



From the BADS handbook

Ambulatory Emergency Care Network



Exercise: Start to work up your flow diagram

Using the picture of flow shown in the BADS AEC Handbook as a guide/starting point start to sketch out your own emergency flows for surgical patients

You have 30 minutes

Exercise: Start to work up your flow diagram

- What are the service entry points? Where do patients come from?
- How many patients are admitted? How many are not?
- What are their pathways through the hospital and to discharge?
- Current organizational objectives and aims for AEC services – which patients are you focused on
- Show the names of the units involved and the numbers of patients for each connecting flow arrow

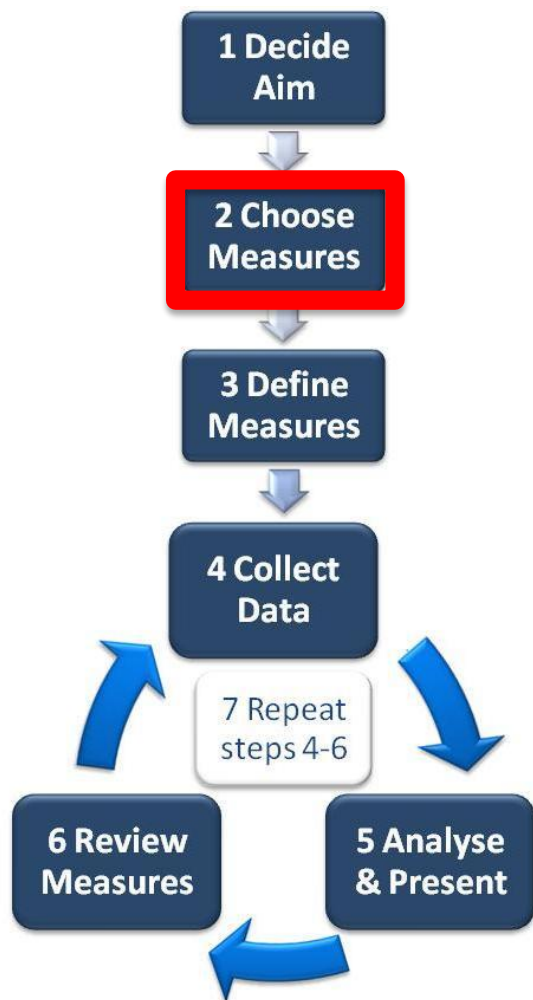
Tea break

Back here for an 11:45 prompt start

We expect **ALL SITES** to finish off their Flow Diagram between now and the next national event on **27th June 2017**

You need to bring them along to display to each other on the wall of the conference room - There is a prize!

Step 2 - Choose measures



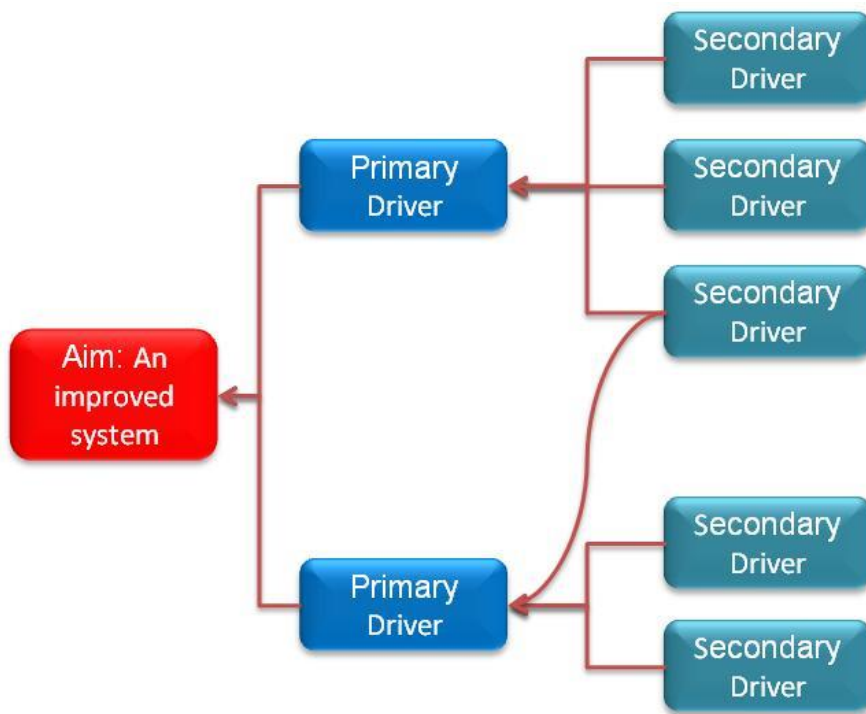
Spoilt for choice?

Ambulatory Emergency
Care Network



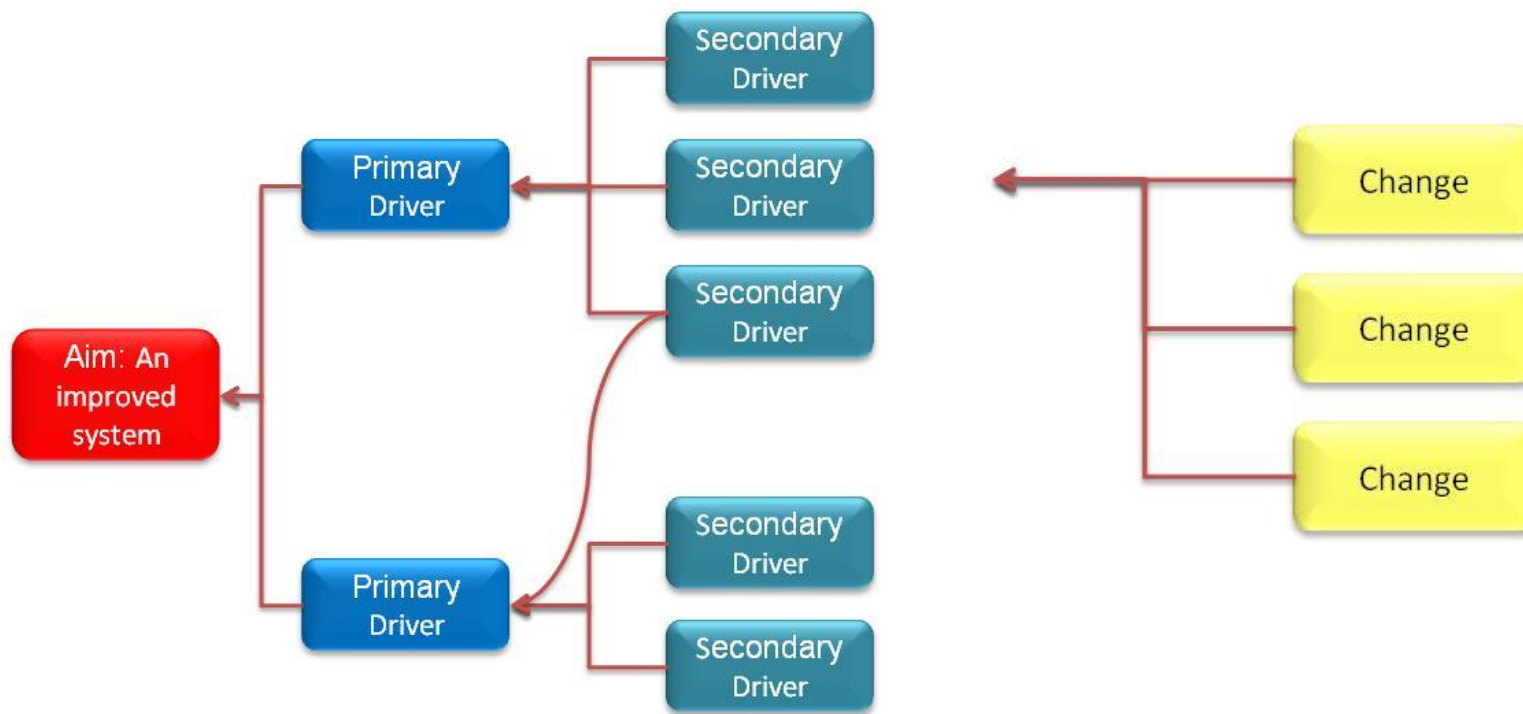
Driver Diagrams

Schematic view of a system on the left we depict **outcome** and as we move right we drill down into the network of **causes** that **drive** the outcome, from 'primary' to 'secondary' **drivers**



Driver Diagrams

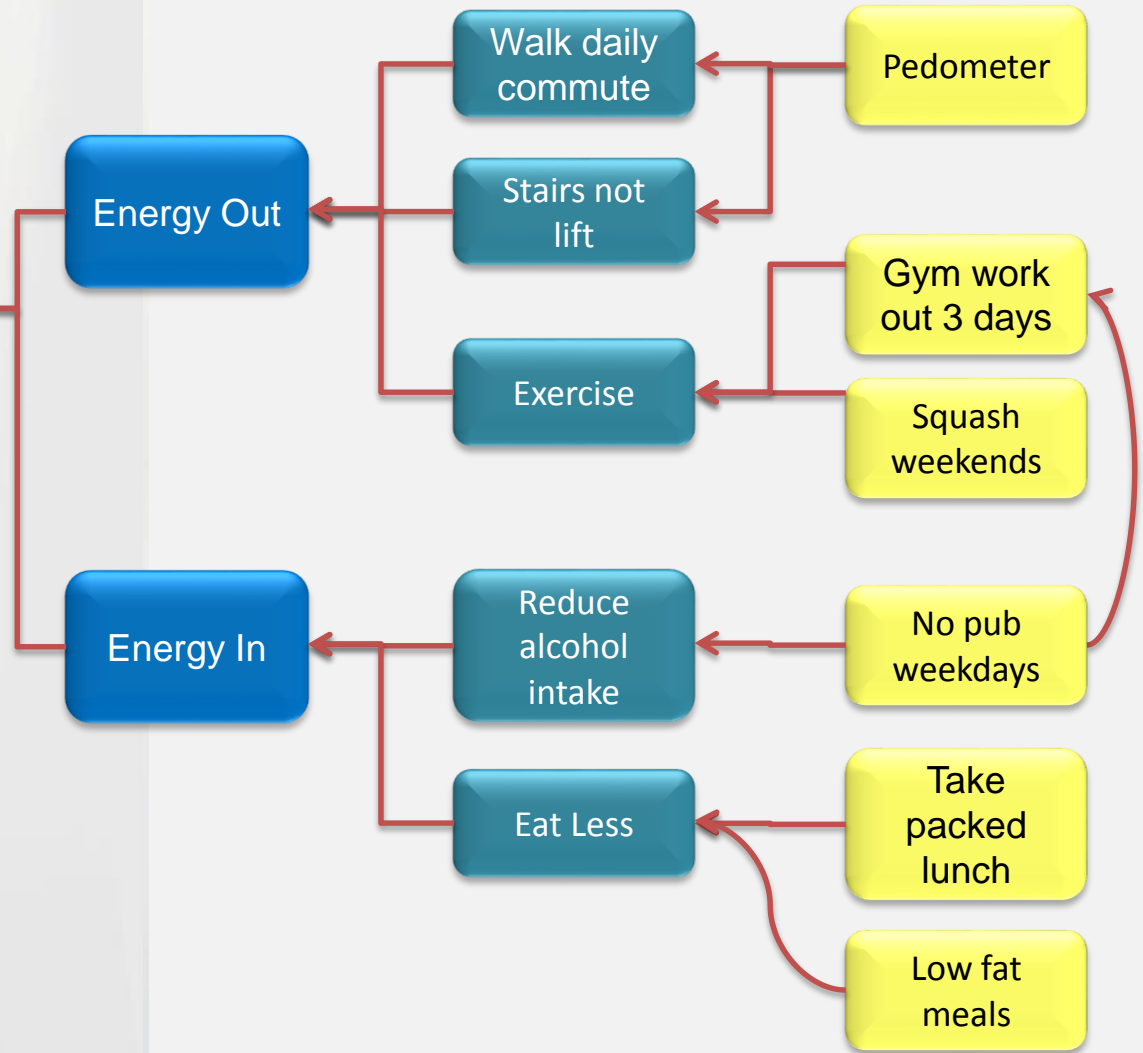
On the right we depict **ideas for system changes** that might ultimately impact the **outcome**. So, it represents our **theory** about how to **modify** the system to **change** the **outcome**



Driver Diagrams - weight loss



Aim:
2 stones
lighter!



Driver Diagrams - AEC example

Aim	Driver	Intervention
<p style="text-align: center;">O1</p> <p style="text-align: center;">To prevent ambulatory patients being admitted to hospital overnight</p> <p style="text-align: center;">O2</p>	<p style="text-align: center;">Ensure the right patients are identified</p>	<p>Analyse activity daily</p> <p>Ensure staff are trained in AEC</p> <p>Undertake board rounds in ED P2</p> <p>Advertise AEC stream</p>
	<p style="text-align: center;">Reduce avoidable late presentations</p>	<p>Advertise service operating times</p> <p>Create next day urgent slots</p>
	<p style="text-align: center;">Avoid delays in diagnostics / decisions P1</p>	<p>Rapid access to diagnostics P3</p> <p>Immediate access to senior clinician</p>
	<p style="text-align: center;">Smooth discharge</p>	<p>Easy access to take home meds</p>

O1 Overall admission count

O2 Number of emergency bed days used

P1 time taken for diagnosis / treatment

P2 No of board rounds in ED

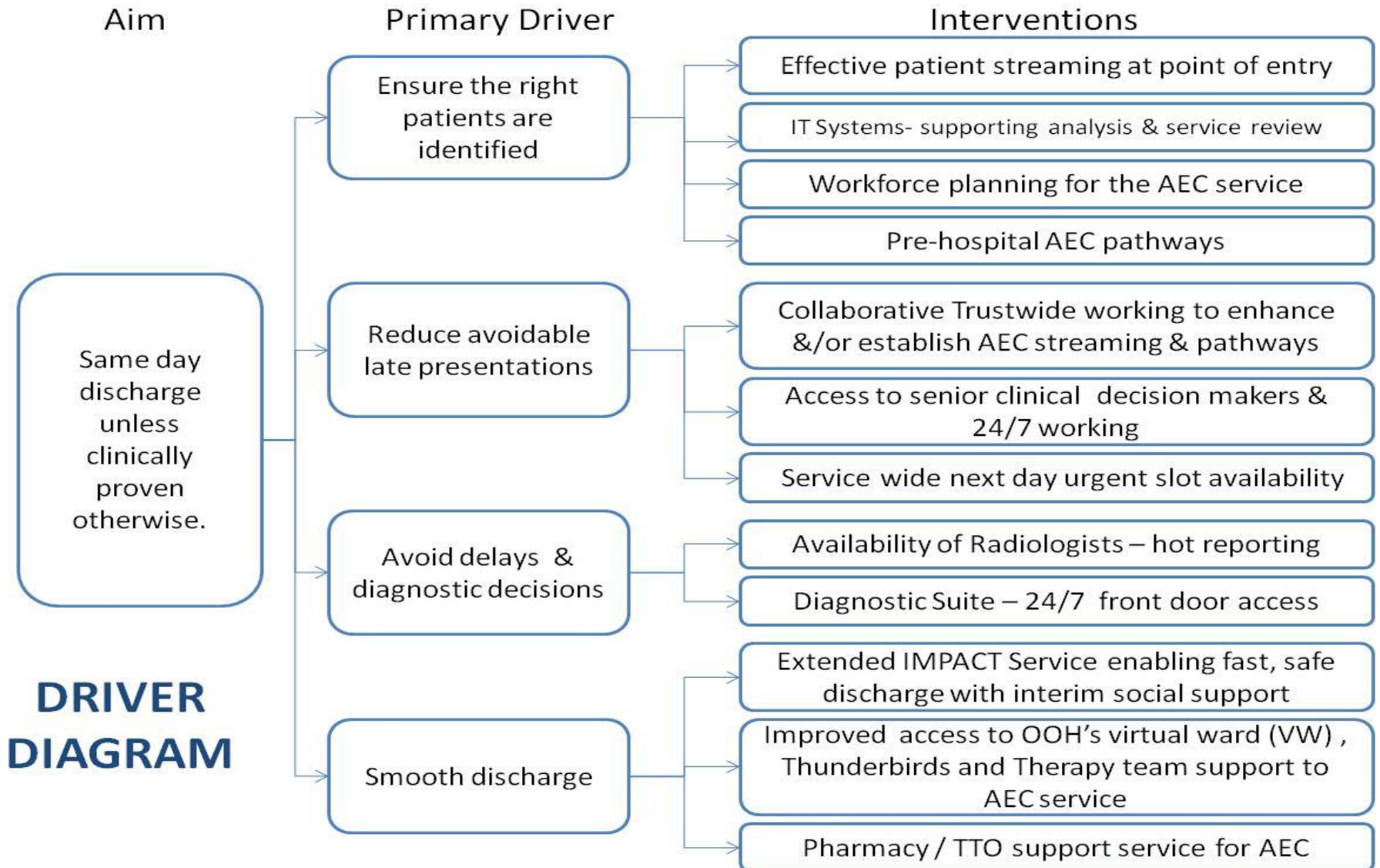
P3 time to access senior clinician



B1 re-admissions

B2 patient experience

Driver Diagrams - AEC example



Exercise: Create your driver diagram

Thinking about your project, create a driver diagram and use it to link your aim back to changes which you plan to make – and then think how you will measure them

Drivers Tip - Use the following categories as prompts

- Equipment, People, Processes
- Materials, Communication

Try brainstorming and then cluster your ideas

You have 30 minutes

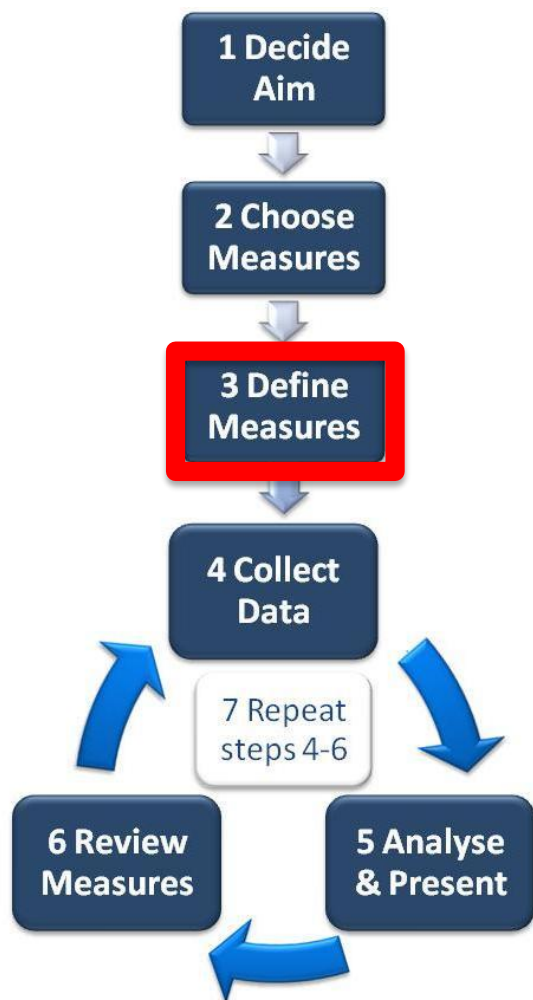
Lunch

Back here for a 13:15 prompt start

We expect **ALL SITES** to finish off their Driver Diagram between now and the next national event on **27th June 2017**

You need to bring them along to display to each other on the wall of the conference room - There is a prize

Step 3 - Define Measures



- Each of your project teams will need you to do some work on choosing the best measures which will work best for your circumstances, and show the impact of your changes
- But what should we collect across the SAEC Network?

Data template for us all to use

Ambulatory Emergency Care Network

SAEC SPC reporting tool V1 [Compatibility Mode] - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Developer

Clipboard Font Alignment Number Styles Cells Editing

Security Warning Data connections have been disabled Options...

C1 Trust Name

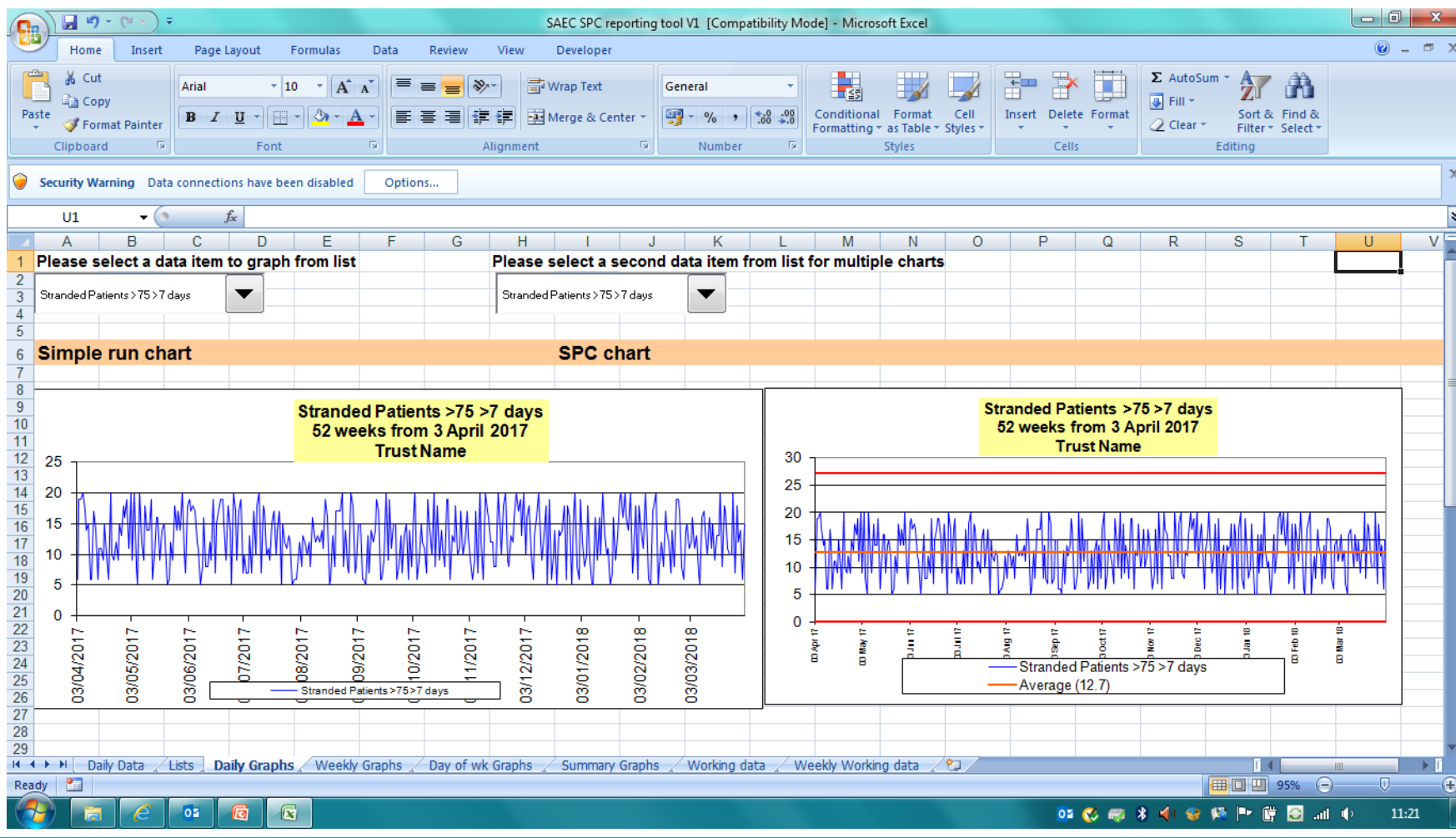
1	Organisation name:	Trust Name															
2		Raw data															
4	Week No	Date	Stranded Patients >75 >7 days	Stranded Patients >80 >14 days	Number of Patients Identified as frail	Number of Frailty Admissions	Number sent home from Frailty Unit	Number 'Admitted' from Frailty Unit	Daily Average Time spent in A&E (Frailty Only)	Total A&E attendances that are Frail	Number of Frailty Outliers	Number of readmissions within 72 Hours	Number of readmissions within 7 days	Number of readmissions within 30 days	Number of readmissions within 90 days	Number of discharges within 72 hours (Frail)	ED B due Ave
5	15	03/04/2017	6														
6	15	04/04/2017	19														
7	15	05/04/2017	19														
8	15	06/04/2017	20														
9	15	07/04/2017	17														
10	15	08/04/2017	14														
11	15	09/04/2017	15														
12	16	10/04/2017	6														
13	16	11/04/2017	6														
14	16	12/04/2017	17														
15	16	13/04/2017	14														
16	16	14/04/2017	6														
17	16	15/04/2017	11														
18	16	16/04/2017	11														
19	17	17/04/2017	9														
20	17	18/04/2017	15														
21	17	19/04/2017	10														
22	17	20/04/2017	6														

Ready

Taskbar: 11:20

Data template for us all to use

Ambulatory Emergency Care Network



Exercise: What should we all collect?

List some process/activity measures we should all collect

e.g. the number of patients seen in SAEC each day

e.g. the number of patients referred to Surgery each day

List some outcome/impact measures we should all collect

e.g. the number of non-elective bed days used pre-surgery each week for emergency surgery patients

Write as many as you like, but just **one per post-it note**

You have 10 minutes

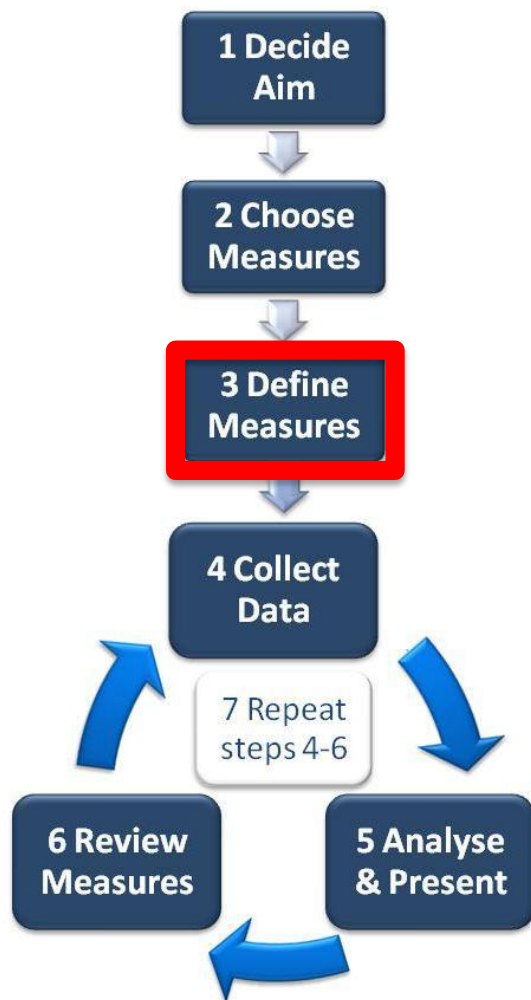
Next step

We have 30 minutes to attempt to cluster these to look for common themes

We will then pick the most common/obvious measures and put them in the template

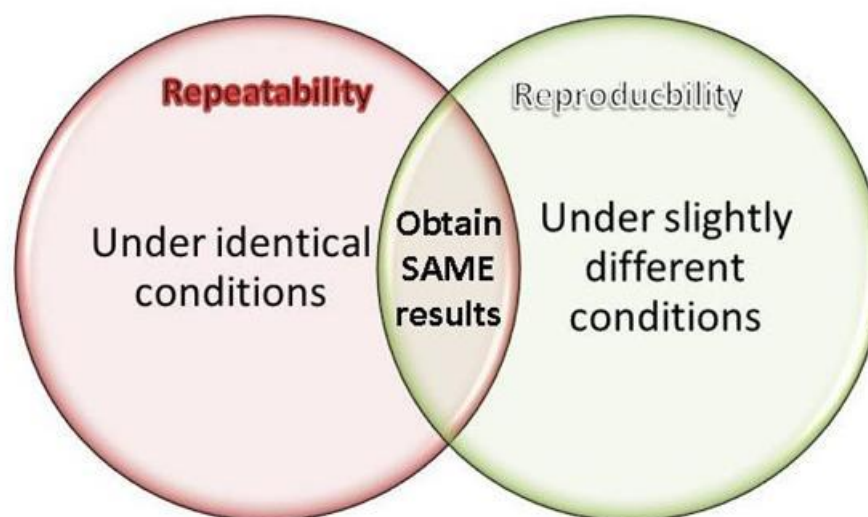
We will send the template to you and we then need you to keep the daily data running and send it back to us later in the programme

Step 3 - Define Measures



- First operational definition of a paper description, in quantifiable terms, of what to measure and the steps to follow to measure it consistently
- Are we measuring the same thing?

Advice on creating definitions



Repeatability

Can you, who created the definition, understand it and repeat it?

Reproducibility

After repeatability, try seeing if the definition that you have created can be reproduced by other people?

Our working definition

“Ambulatory care is clinical care which may include diagnosis, observation, treatment, and rehabilitation, not provided within the traditional hospital bed base or within the traditional out-patient services that can be provided across the primary/secondary care interface”.

It is **same day emergency care**, where the intention is to provide the care that the patient requires on the **same day**, where traditionally they may have expected to have **been admitted** to a hospital bed for treatment or to await diagnosis

Exercise - Measures Checklist

- The Measures Checklist
- Complete part one of the measures checklist form provided - for a measure that you are using or are planning to use
- **You have 10 minutes**

**Surgical AEC Measurement Masterclass
Measures checklist**

Part 1: Measure setup

Why is it important?
(Provide justification and any links to organisation strategy)

Who owns this measure?
(Name responsible for writing / design)

What is the definition?
(Set it out very clearly in words)

Measure definition

What data items do you need?

What is the calculation?

Which patient groups are to be covered?

What is the numeric goal you are setting yourselves?

Who is responsible for setting this?

When will it be achieved by?

Goal setting

**Surgical AEC Measurement Masterclass
Measures checklist**

Part 2: Measurement process

IS THE DATA AVAILABLE?
(Current / available / available with minor changes / Prospective collection needed)

Collect

Who is responsible for data collection?

What is the process of collection?

What is the process for presenting results?
(to enable you to start or plan start in time)

Analyse
(Understand measure and present results)

Who is responsible for the analysis?

How often is the analysis completed?

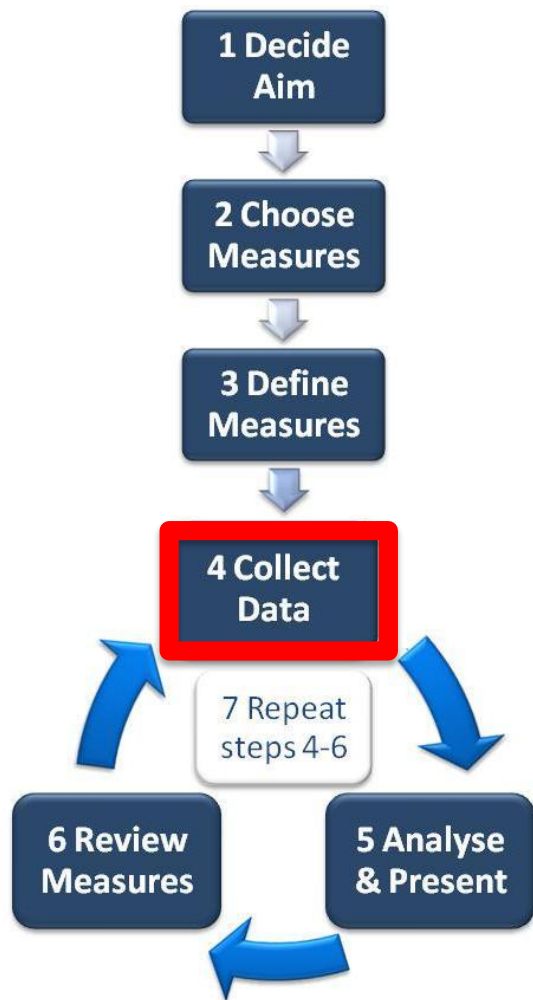
Review

Where will decisions be made based on results?

Who is responsible for taking action?

Step 4 - Collect Data

There are some practical considerations - it needs to be quick/easy and not become a job in itself

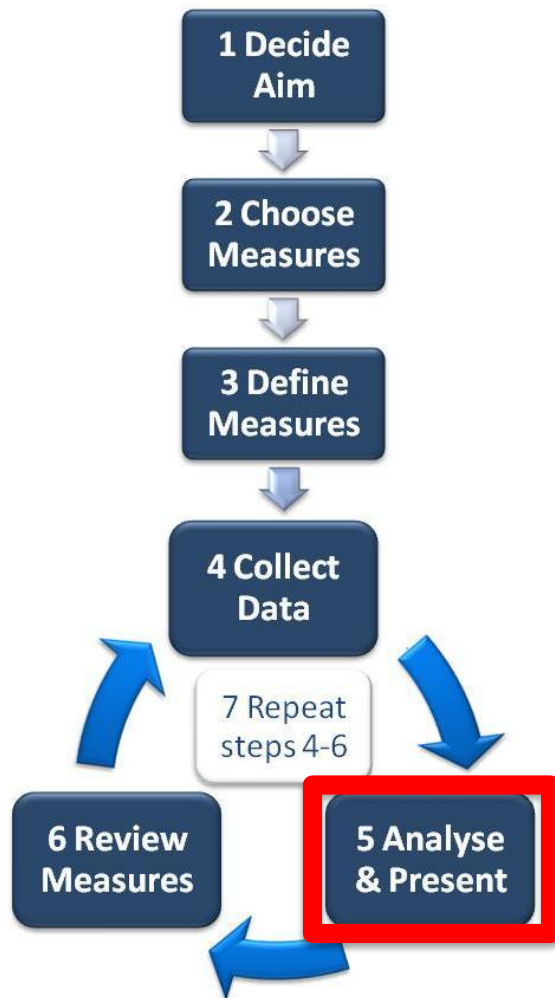


Step 4 - Collect Data

- What to collect - all patients or a sample?
- Who should collect the data - what role(s)?
- When - was the data taken? Real time or historic
- Where - is the data from?
- How - was the data taken? (What process?)
- Units - for example, minutes or hours or days



Step 5 - Analyse & Present



Having thoughtfully chosen our measures and carefully collected our data, we now need to present it and analyse it but how? And who to? And how often? At what forum?

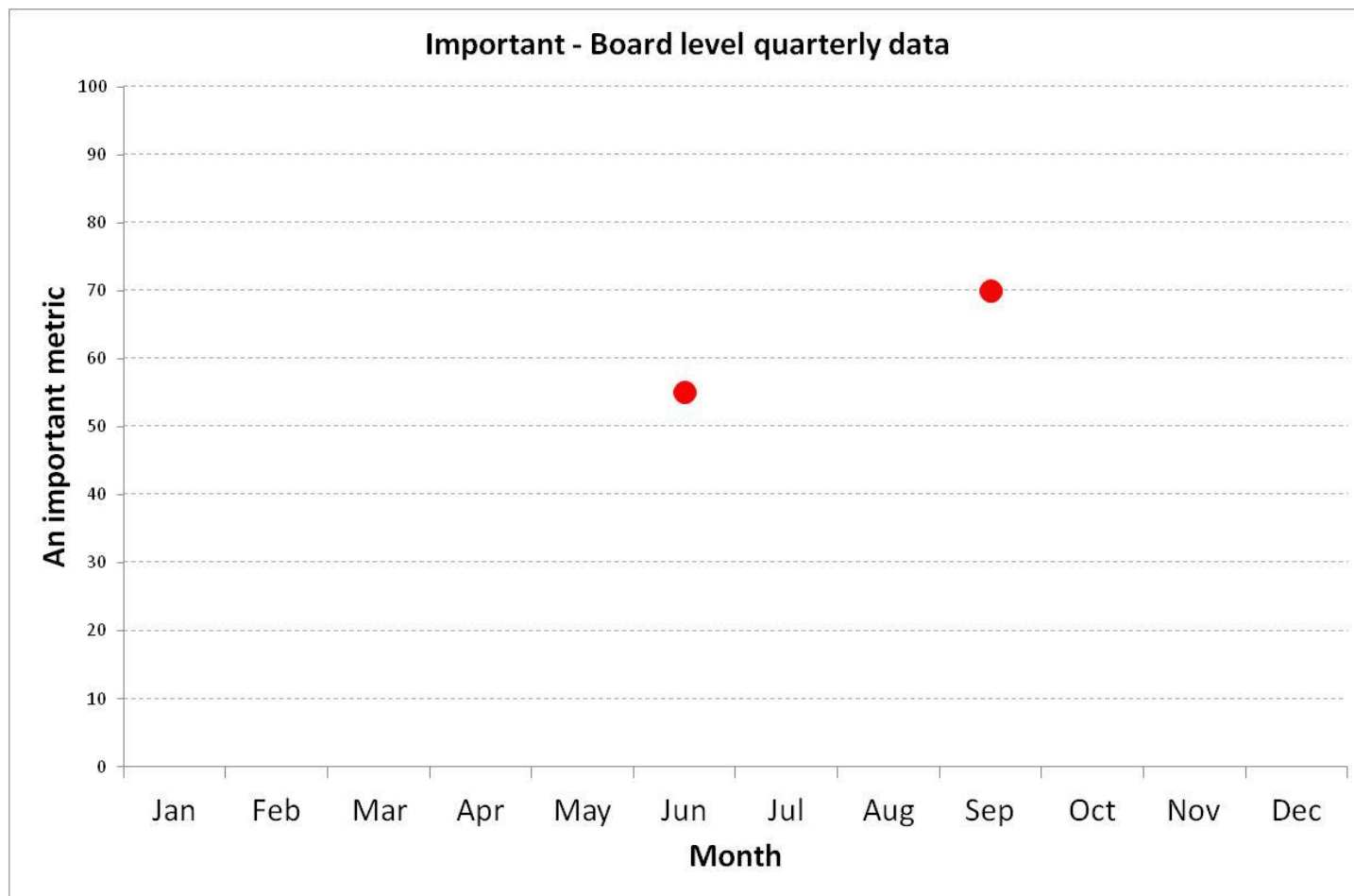
Variation

Variation is all around us. Every SAEC service, each patient, each improvement and each project is different.

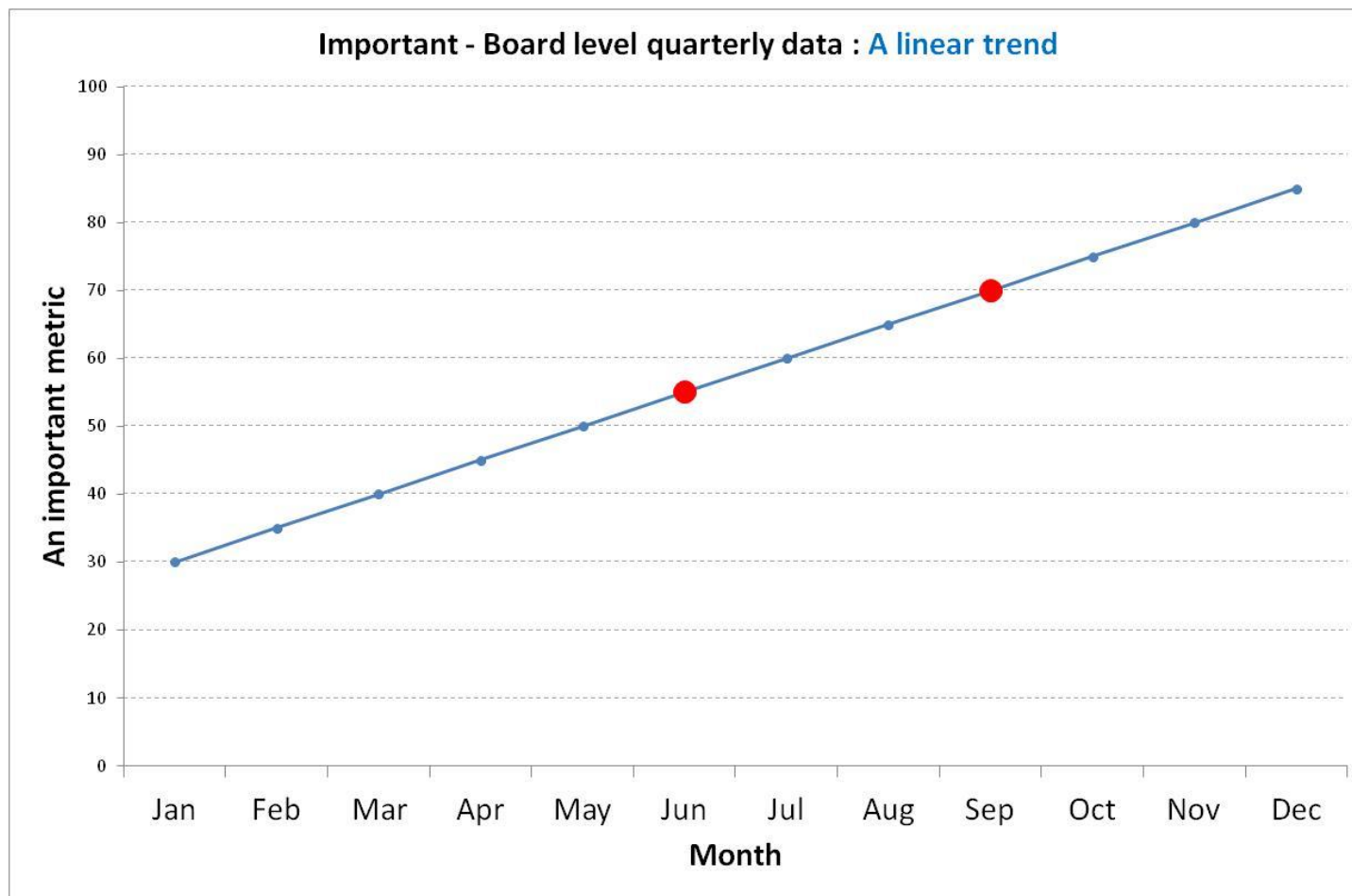
The reality of the world - who has got the average number of children?

How comfy is your chair?

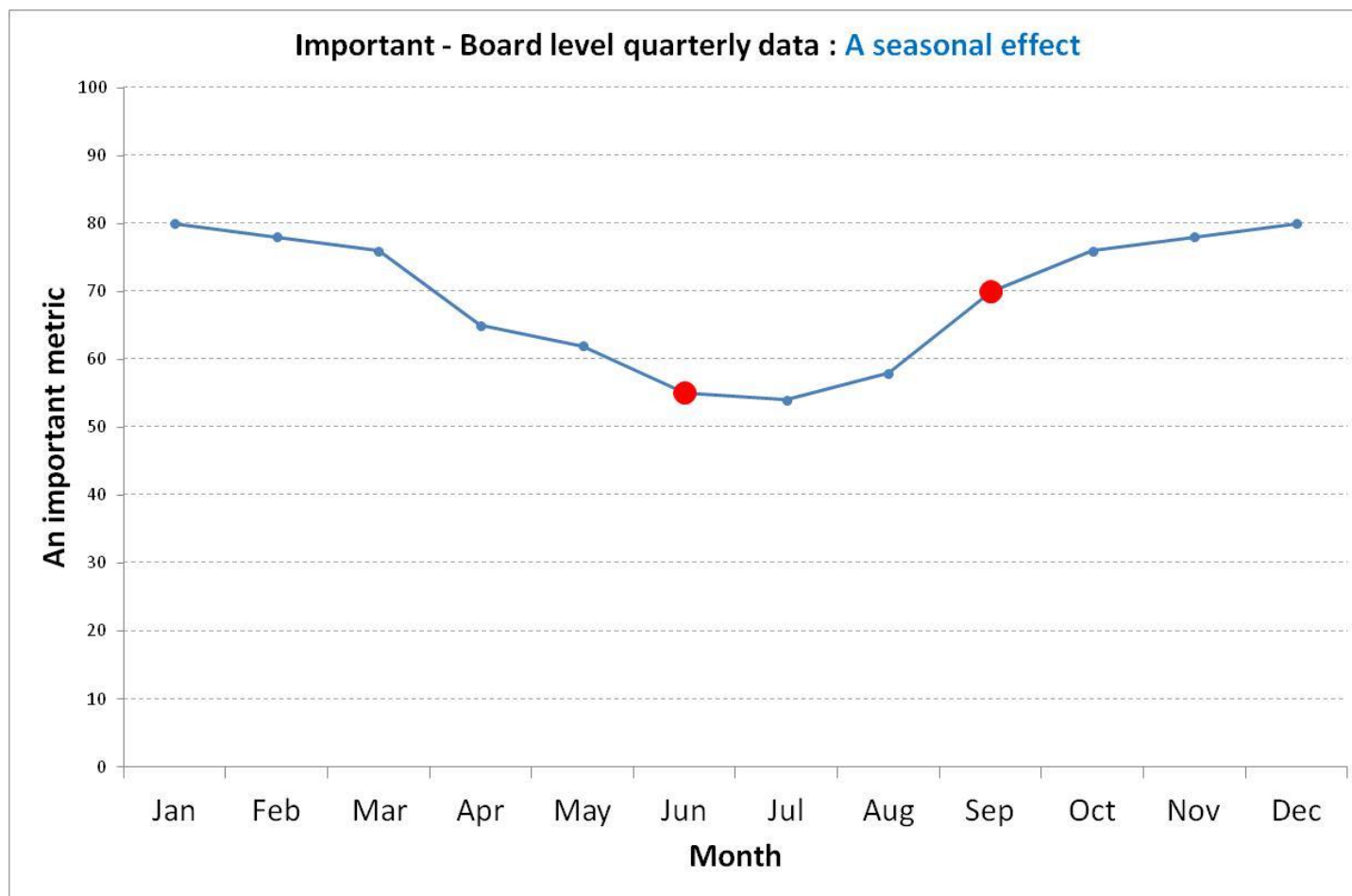
What does this data tell us?



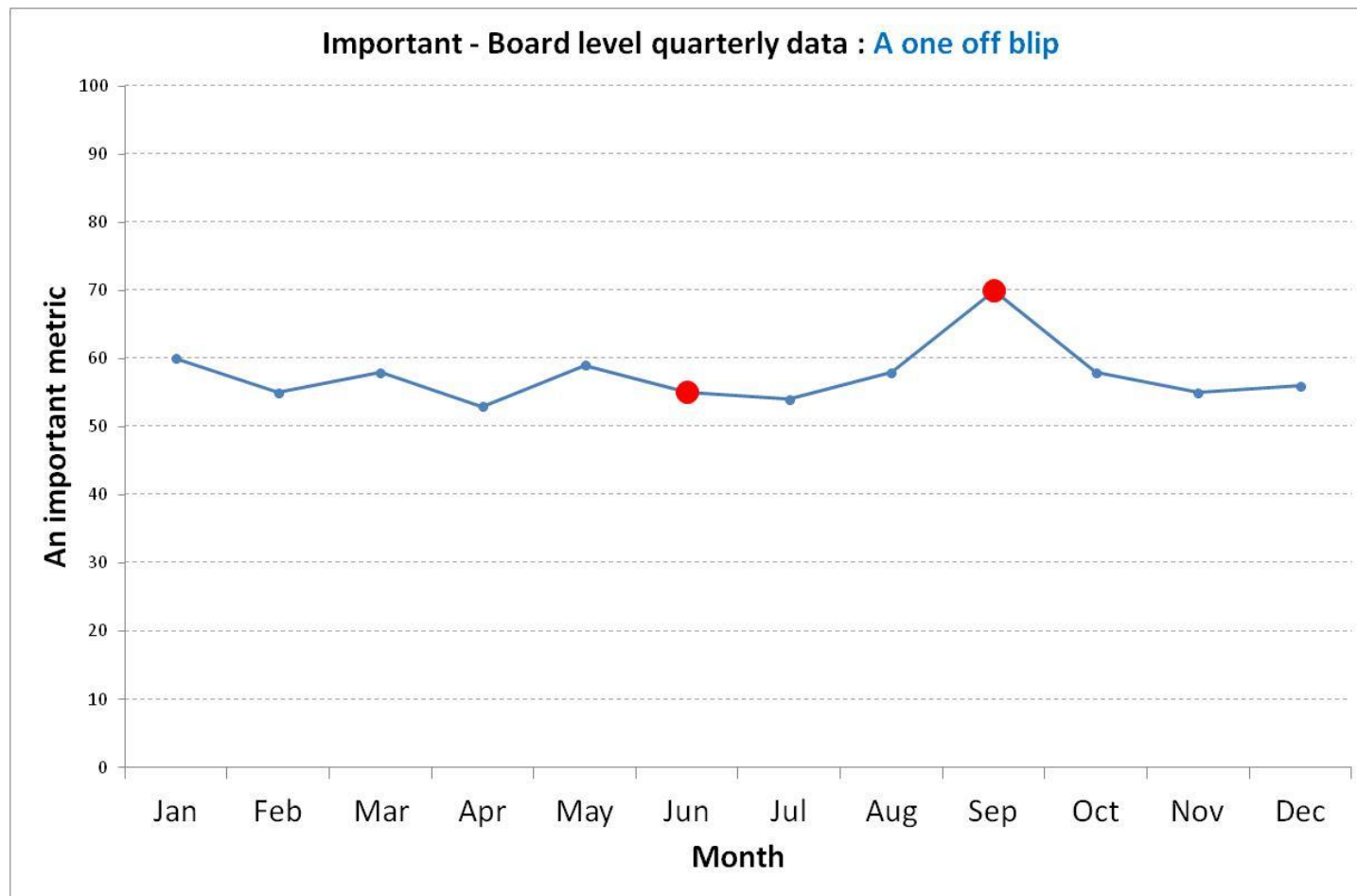
Are we assuming this?



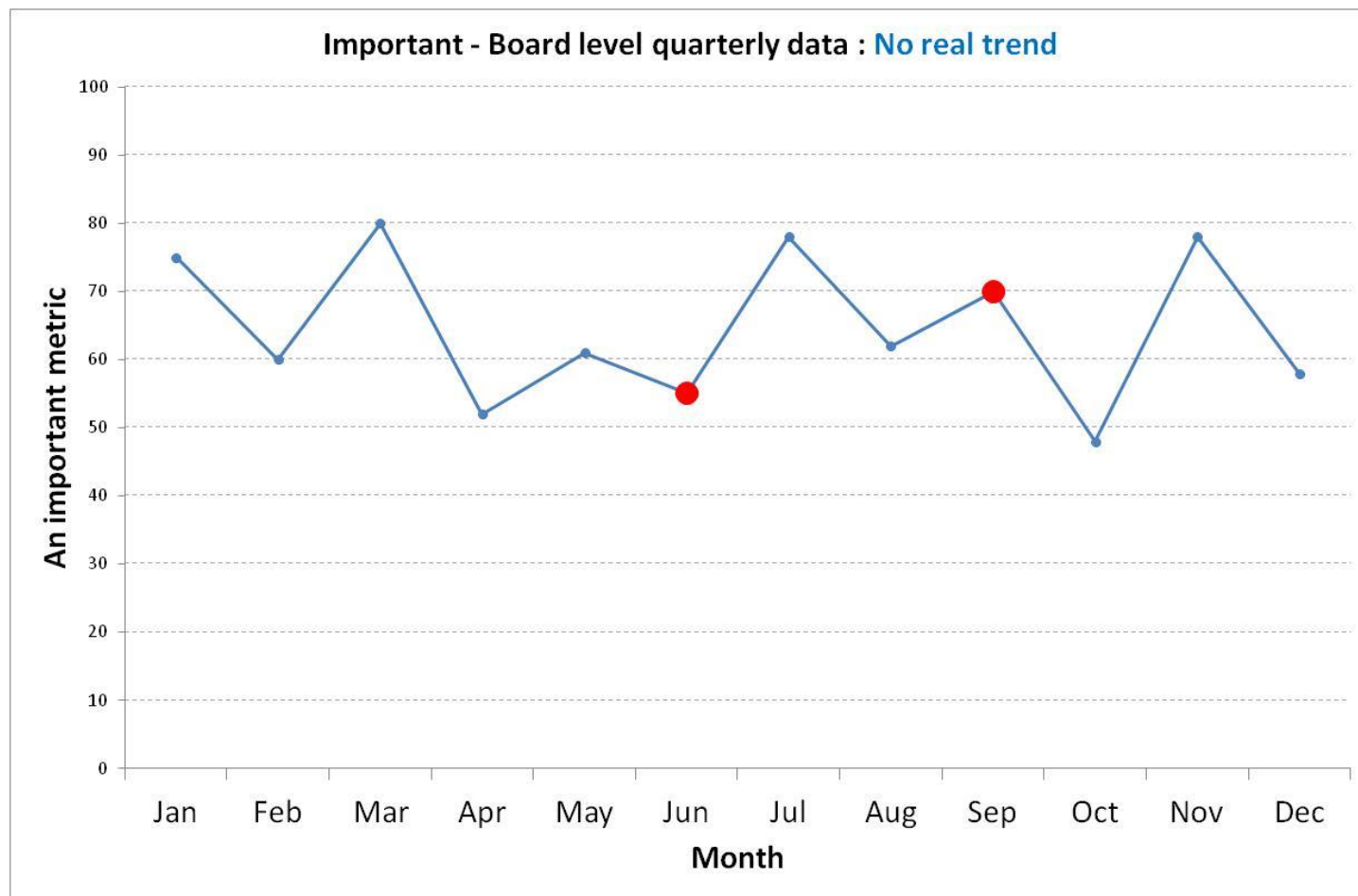
Are we assuming this?



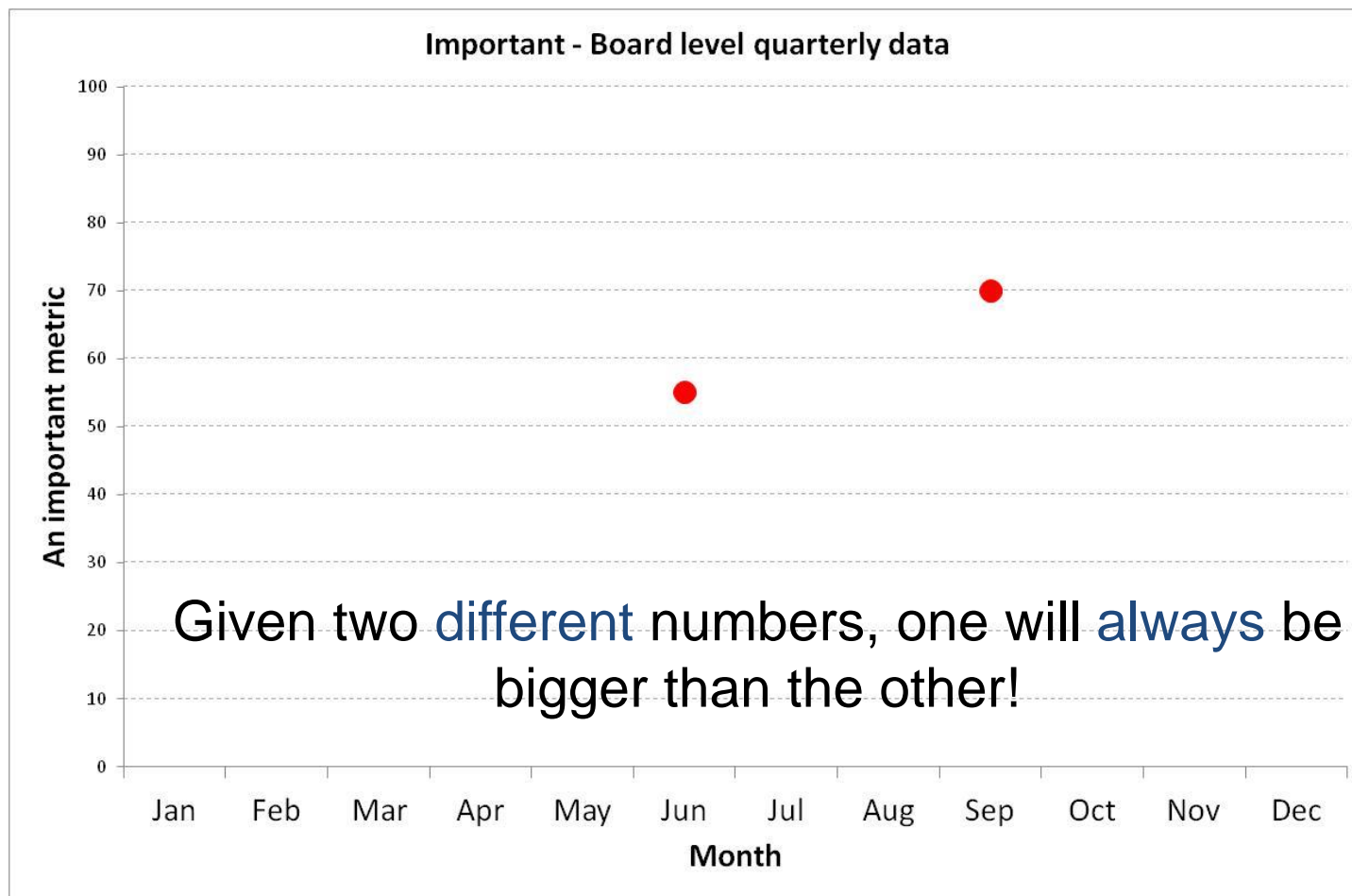
Are we assuming this?



Are we assuming this?



What do these data tell us?

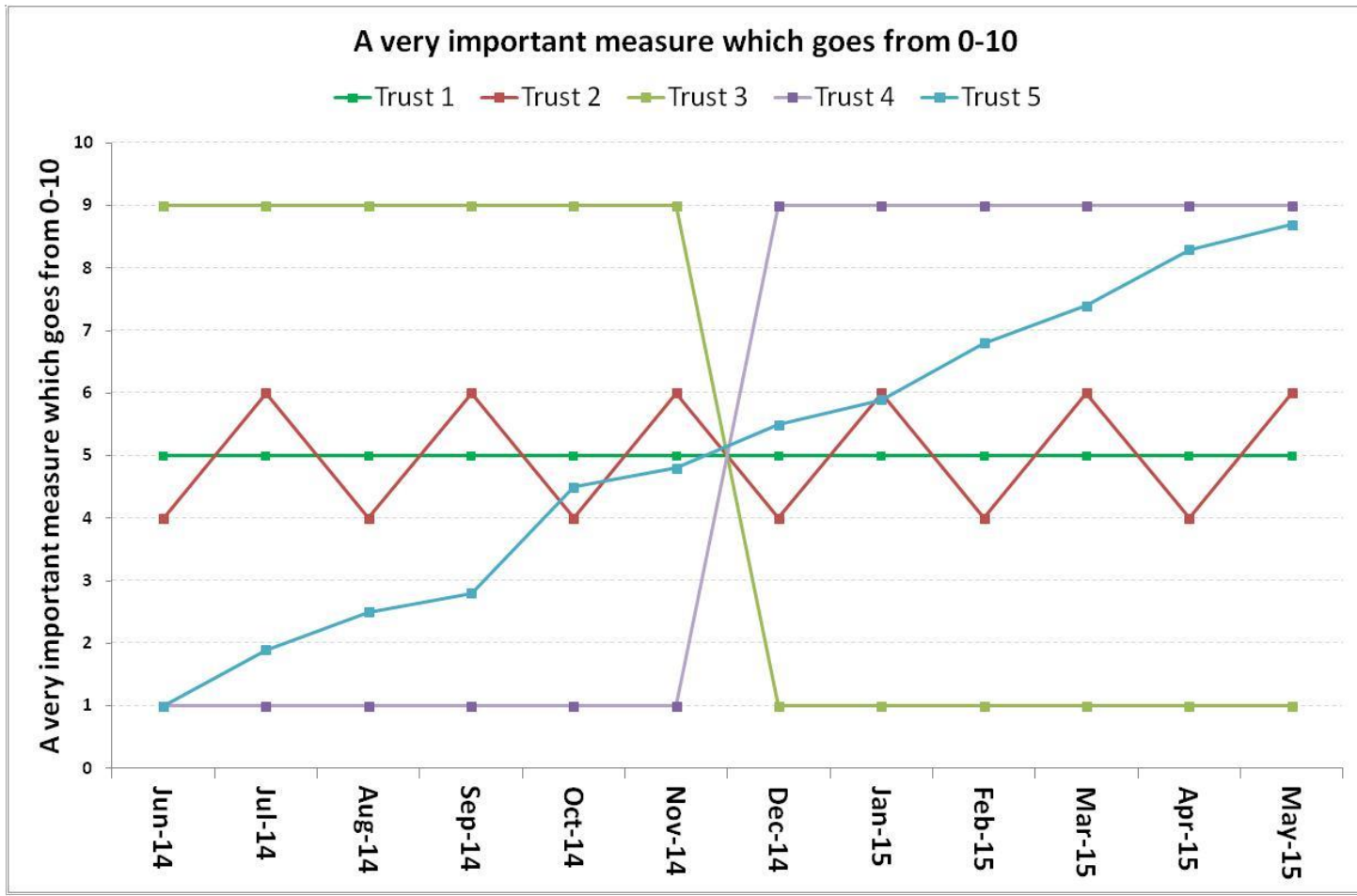


The Myth of Trends



Well, I can't see any pattern in this data but I did see Elvis' face in my cornflakes this morning

The average is not enough



Statistical Process Control

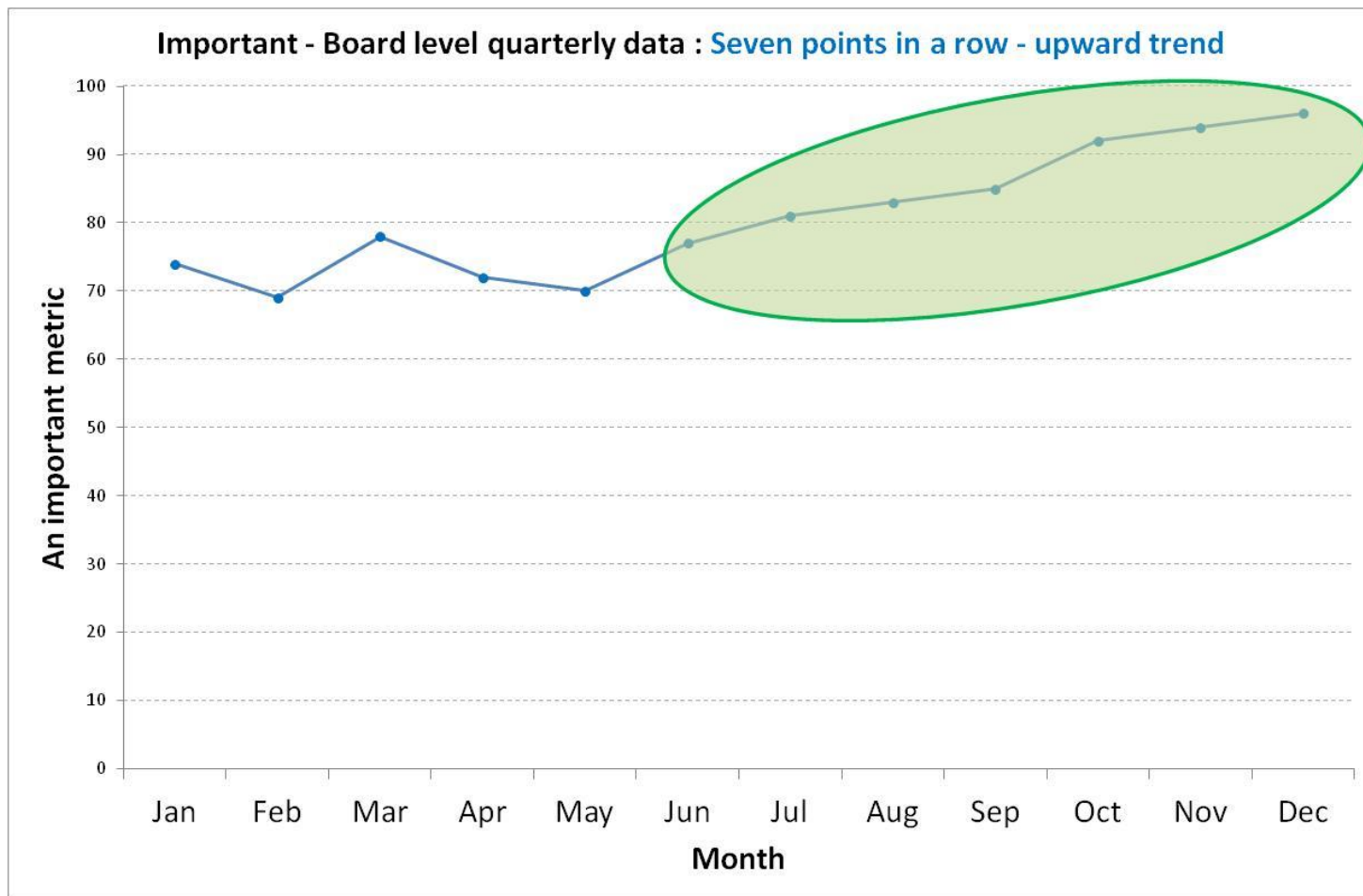
There will be a webinar later in the year on SPC

It will cover differentiating between special and common causes of variation

And why it is important to do so

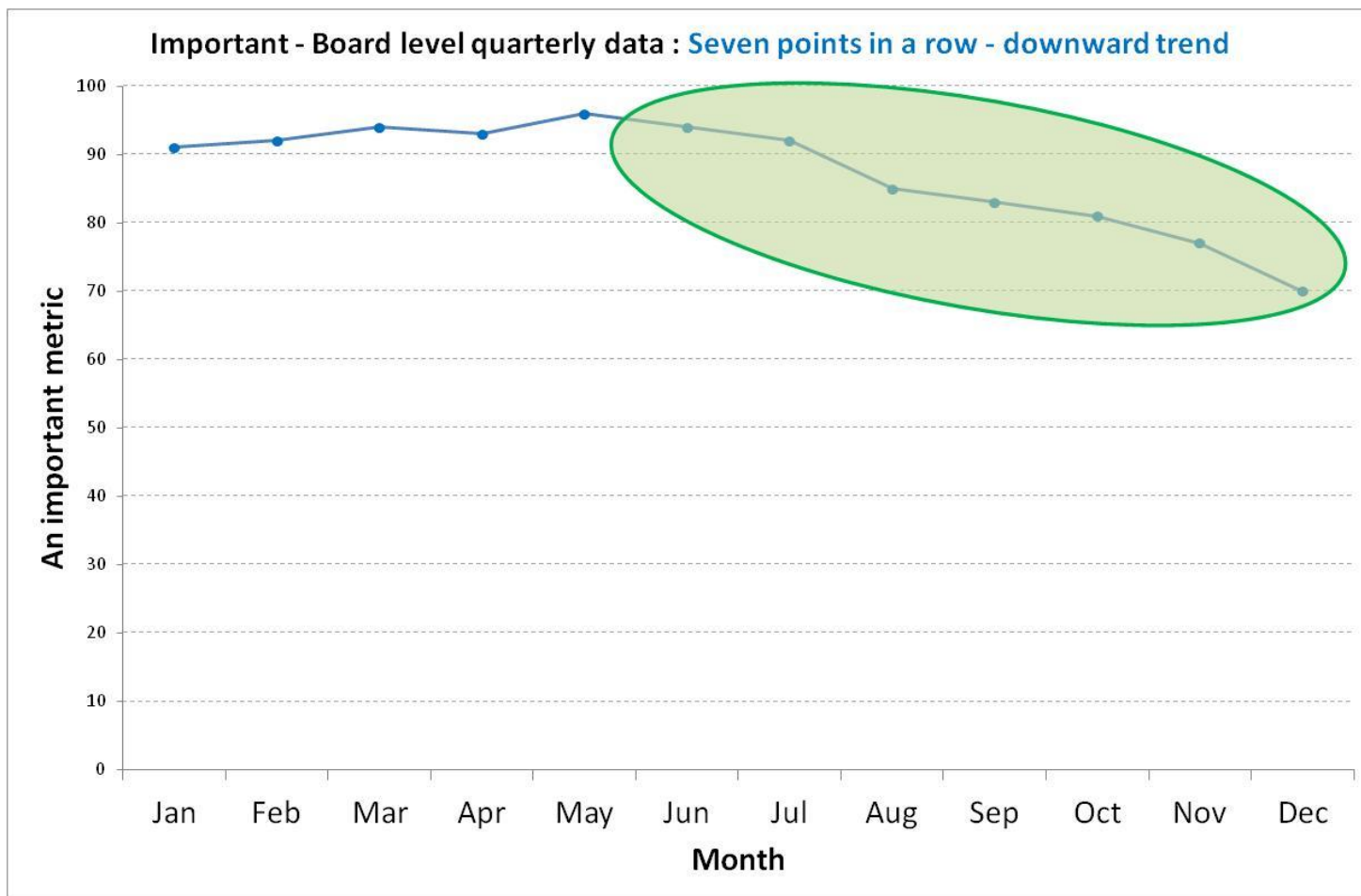
For now, we will look at four easy ways to spot real statistically significant patterns in your data - which require no complex maths or statistics!

Ways to spot special causes



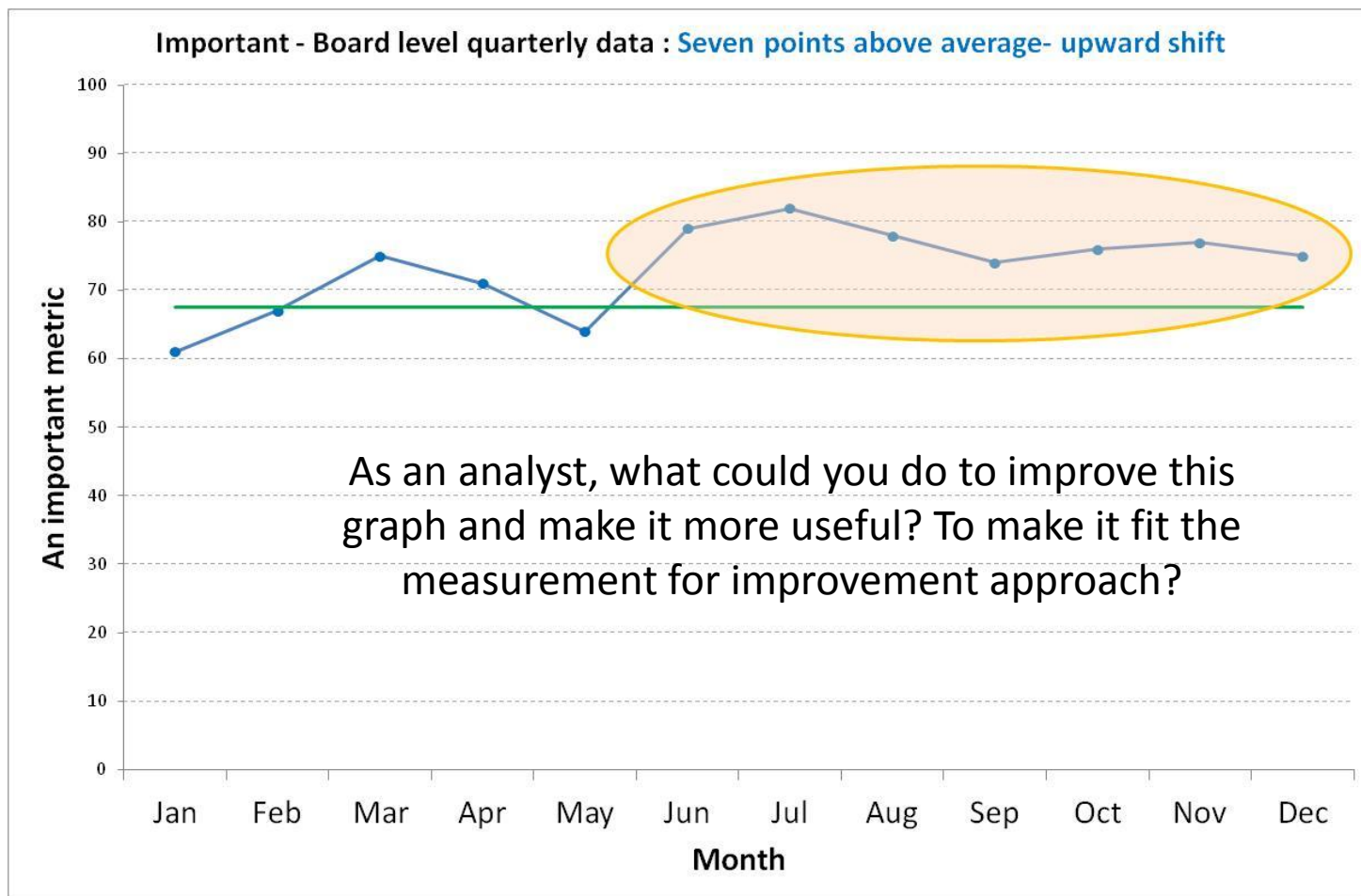
Ways to spot special causes

Ambulatory Emergency
Care Network

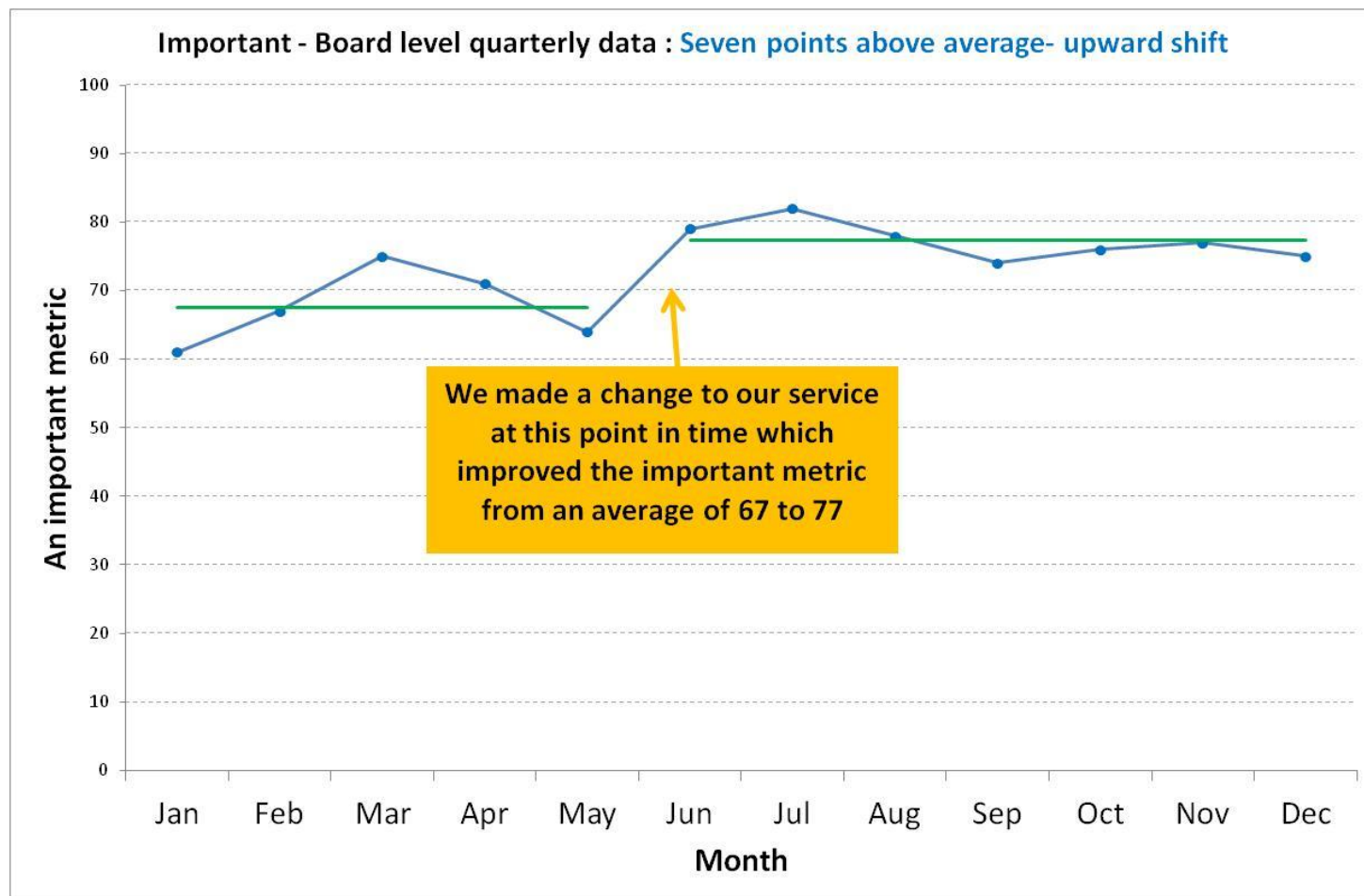


Ways to spot special causes

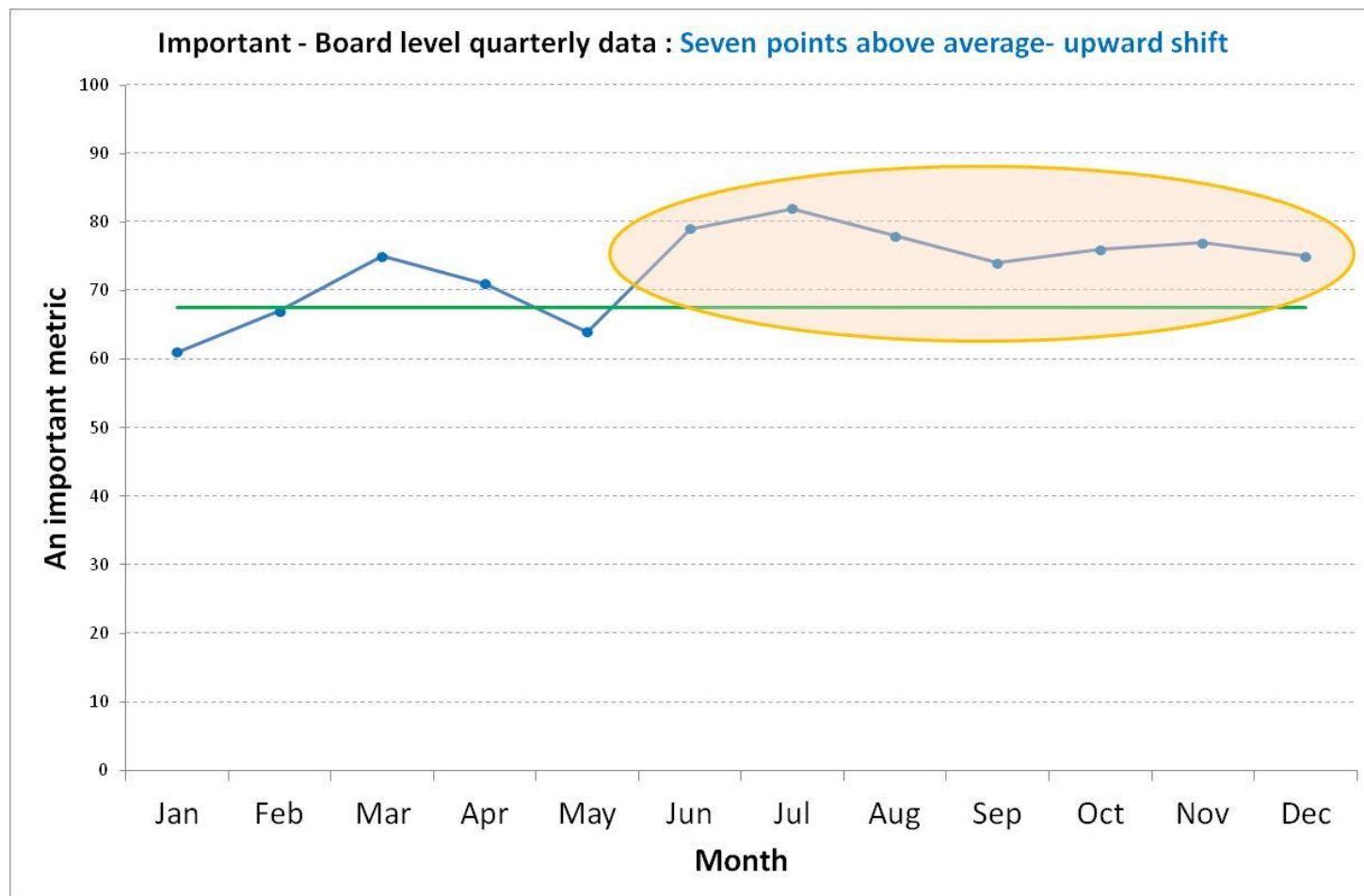
Ambulatory Emergency
Care Network



Ways to spot special causes

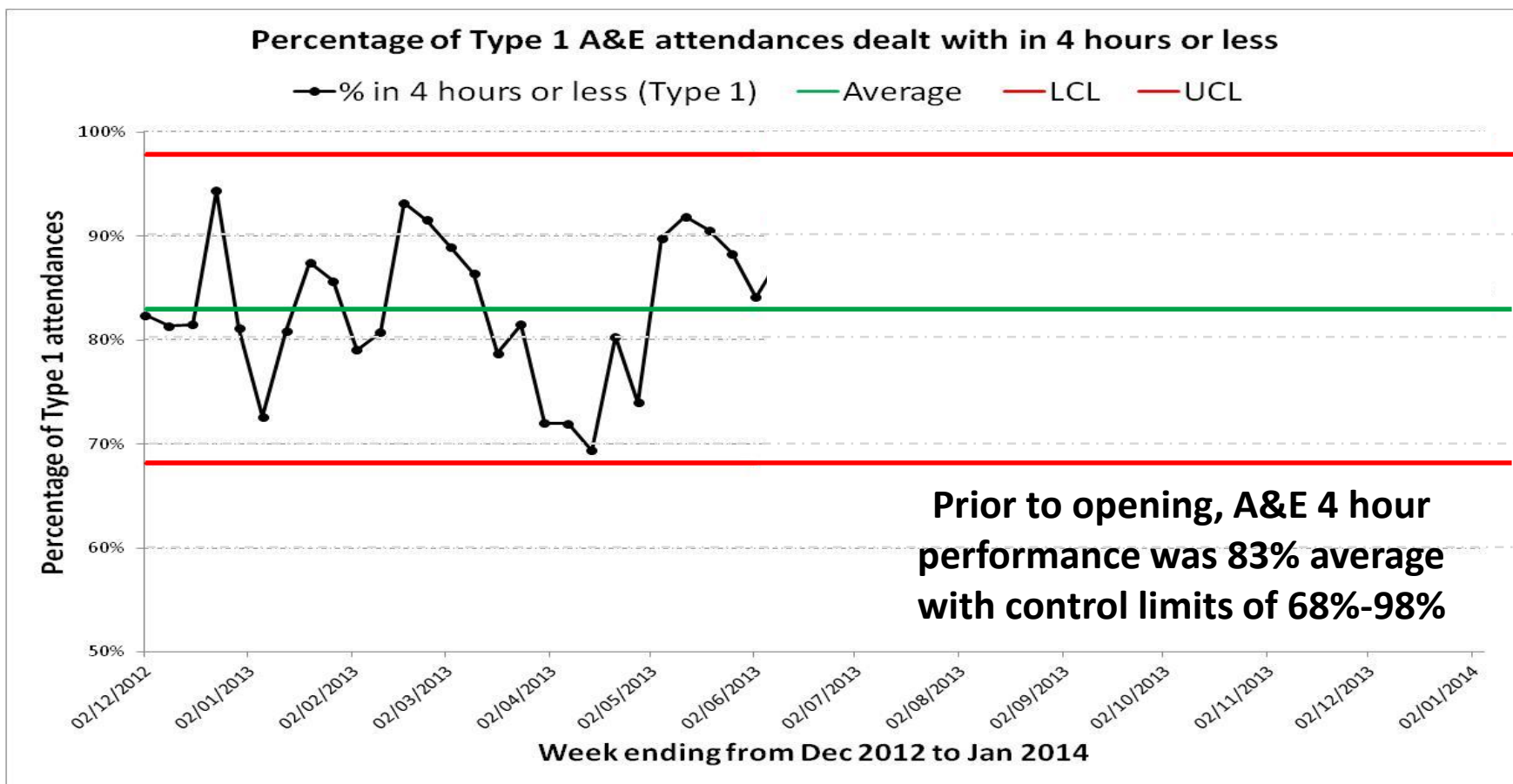


Ways to spot special causes



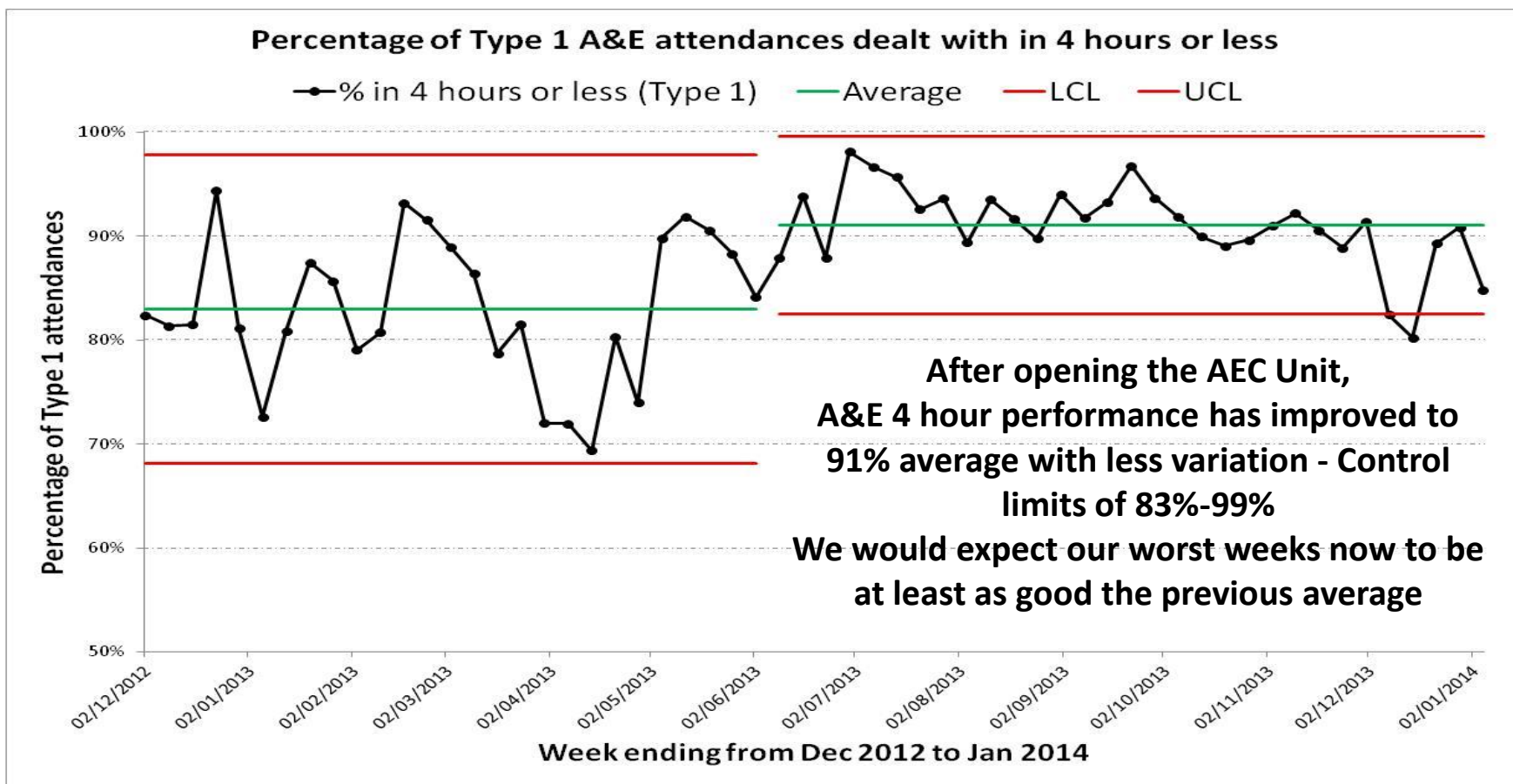
And you can show impact

Ambulatory Emergency
Care Network



And you can show impact

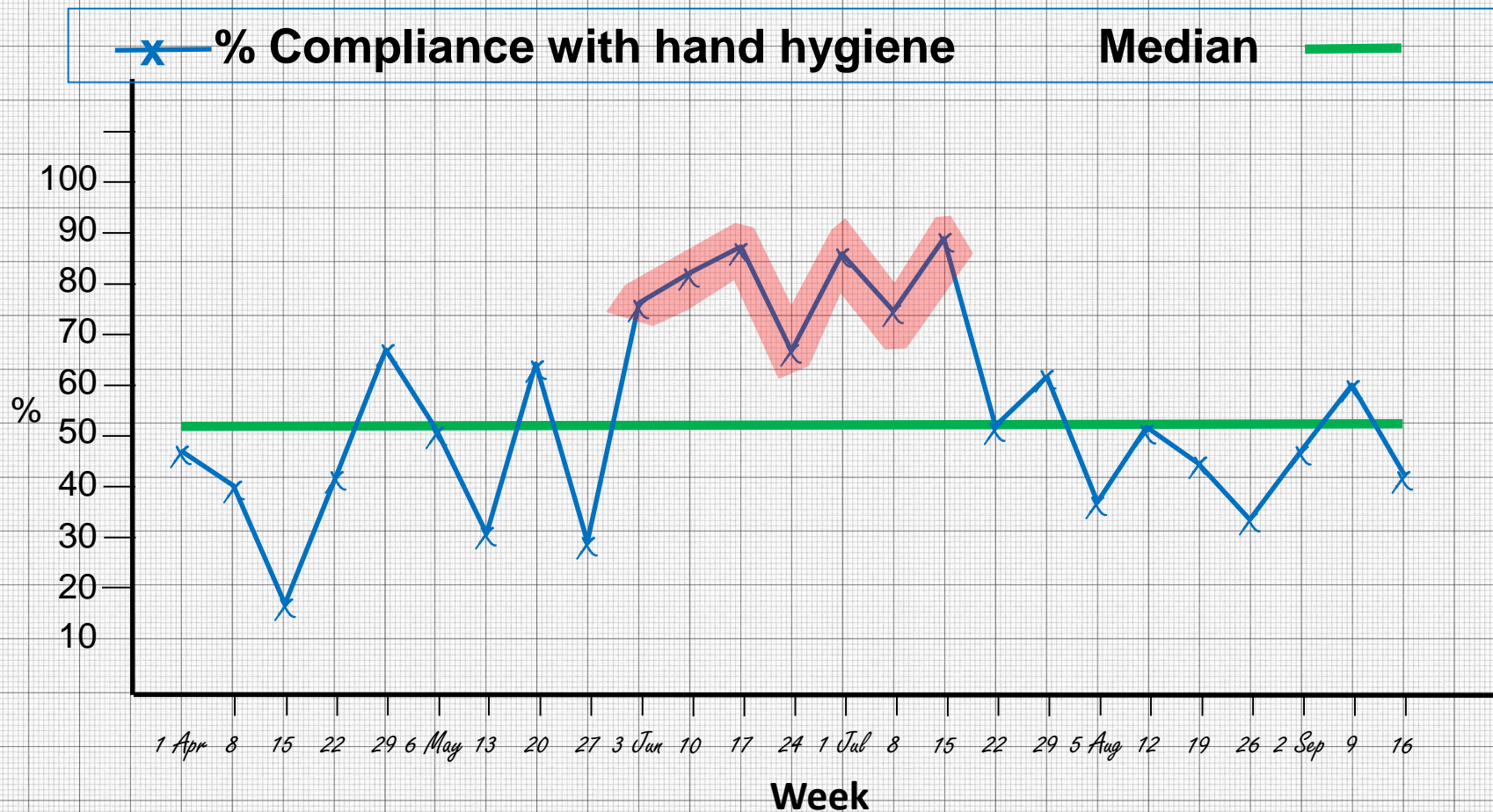
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A chance for you to shine

Ambulatory Emergency
Care Network

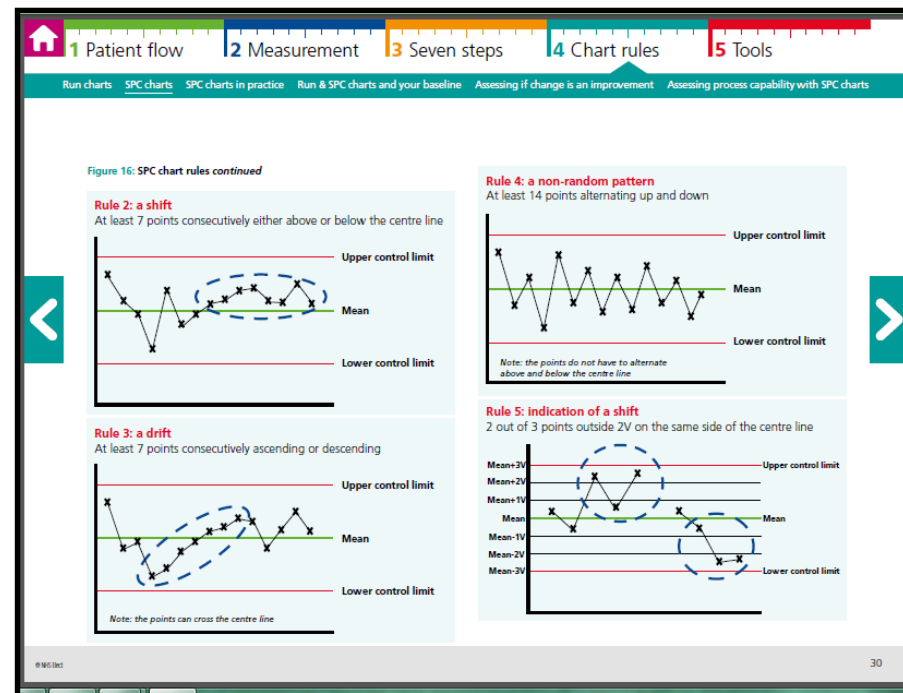
% Compliance with hand hygiene (weekly) April – Sept 2016



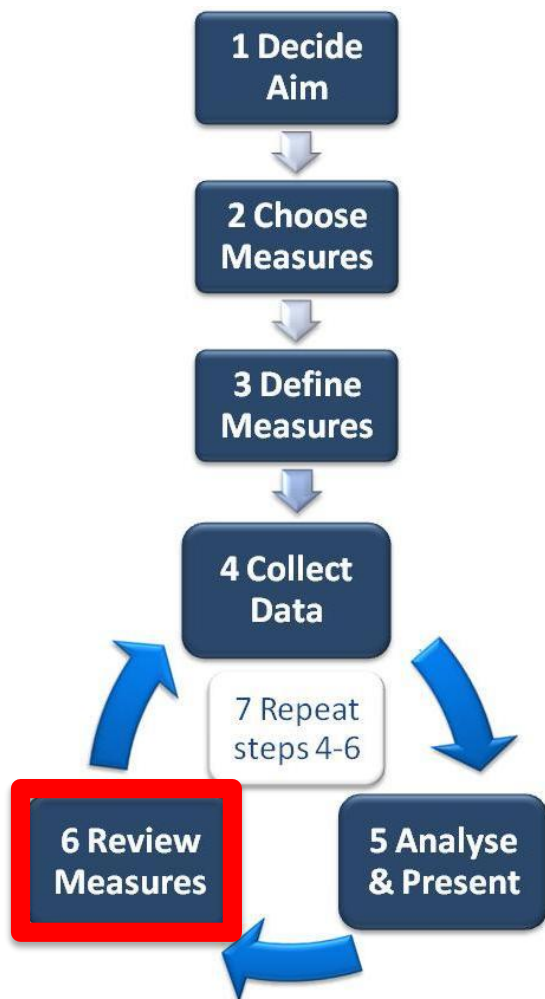
There are more rules...

There are many rules to interpret SPC charts and the power of using specialist software is that these rules are flagged for you so you don't need to remember them.

The NHS Elect Guide to Measurement for Improvement lists more than we cover today - so get yourself a copy from the website



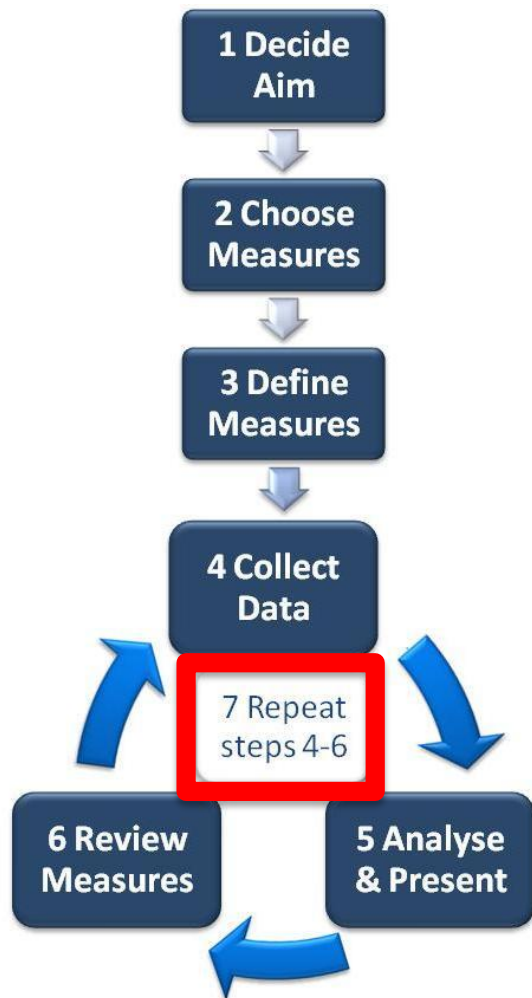
Step 6 - Review Measures



~~How waste of time collecting and
analysing your data if you don't take
action on the results
challenge from today~~



And finally - Step 7



You may not get it right first time!

You may need several iterative attempts through steps 4, 5 and 6

Exercise - Measures Checklist

- The Measures Checklist
- Complete part two of the measures checklist
- form provided - for a measure that you are using or are planning to use
- **You have 10 minutes**

Surgical AEC Measurement Masterclass
Measures checklist

Part 1: Measure setup

Measure name

Why is it important?
(Provide justification and any links to legislation/standards)

Who owns this measure?
(Name, role and/or email address)

What is the definition?
(Set it out very clearly in words)

Measure definition

What data items do you need?

What is the calculation?

Which patient groups are to be covered?

What is the numeric goal you are setting yourselves?

Who is responsible for setting this?

When will it be achieved by?

Cost setting

Surgical AEC Measurement Masterclass
Measures checklist

Part 2: Measurement process

Is the data source available?
(Current/ available / Available with minor changes / Prospective collection needed)

Who is responsible for data collection?

What is the process of collection?

What is the process for presenting results?
(to which level/ what/ and when/ start/ stop)

Who is responsible for the analysis?

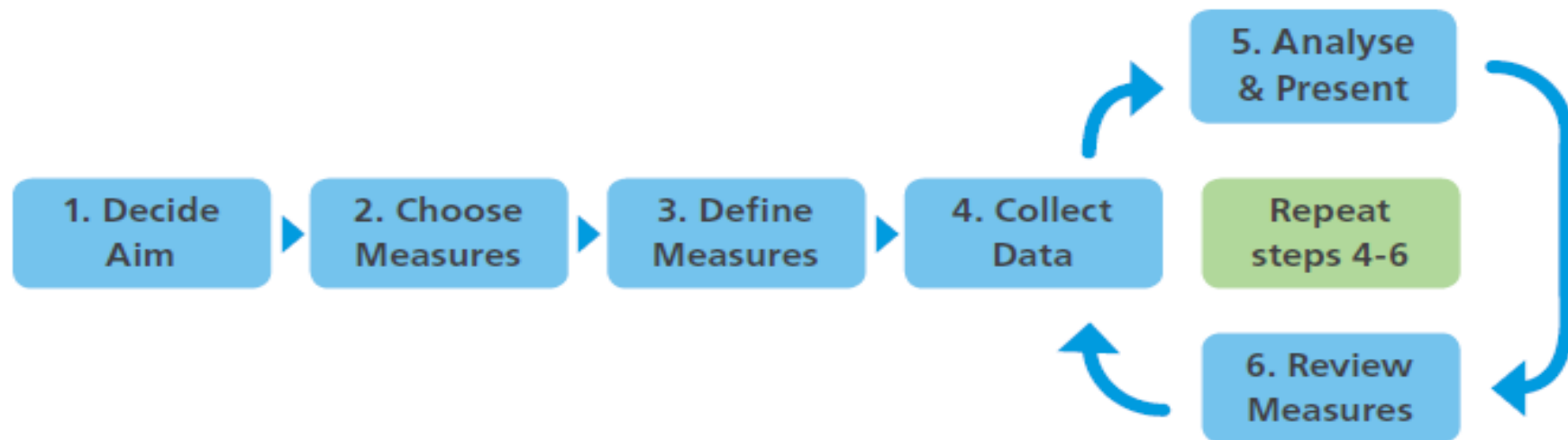
How often is the analysis completed?

Where will decisions be made based on results?

Who is responsible for taking action?

AEC Measurement Team

Using it's experience of working alongside every site in the AEC Network, the AEC Measurement Team can offer help and advice on every step of your measurement journey - working alongside the programme team to support project leads to use data effectively in their project management



Advice and help which we can offer

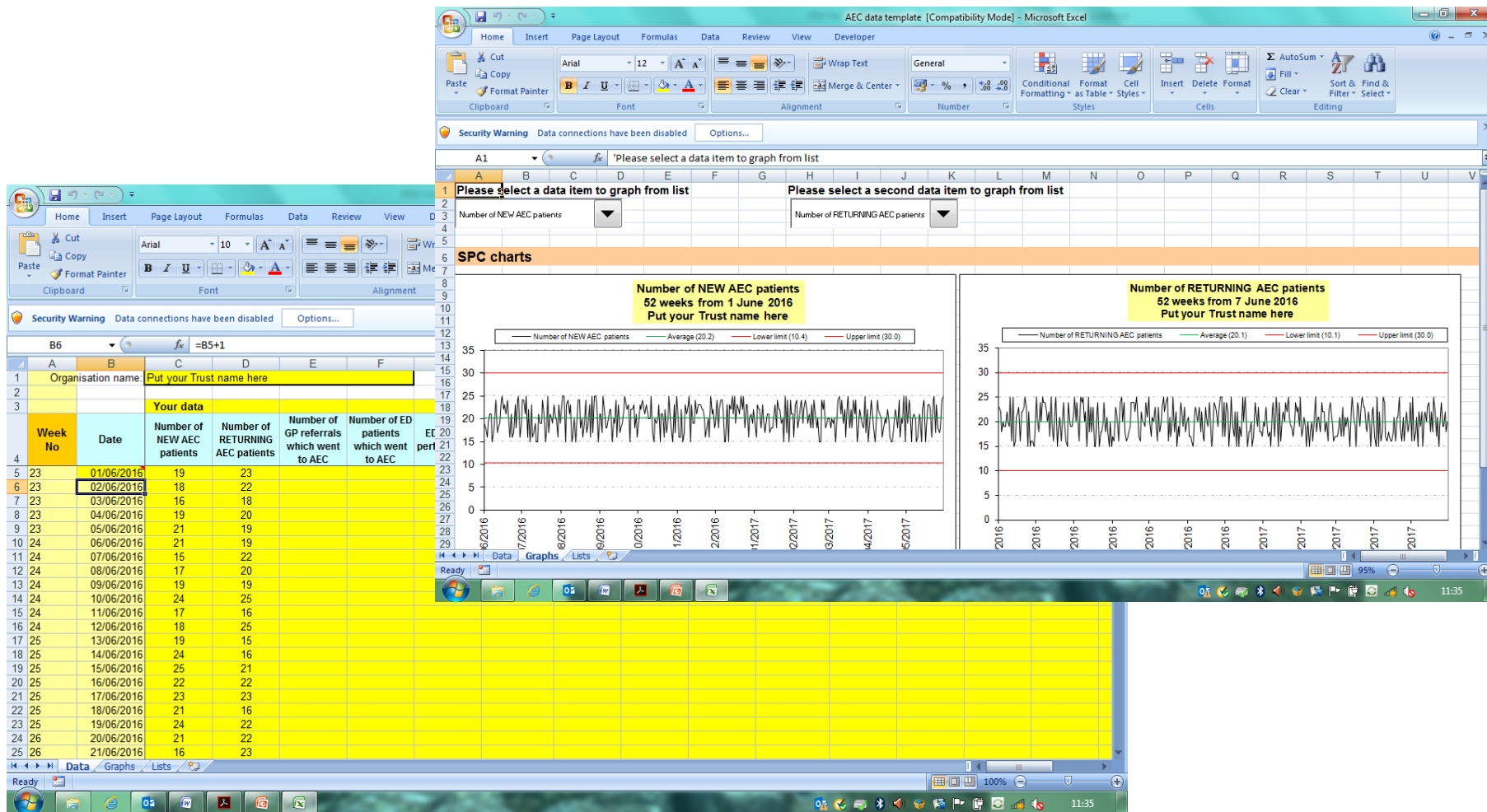
- **Support to select a balanced set of measures which reflect your aim and that will enable you to monitor progress and demonstrate the impact of your improvement work**
- **Sorting out the details of what data you will need and how to ensure that it is collected consistently**

Advice and help which we can offer

- **The best way to present your data including Statistical Process Control**
- **Some simple but powerful and statistically robust rules for analysing your data**
- **A critical friend to help review what your data is telling you and how you can use that information to drive improvement**

Data template

Ambulatory Emergency Care Network



Contact details

- **Mike Holmes**
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- **Andy Mitchell**
- **Andyataec@nhselect.org.uk**

- **Carolyn Robertson**
- **CarolynatAEC@nhselect.org.uk**

Your homework - Part 1

Preparation for the national event in **June 2017**

We want you to bring a poster map based on the BADs AEC booklet -showing your hospital's current emergency surgery flows for a year. Look on the website for some good examples from elsewhere

Your homework – Part 2

Preparation for the national event in **June 2017**

We also want you to bring along a completed **driver diagram** with a list of the measures which you plan to use

These will need to be displayed on your ‘bragging board’ at the next event so that everyone can see them

There is a prize for the best flow diagram/driver diagram

Feedback



Things to think about

- What have you learned from today?
- How do you plan to use it back in the work place?
- How will you cascade your knowledge to others in your team so that they benefit too?
- What is do you need to go and do

Feedback forms

- 10 minutes for completion

Measurement for Improvement

Mike Holmes Bsc(Hons) FSS



The Royal College of
Emergency Medicine



Royal College
of Nursing