



Trainees Improving Patient Safety through Quality Improvement

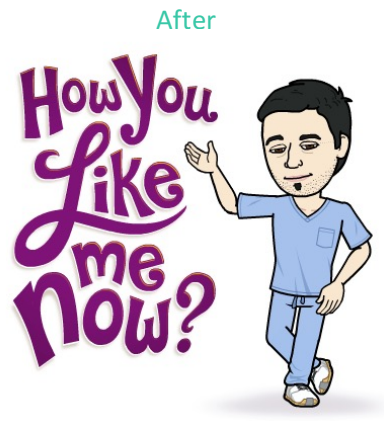
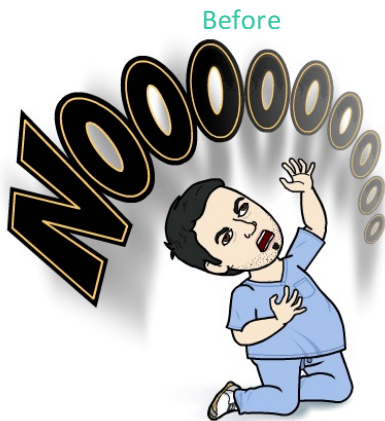


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SPIT lost 3kg in just one booklet!

Background

The importance of junior doctors within the NHS cannot be underestimated; this is recognised by many influential people and organisations such as the GMC. Sir Robert Francis describes us as “the eyes and ears” of the Health Service, being the group most likely to encounter shortfalls in the system. With this in mind, how do we then address these shortfalls?

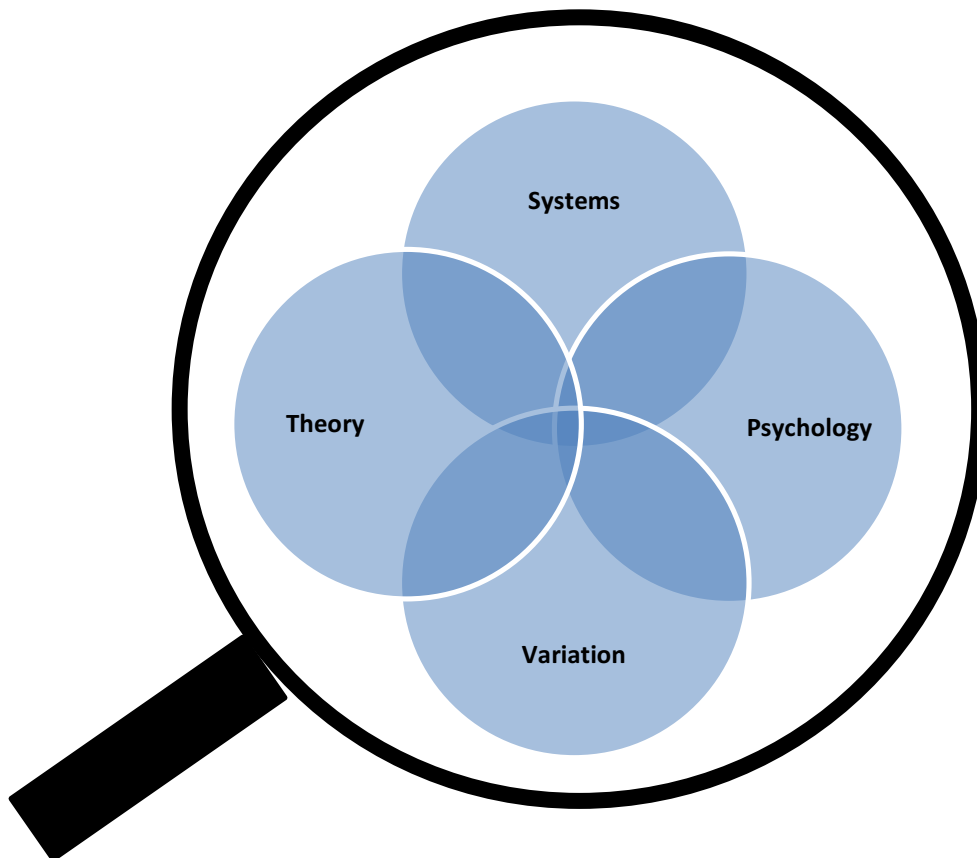
Trainees Improving Patient Safety (**TIPS**) through Quality Improvement (QI) was developed to increase understanding of QI methodology amongst junior doctors to better prepare them to tackle the challenges they are likely to face in their clinical roles.

Improvement is a science.

W. Edwards Deming is credited as one of the forefathers of QI. Originally an electrical engineer, his structured work on statistics and Improvement led to the design of **PDSA cycles** and his **Lens of Profound Knowledge** (LOPK).

The LOPK is comprised of four different components or ‘lenses.’ All four of these should be considered and addressed in order to obtain the best results from an improvement project.

1. Appreciation of **Systems** – Understanding the processes within a system/environment.
2. Human **Psychology** – how human nature and behaviour can affect the system
3. Understanding **Variation** – Having an awareness of ‘normal’ vs. ‘not normal’ variation.
4. **Theory** of Knowledge – Knowledge and the limitations of what can be known.



QI vs Audit

QI differs from audit a process more familiar to medical personnel and is being used more and more frequently as a tool to develop the health service. In the Foundation Programme you must now undertake a QI project by the end of FY2. This does not have to have been a successful project. We can learn just as much from an unsuccessful project – as least we now know what doesn't work.

	Audit	Quality Improvement
Purpose	To measure current practice against a standard	To bring new knowledge and improvement into practice
Measurement	Against a standard	Demonstrate Improvement through outcomes
Data	Sufficient to represent practice	Gather "just enough" to inform next PDSA cycle
Time	Audit cycles (months)	Quick rapid tests of change (weeks)

QI does not rely on comparison to a standard. Data collection for QI tends to be less resource and time intensive as the key focus is on checking for improvement, rather than gathering all available information for judgement. As a result of this, it is possible to test and measure multiple changes in a relatively short space of time. The Model for Improvement (MFI) acts as a useful tool to structure improvement work.

The Model for Improvement

First introduced by the Associates for Process Improvement (API), the Model for Improvement comprises of two different parts; **three questions** and the **PDSA (Plan-Do-Study-Act) cycle**.

PDSA Cycles

Step 1: **Plan**

- State the aim of the project
- Develop a plan to test the change including measures
- Make a prediction about what will happen and why

Step 2: **Do**

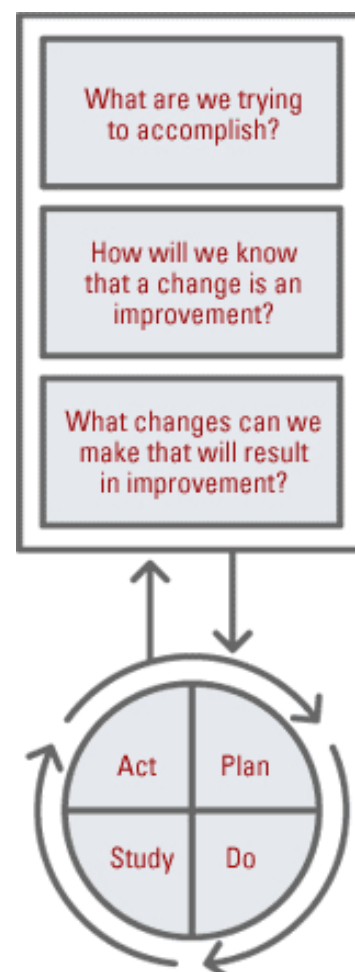
- Carry out your intervention
- Start collecting and measuring data
- Document problems and unexpected observations

Step 3: **Study**

- Analyse your data
- Compare with your predictions
- Reflect and summarize any learning

Step 4: **Act**

- Determine next steps. Should you adopt, adapt or abandon?
- Prepare a plan for the next test.



Step 1:

Question: What are we trying to accomplish?

It may seem like common sense, but the first thing that should happen with any improvement project is to clearly **define the problem** that requires solving. It's then important to think about **why** your problem is actually a problem.

Exploring the Problem

A good starting point is to consider this from different perspectives. In a hospital environment, this could be:

- Yourself
- Your team members
- Other ward staff
- The department
- The hospital/organisation as a whole.

Problem: obesity

Myself: causes my shortness of breath, early OA, pain and reduced mobility

Family members: Can't play sports with my children, can't go out with family

NHS: Attending multiple appointments, require medication, bariatric surgery



Problem: unnecessary antibiotic prescribing in children with URTI

Us: busy inner city practice, parental pressures, not meeting NICE guidelines

Public: Increased antimicrobial resistance

NHS: Increased use of more potent and more expensive antibiotics

By doing this, you start to gain **evidence** that can be articulated to others to **build will** for change and create **buy-in**.

Following this, you then need to consider what it is that you are trying to achieve from identifying a problem.

Creating SMART aims

As previously indicated, improvement requires clear and relevant goals in order for it to be most successful. One effective way of constructing this is to use a **SMART** aim.

- S**pecific What exactly are you trying to achieve? **(Be specific about the subject of your aim!)**
- M**easurable What is the outcome you will be measuring? **(Include a number/percentage in your aim)**
- A**chievable Does your team have the potential to do this?
- R**ealistic Does your team have the time/resources to be able to do this?
- T**imely When will you achieve your outcome by? **(Include a date/time in your aim!)**

SMART Aim:
Lose 3kg in bodyweight by 31st September 2017



SMART Aim:
To reduce inappropriate antibiotic prescribing (in this GP practice) for sore throat and ear pain in under 16's by 50% March 2014

Step 2:

Question: What changes can we make that will result in an improvement?

What needs to happen in order for our aim to be met?
How are we going to measure the change?

A change concept is a general notion or approach to change that has been found to be useful in developing specific ideas for changes that lead to improvement. Creatively combining these change concepts with knowledge about specific subjects can help generate ideas for tests of change. After generating ideas, Plan-Do-Study-Act (PDSA) cycles are used to test a change or group of changes on a small scale to see if they result in improvement. If they do, the tests should be scaled up to gradually incorporate larger and larger samples until you are confident that the changes should be adopted more widely.

We can organise our tests of change using a driver diagram. They provide a logical way to identify outcomes needed to meet an aim and Identify key interventions to meet these outcomes. These consist of primary drivers: Key elements without which we would not meet our aim. Secondary drivers are things that need to happen to ensure our primary drivers are met. These often end up forming change ideas.

Driver diagram for weight loss



- Regular shopping
- More fresh fruit
- 3 meals per day
- No food after 6pm
- 2L of water per day

- Weekly weight
- Measure Inches
- Picture on the fridge
- Regular support
- Weight record & food diary

- Plan for eating out / weekends
- Beer & Wine - develop a plan
- Know your weaknesses
- Habits and patterns
- Avoid bad influences
- Encourage contact with supportive people

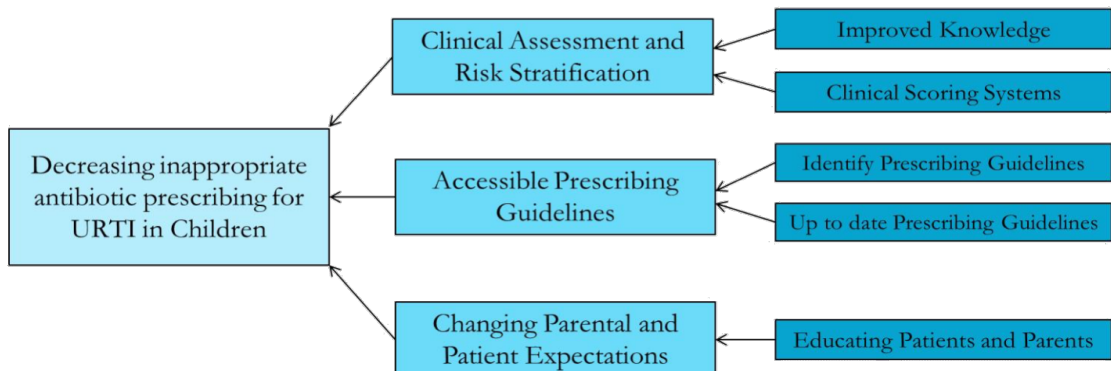
- Daily exercise for a minimum of 20 mins
- Measure progress
- Identify barriers
- Add something nice - Sauna/ Jacuzzi
- Search for an exercise that suits



Outcome Desired

Primary Drivers

Secondary Drivers



Step 3:

Question: How will we know that a change is an improvement?

As highlighted previously, measurement for improvement differs to measurement for audit. We need to know that the change we have made has directly resulted in an improvement and that the improvement isn't a result of other factors. We therefore have to think about outcome, process and balancing measures.

Types of Measures in Improvement

There are three types of measures in a typical improvement project. The below examples could be used if you were trying to lose weight.

Outcome measures

An outcome measure is what you measure to find out whether you are or aren't meeting your aim e.g. number of pounds weight loss.

Weight loss in kg

Percentage of under 16s inappropriately prescribed antibiotics

Process measures

A process measure is there to ensure your change idea or intervention is being tested.



Number of times exercised per week
Number of calories consumed



Percentage of staff given training
Percentage of computers with guidelines on the desktop

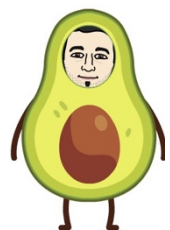
Balancing Measures

These consider the effect of your interventions on other parts of the system.



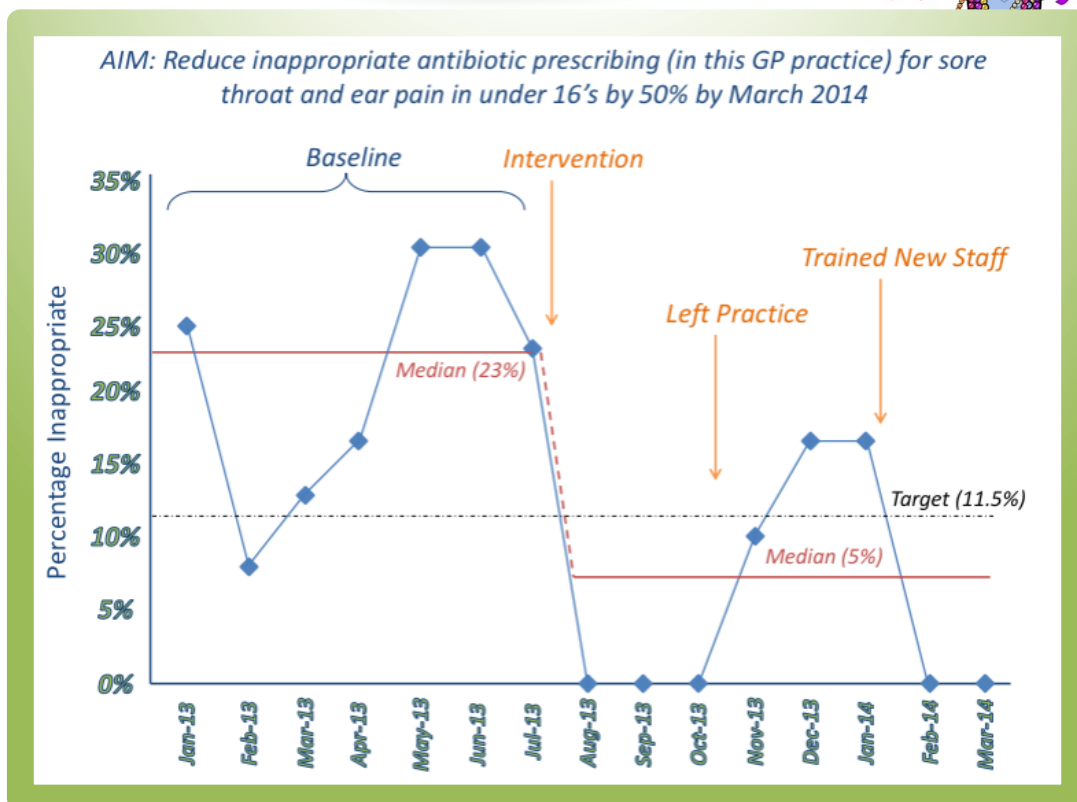
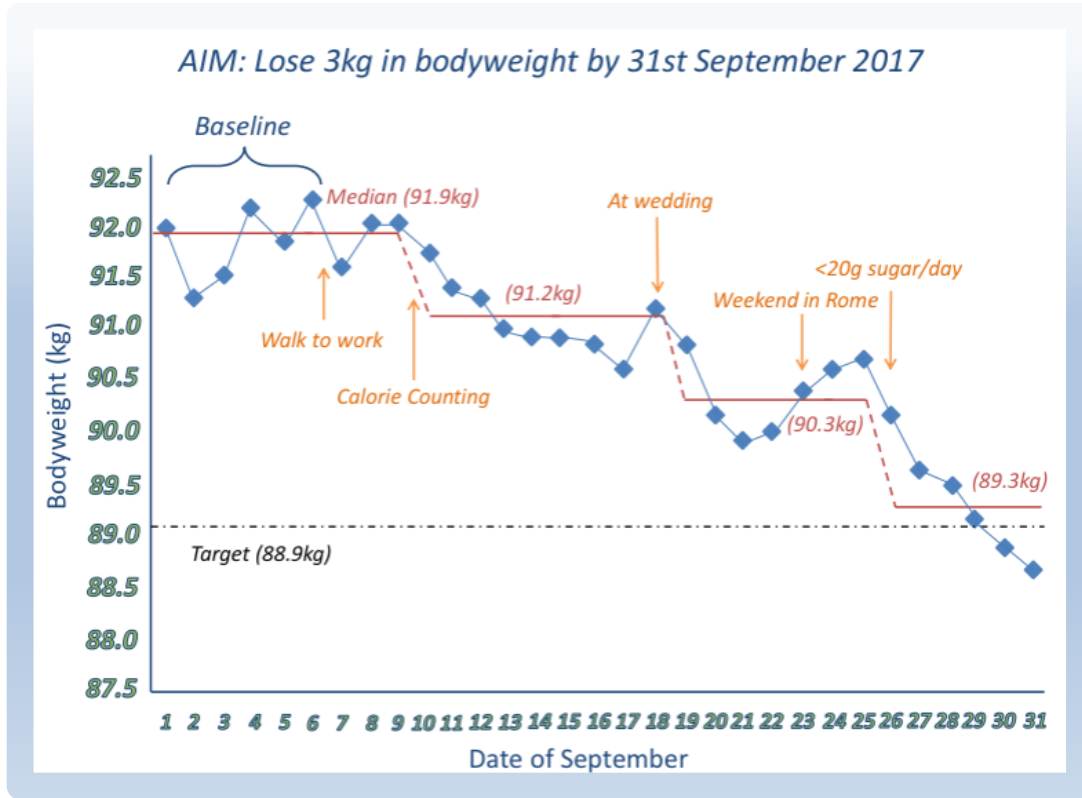
Amount of extra money spent (gym membership, pre-workout, healthy food prep)
Number of social events turned down

Patient satisfaction score (friends and family test)
Amount of clinical time lost due to training



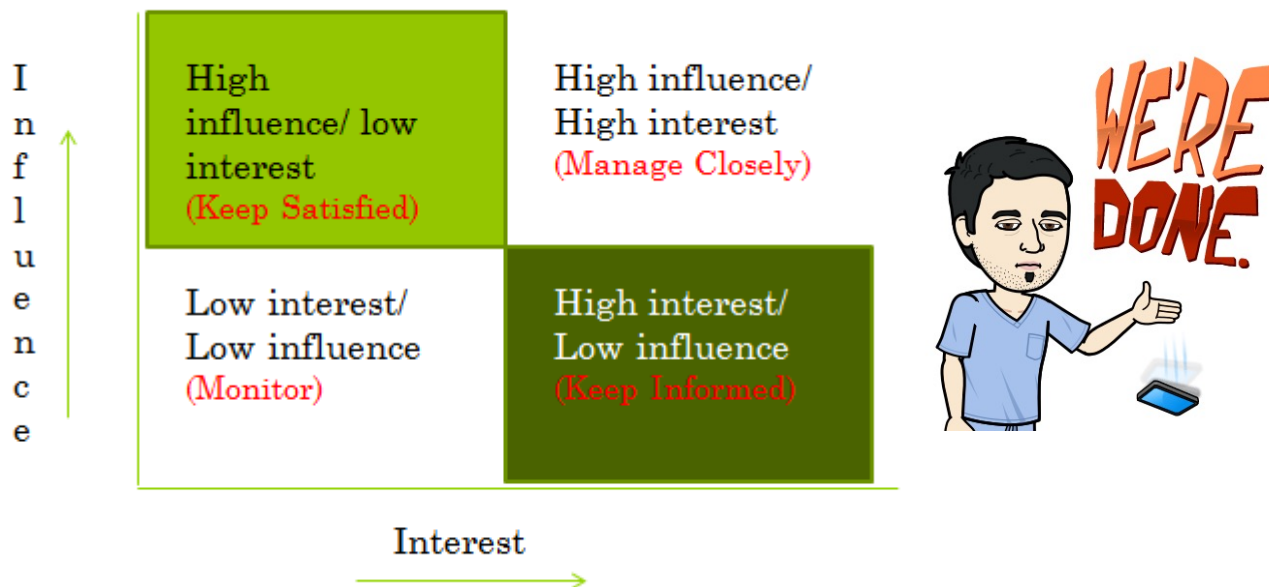
Run Charts

We use run charts to measure data over time and easily detect the impact of changes on the system. Run charts enable us to understand the common variation in the system and identify where something has happened outside the system i.e an astronomical point (red circle).



Psychology of Change/Improvement

A key element of any improvement project is engaging the stakeholders. We can define a stakeholder as anyone who has an interest, concern or is impacted by the project. We can use a matrix as below to consider the most useful approach to take with each group of stakeholders. We do this by listing all stakeholders and then sorting them into where they currently sit and considering whether they are in the best place for the advancement of the project. For example it may be useful to consider strategies for moving a stakeholder from the top left hand box into the top right hand box.



Something to remember:

Your project needs to be able to run without you in it – so think about this from the beginning. **How will this be sustainable?**

ARCP Criteria

All projects must have:

- A SMART Aim
- Measurement (ideally both an outcome and process measure)
- Run Chart (Data displayed over time)



Optional but desirable:

- Process map
- Driver Diagrams
- Balancing measures
- Documentations of PDSA cycle
- Other tools for improvement not taught by TIPS – root cause analysis, fish bone , % why's.

Further resources and opportunities to show case work:

- NHS Improvement
- BMJ Quality – publish your QI project
- BMJ Learning
- NHS Scotland
- Yorkshire and Humber Improvement Academy
- Faculty Medical Leadership and Management
- North West Leadership School (conference 15th June at the AJBell stadium, Manchester.)

 @HSEQI @LeicsMedQI @HEFTQCP @QIFUNdamentals 

 @IHIOpenSchool @TheIHI @QIWEAHSN @QuID_UK 

Get in touch with if you need help and advice

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