An introduction to quality Improvement methods

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What is Quality Improvement?

• ‘The use of methods and tools to continuously improve quality of care and outcomes for patients’

A basic principle of QI is:

If you can't measure it, you can't improve it.
Why QI methodology?

“It’s just so inefficient”

“It’s such a waste of time and resource”

“Nothing ever changes”

“I don’t know where to start”

“We tried that ten years ago and it didn’t work.”

• Systematic method of solving complex problems through learning and testing.

• Framework for change

• Really improves care for patients

• Make life easier for staff

• Cost savings will follow!
How often in your current practice...

• Do you stop and think ‘is this the best possible way to achieve what we are trying to achieve?’

• Do ‘incidents’ lead to a meaningful change?

• Do change efforts fail?
The historic NHS way...
QI Methodology – understanding variation
Mean time to first antibiotic (hrs) in suspected sepsis

- Sepsis Pathway introduced
- Extensive staff engagement
- Acute sepsis team
Use of run charts to track changes

Perla R. BMJ Qual Saf 2011; 20: 46-51
Deming's System of Profound Knowledge

- Psychology
- Systems
- Variation
- Theory

Rogers' Innovation Adoption Curve:

Prediction from SPC:

- What are we trying to accomplish?
- How do we know that change is an improvement?
- What changes can we make that will result in improvement?
Deming's System of Profound Knowledge

Psychology: Rogers' Innovation Adoption Curve

Systems: Theory

Variation

Prediction from SPC

Act

Plan

Study

Do

Trying to convince the mass of a new idea is useless. Predictive innovation next uses extensive trial.

The proportion of patients who die in hospital.
Appreciation of systems

• ‘A system is a network of interdependent components which work together to try and accomplish a common aim’

‘Systems must be managed’
Process Mapping – making a cup of tea

Teabag
Milk
Boiling water
Mug

Put teabag into mug

Pour boiling water onto teabag

Add sugar?

Put sugar in

Add Milk?

Drink cup of tea

Put milk in

No

Yes

No

Yes
Deming's System of Profound Knowledge

- Psychology
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Prediction from SPC

trying to convince the mass of a new idea is useless.
Psychology

What motivates people?
- Autonomy
- Mastery
- Purpose

What drives behaviour?
- Knowledge
- Confidence
- Personality type

How do people respond to change?
Deming's System of Profound Knowledge
Theory of knowledge – how do we know what we know?

**Setting Aims**
The aim should be time-specific and measurable; it should also define the specific population of patients or other system that will be affected.

**Establishing Measures**
Teams use quantitative measures to determine if a specific change actually leads to an improvement.

**Selecting Changes**
Ideas for change may come from those who work in the system or from the experience of others who have successfully improved.

**Testing Changes**
The Plan-Do-Study-Act (PDSA) cycle is shorthand for testing a change in the real work setting — by planning it, trying it, observing the results, and acting on what is learned. This is the scientific method adapted for action-oriented learning.
What are we trying to accomplish?

Goal: To exercise 3 times per week for at least 20 minutes by Christmas

Higher goal: to get fitter, to increase lean muscle mass

How to write SMART Goals

- **Specific**: Provide a clear description of what needs to be achieved.
- **Measurable**: Include a metric with a target that indicates success.
- **Achievable**: Set a challenging target, but keep it realistic.
- **Relevant**: Keep your goal consistent with higher-level goals.
- **Time-bound**: Set a date for when your goal needs to be achieved.
# The 5 Whys

| Problem: I’d like to exercise more but I don’t |
|---|---|
| **Why?** | Because I am extremely busy with work and I have young kids |
| **Why** does that stop you? | Because I don’t have time to get to the gym |
| **Why** does that stop you? | Because I tend not to exercise at home |
| **Why?** | Because I prioritise everything else |
| **Why?** | Because I am not motivated enough to exercise |
To exercise 3 times per week for at least 15 minutes by Christmas

**Driver Diagram**

**AIM**

- To exercise 3 times per week for at least 15 minutes by Christmas

**PRIMARY DRIVERS**

- **MOTIVATION**
  - DO SOMETHING ENJOYABLE
  - DO WITH SOMEONE ELSE
- **HOME ENVIRONMENT**
  - CREATE SPACE
  - EQUIPMENT
  - SUPPORT FROM FAMILY
- **PLANNING/PRIORITISATION**
  - SCHEDULE IN SESSIONS
  - OUTSOURCE
- **KNOWLEDGE**
  - GAIN EXPERTISE

**SECONDARY DRivers**

**CHANGE IDEAS**

- HOME PERSONAL TRAINER
- FIND A FRIEND
- MOVE CHAIR OUT OF LOUNGE
- BUY GYM MAT AND SWISS BALL
- KIDS AGREE NOT TO DISTURB DURING SESSION
- PLANNER ON FRIDGE
- LAUNDRY/IRONING SERVICE
- YOUTUBE/APP

**MEASUREMENT:** number of sessions of exercise per week
Types of measures

• **OUTCOME**: What’s in it for the customer?
  - Fitness test
  - Measurement of lean muscle mass

• **PROCESS**: Is the system working in the way in which it should? The means of getting to the outcome measure.
  - Number of times app is used
  - Number of exercise sessions per week

• **BALANCING**: What are the unintentional consequences?
  - Household expenditure (cost of personal trainer, equipment, outsourcing)
  - Time with children
Theory of knowledge – how do we know what we know?

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Run chart: number of exercise sessions per week

- Scheduled time
- Download fitness app
- Home personal trainer

PDSA 1
PDSA 2
PDSA 3
Asthma ED project (2013-2015)

School's award tribute to Daniella Sciama, former pupil who died from sudden asthma attack

6 months data on all patients with asthma seen, treated and discharged from ED
New ED asthma pathway

- Standardised assessment of severity and clear instructions for onward referral
- Introduction of a discharge bundle
- Arrange follow-up for all patients seen, treated and discharged
Impact (2 years of work)?

Why?
SMART Aim: 95% of patients with acute asthma have PEFR or other objective measure of severity within 30 mins of presentation

- Process Mapping
- Staff Survey
- Baseline Data Collection
- PDSA Cycles

Knowledge of a system
Knowledge of psychology
Knowledge of variation
Theory of knowledge
95% of patients have PEFR or other objective measure of severity within 30 minutes of presentation to ED

Driver Diagram – Asthma ED project

AIM

PRIMARY DRIVERS

- Recognition of acute severe asthma
  - Knowledge of staff
  - Knowledge of patients

- Standardisation of triage process
  - Standard process in triage
  - PEF on Manchester triage system
  - Availability of equipment

- Behaviour / culture
  - Awareness
  - Prioritisation

- Use of acute asthma pathway
  - Stock of pathways

SECONDARY DRIVERS

- Knowledge of staff
- Knowledge of patients
- Standard process in triage
- PEF on Manchester triage system
- Availability of equipment
- Awareness
- Prioritisation
- Stock of pathways

CHANGE IDEAS

- Staff questionnaire
- Patient questionnaire
- Create protocol
- Training package
- Asthma box in triage
- Create a campaign
- Engage asthma death campaigner
- Dedicate team to take accountability
The interventions

Detailed ED Staff Survey – 46 responses

50% of staff did not know how to calculate a predicted PEFR
LEARNING OUTCOMES

- Stratify severity at triage (BTS guidelines)
- Initiate asthma pathway & treatment
- Reassess your patient
The interventions

Calculate % of best (or predicted) PEF for ALL patients presenting to the ED with ASTHMA

\[ \% \text{ PEF} = \frac{\text{PEF}}{\text{Best PEF}} \times 100 \]

IN ADULTS

<table>
<thead>
<tr>
<th>&gt;75%</th>
<th>50-75%</th>
<th>33-50%</th>
<th>&lt;33%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>Moderate</td>
<td>Acute</td>
<td>Severe</td>
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Positive feedback – the toilet door

ASTHMA ASSESSMENT HAS IMPROVED AT UHSM ED!

Asthma patients having peak flow measured Mar–Sept 2017

We have increased the number of asthma patients having their peak flow measured! We are near to hitting 100% every week. Thanks to everyone for their hard work improving the care we give our asthma patients.

DON’T FORGET- DO PEAK FLOW BEFORE AND AFTER TREATMENT
% of patients with an acute asthma exacerbation having PEF measured

WINTER CRISIS
ED went electronic
ED physically moved buildings
Pilot New pathway development

New pathway development
The value of failed tests

“I did not fail one thousand times; I found one thousand ways how not to make a light bulb”

Thomas Eddison, creator of the lightbulb
However – QI can be much simpler....

Courtesy of Kay Cordiner, NHS Highlands
Simple measures things can lead to big changes

Pebble jar

Green = good day

Black = bad day

Reviewed daily

Discussed next day

Courtesy of Kay Cordiner, NHS Highlands
Increasing face-to-face time with patients (during visiting hours)

- Increased patient satisfaction
- Increased staff satisfaction
- Reduced LOS
- Improved time of d/c
- Increase throughput of patients
- Reduced bank nurse costs

Empowered staff
Took control
Celebrated success

Courtesy of Kay Cordiner, NHS Highlands
"Without data you’re just another person with an opinion"

- W. Edwards Deming
Top tips for you

- Get involved! QI is rewarding and will be useful in every aspect of your life/ career
- Pick something simple
- Find the right mentor
- Team approach
- Get some formal training
- Small and frequent measures
- Weekly PDSA review
10 lessons for NHS leaders

- Make quality improvement a leadership priority for boards.
- Share responsibility for quality improvement with leaders at all levels.
- Don’t look for magic bullets or quick fixes.
- Develop the skills and capabilities for improvement.
- Have a consistent and coherent approach to quality improvement.
- Use data effectively.
- Focus on relationships and culture.
- Enable and support frontline staff to engage in quality improvement.
- Involve patients, service users and carers.
- Work as a system.
CQC Quality Improvement in Hospital Trusts

**Figure 1: Common Elements of QI**

- Systems view
- Strategic intent for QI
- Patients at the centre of QI
- Leadership for QI
- Building a QI culture at all levels
- Building QI skills at all levels
Thank you for listening

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