The AHSN Network

NHS Improvement

College of Quality improvement – Process mapping

Bob Diepeveen
Improvement Advisor
@diepbob

Greater Manchester & Eastern Cheshire

Patient Safety Collaborative

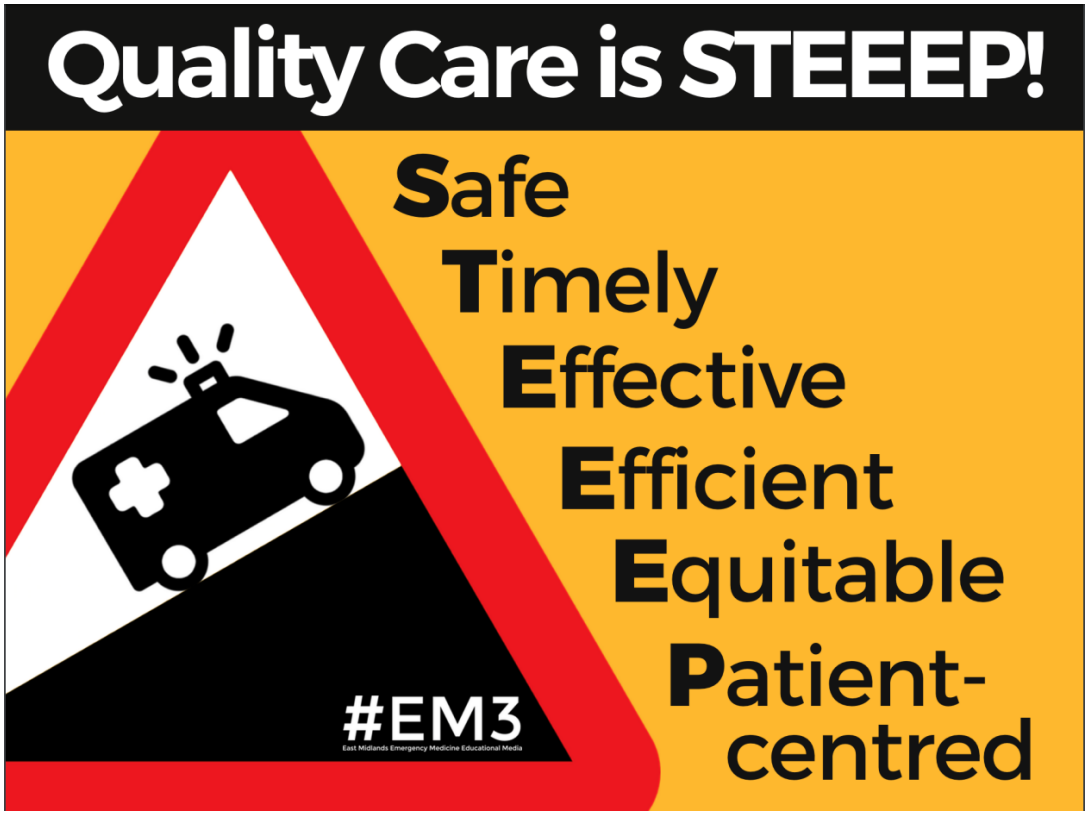
What is Quality Improvement?

"The use of methods and tools to continuously improve quality of care and outcomes for patients"

https://www.kingsfund.org.uk/publications/making-case-quality-improvement

Other source: Quick guide health foundation
https://www.health.org.uk/sites/health/files/QualityImprovementMadeSimple.pdf

STEEEP



Source picture: https://em3.org.uk/foamed/4/1/2017/modified-valsalva-manoeuvre-svt

Source content: Crossing the Quality Chasm: A New Health System for the 21st Century,
2001 Institute of Medicine

thebmj

EDITORIALS

BMJ 2018;361:k1924 doi: 10.1136/bmj.k1924 (Published 17 May 2018)

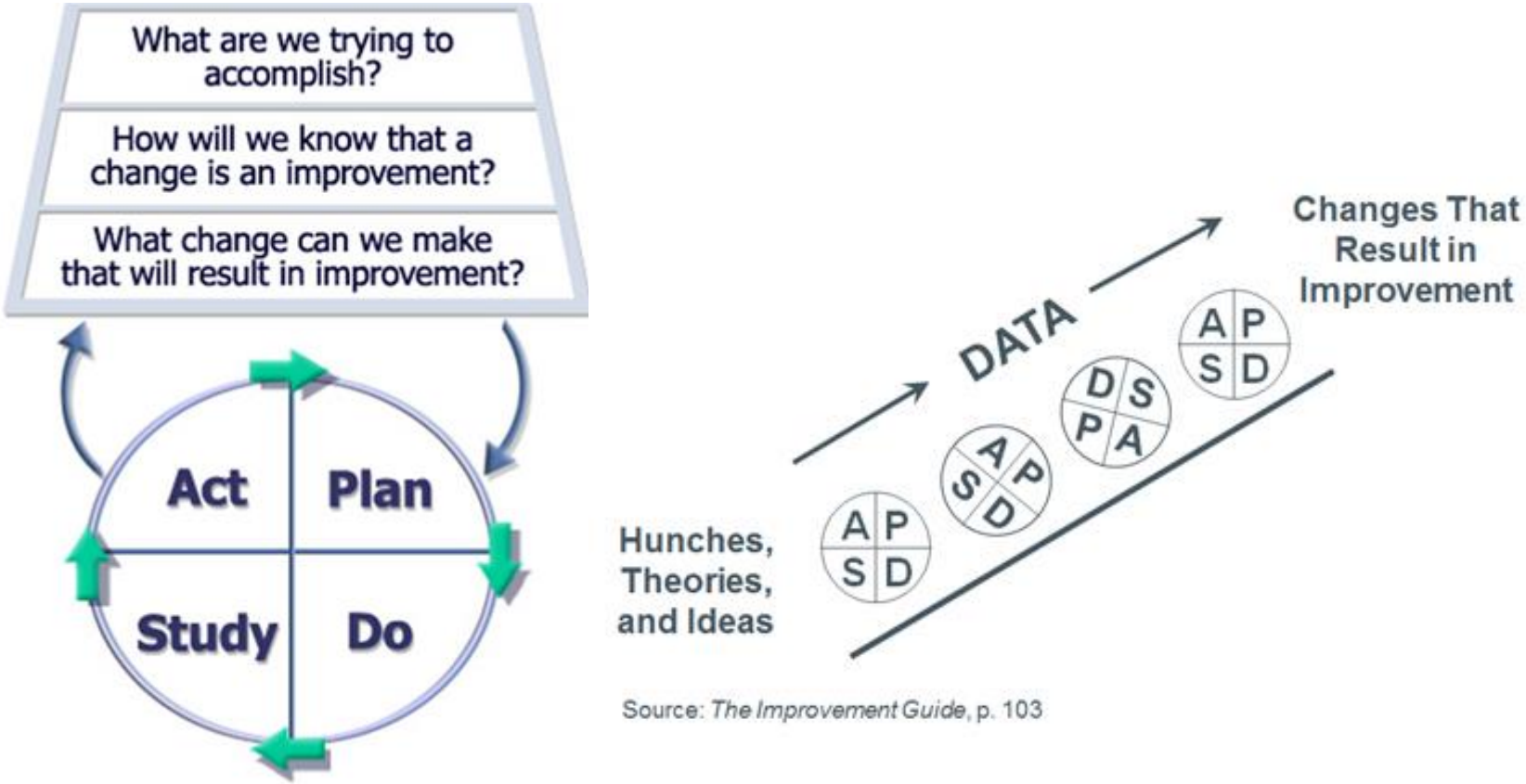
Creating space for quality improvement

Dominique Allwood *assistant director of improvement*, Rebecca Fisher *policy fellow*, Will Warburton *director of improvement*, Jennifer Dixon *chief executive*

Health Foundation, London, UK

"Clinicians already have the motivation; now they need time, skills, and support"

Model for Improvement



Langley G, Nolan K, Nolan T, Norman C, Provost L, editors. The improvement guide. San Francisco: Josey-Bass; 1996.

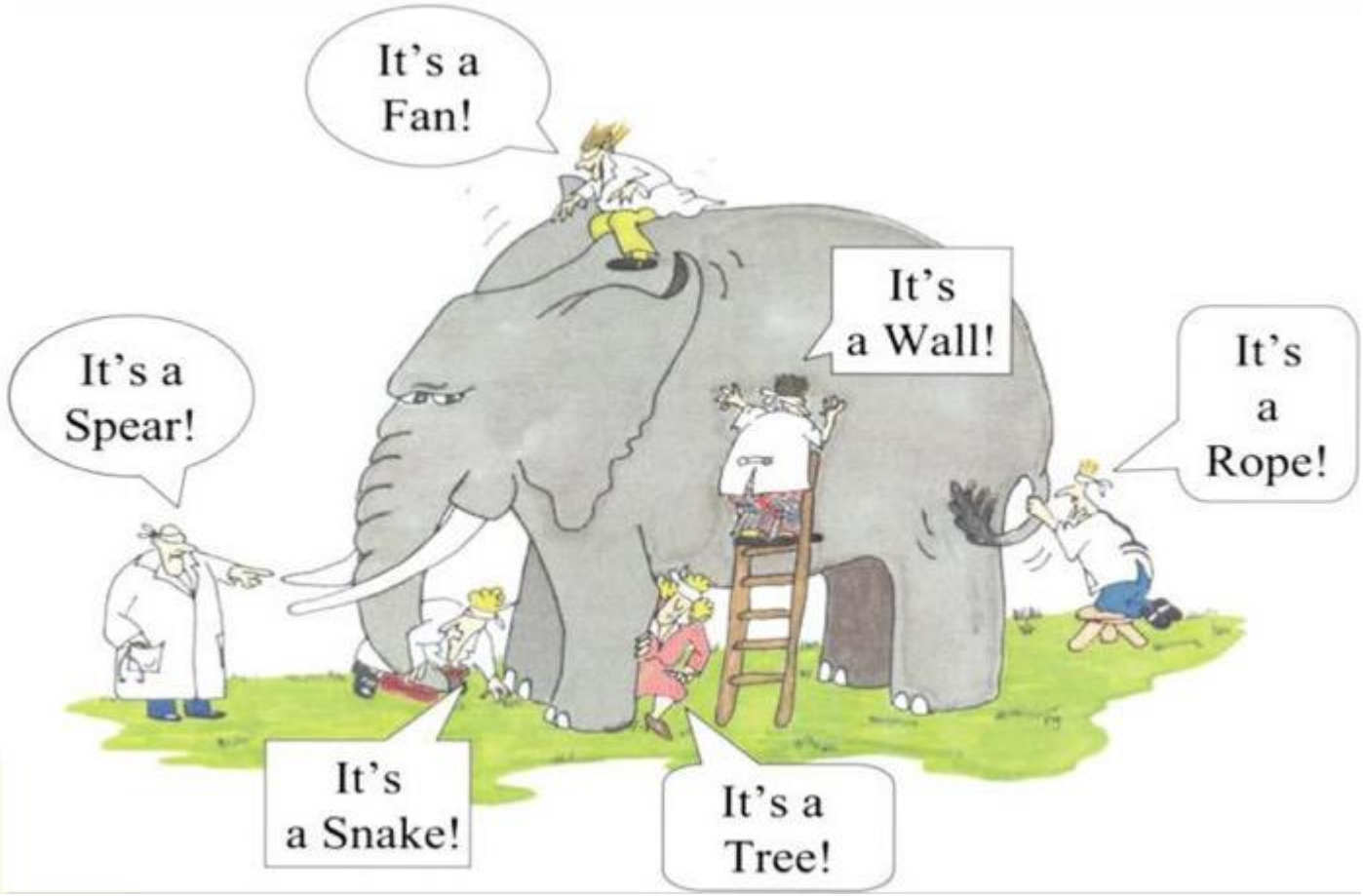
What is process mapping

Process Mapping is an activity during which all roles involved in the process create a graphic representation of all the steps, actions, and decision points taken to achieve an outcome.

Benefits of Process Mapping

- Showing what the current process looks like
- A powerful tool for multi-disciplinary teams to understand the real problems from the customers' perspective
- Showing relationships between steps, roles or departments involved
- Identifying waste and improvement opportunities
- Use as a training aid (shows how the work should be done)
- Serving as process documentation and standardisation

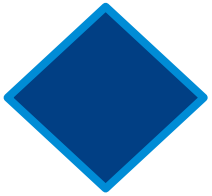
Multiple perspectives



Symbols to use

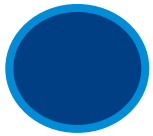
- Rectangle with rounded corners – start or end point of the process

- Square / Rectangle – process steps



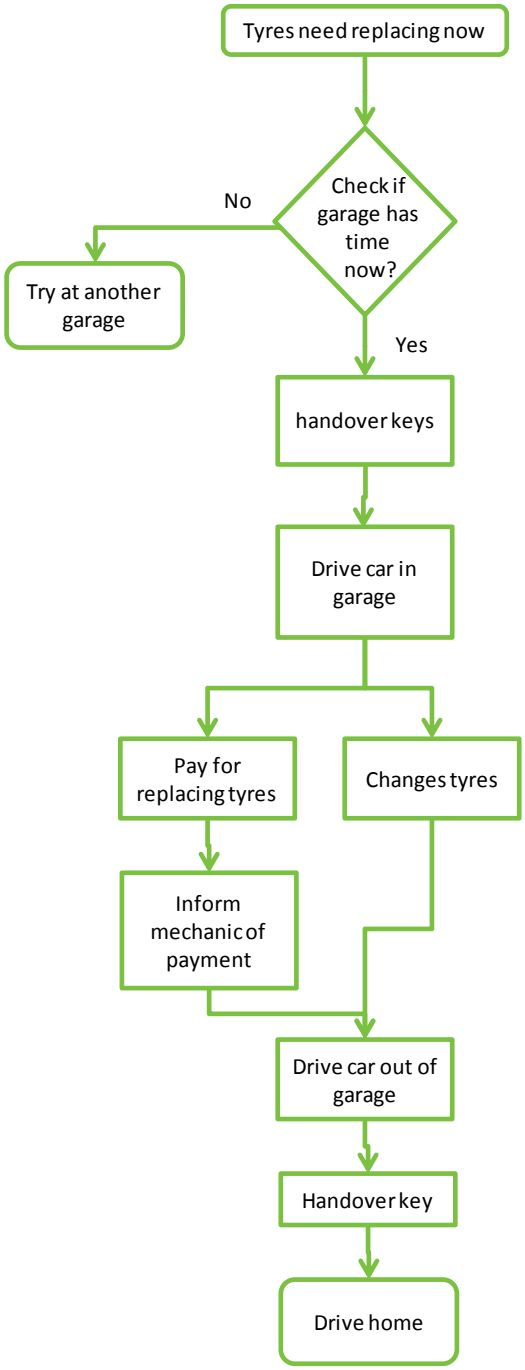
- Diamond – decision point

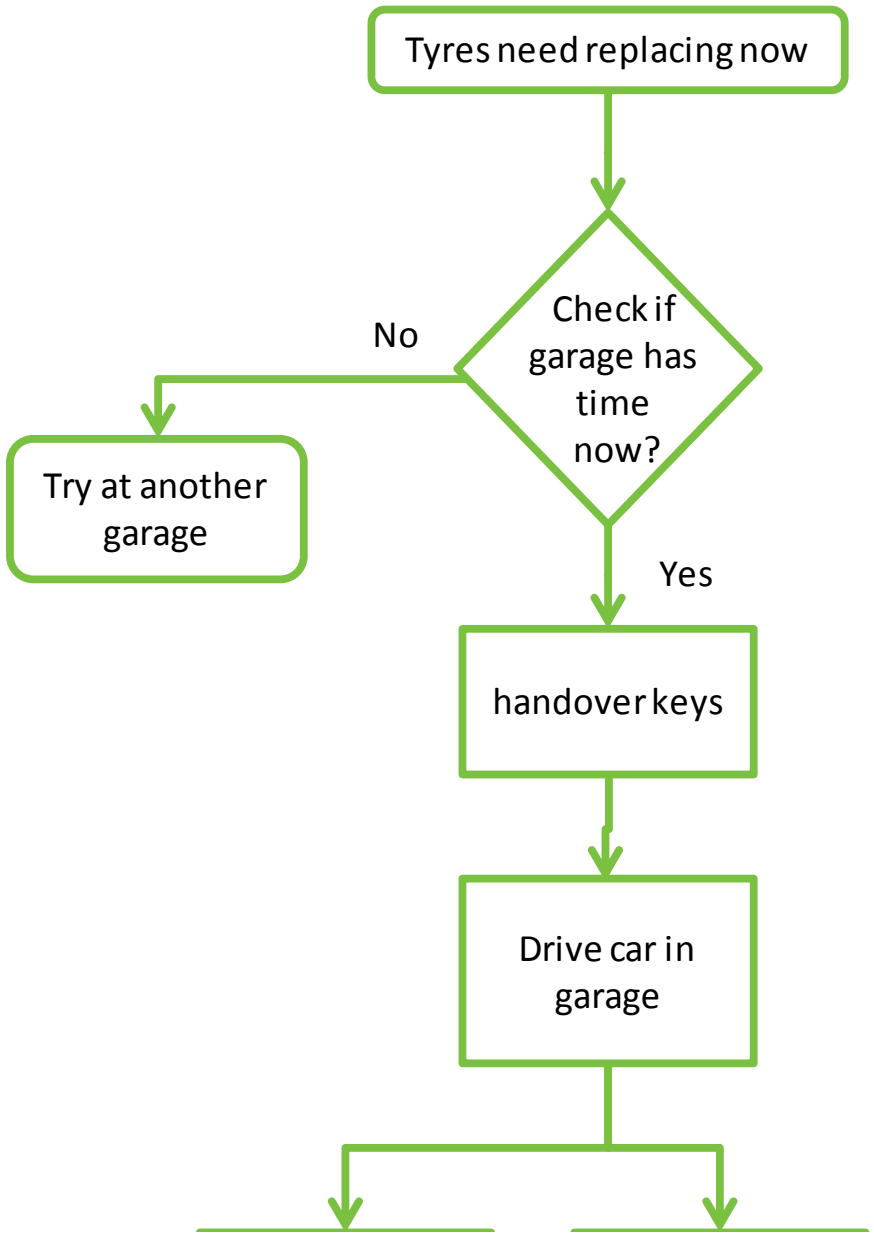
- Arrows – connectors showing the flow through the chart

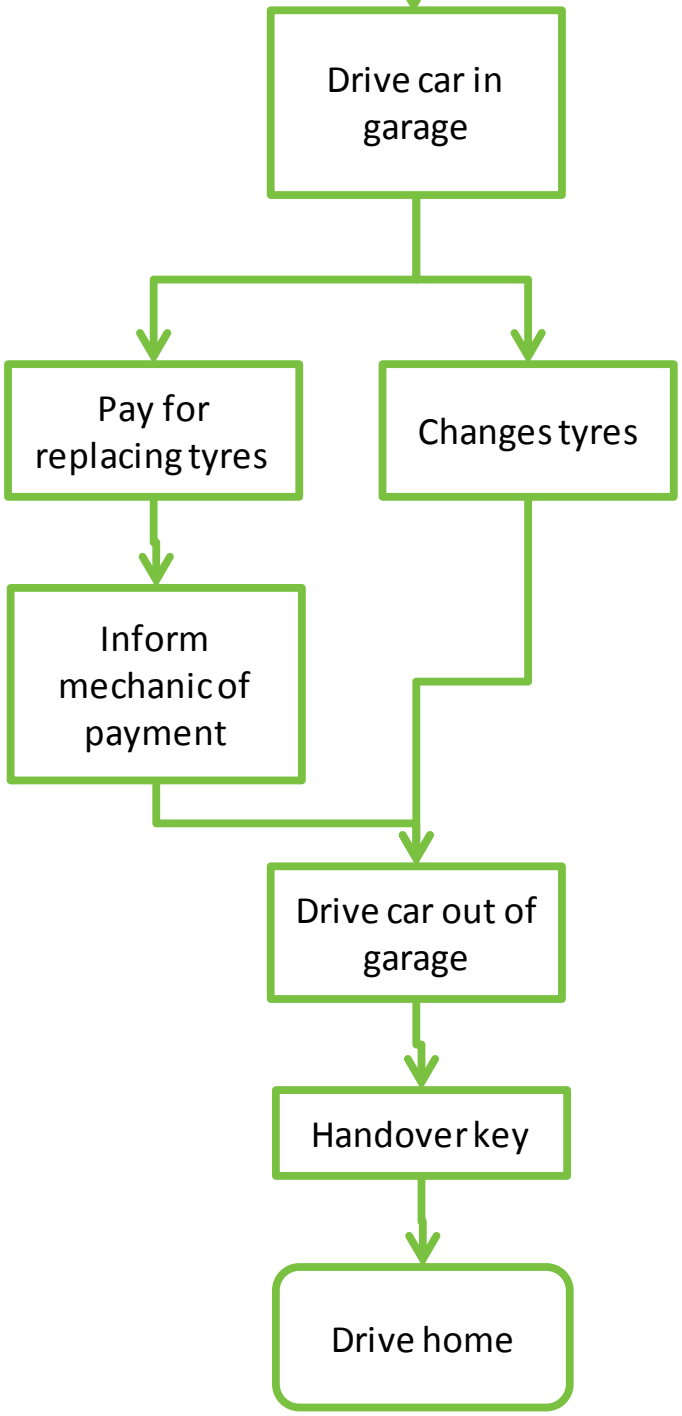


- Circles – off page connectors

Replace tyre



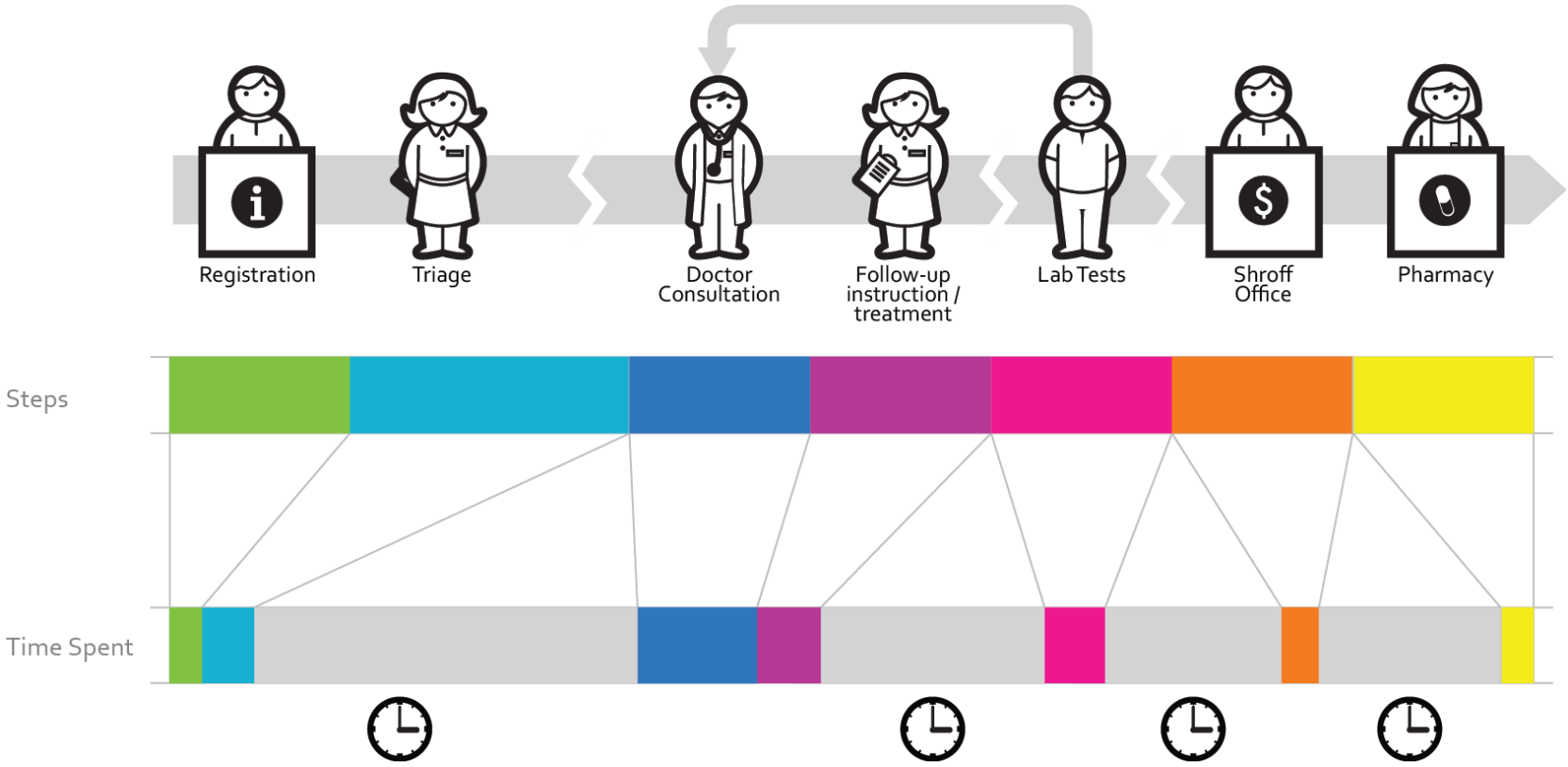

Tyres need replacing now
Check if garage has time now?
No
Try at another garage
Yes
handover keys
Drive car in garage


Drive car in garage
Pay for replacing tyres
Changes tyres
Inform mechanic of payment
Drive car out of garage
Handover key
Drive home

Four fields mapping

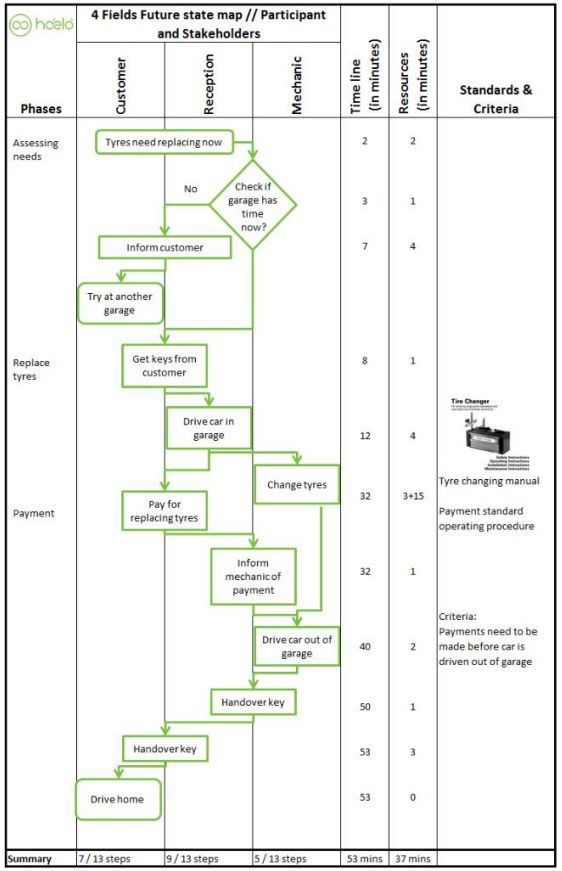
Phases	4 Fields Future state map // Participant and Stakeholders								Time line	Resources	Standards & Criteria

Time line vs resource time



Source: http://jacksonchoi.com/archives/

Replace tires



4 Fields Future state map // Participant and Stakeholders

Phases	Customer	Reception	Mechanic	Time line (in minutes)	Resources (in minutes)	Standards & Criteria
Assessing needs	Tyres need replacing now			2	2	
		Check if garage has time now?		3	1	
		No → Inform customer		7	4	
	Try at another garage					
Replace tyres		Get keys from customer		8	1	
		Drive car in garage		12	4	
			Change tyres	32	3+15	
		Pay for				

Tyre changing manual

Payment	Drive car in garage			12	4	 Tyre changing manual
	Pay for replacing tyres	Change tyres		32	3+15	Payment standard operating procedure
		Inform mechanic of payment		32	1	
			Drive car out of garage	40	2	Criteria: Payments need to be made before car is driven out of garage
		Handover key		50	1	
	Handover key			53	3	
	Drive home			53	0	
Summary	7 / 13 steps	9 / 13 steps	5 / 13 steps	53 mins	37 mins	

Level of detail

Vs

Top tips

- Define a clear start and end point for the process, before you start
- Have at least one representative per role, don't forget to include a patient (representative)
- Start high level and gradually add detail
- Use post it notes to build up the chart – this allows steps to be moved as additional detail is added
- Draw the arrows last
- Use different coloured post-it notes to differentiate between process steps, issues and ideas
- Stand while process mapping

Preparation

- Define topic (including start and end point) and objective
- Define length of mapping session <> what level of detail is required
- List all stakeholders/roles involved in the process
- Decide the process mapping technique (flow chart/ swimming lane / 4 fields mapping / etc)
- Arrange a room with ample wall space
- Arrange for materials:
  - post it notes (different colours if possible)
  - Sharpies
  - Butchers paper
- Invite at least one attendee per stakeholder/role
  - Don't forget about the patient
- Assign a facilitator
- Collect data prior to the session if possible (timings, number of patients, etc)
- Collect documentation (standards/ procedures/ guidelines)

During the session

- Introduce the topic and clarify start and end point
- Confirm the roles, and check every role is represented. If a role is missing, try to pull someone in, or decide how you'll get input after the session.
- Define the high level steps
- Start process mapping
- Time keeping is important, make sure the process gets finished
- Capture any issues, try to leave the discussing till the end
- Capture any improvement ideas, try to leave the discussing till the end

Afterwards

- Share the map with those involved. Keep the map as is or take photos, (you can digitise it, but takes effort)
- Could be a guideline/roadmap for your improvement project
  - Mark solved issues problems
- Prioritise issues/improvement ideas
- PDSA / test the improvements
- Capture improvement efforts

Task

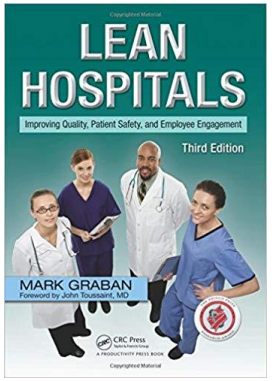
- Create a process map on your tables: making the perfect cup of tea

NHS Improvement

Table 3.4 The Eight Types of Waste

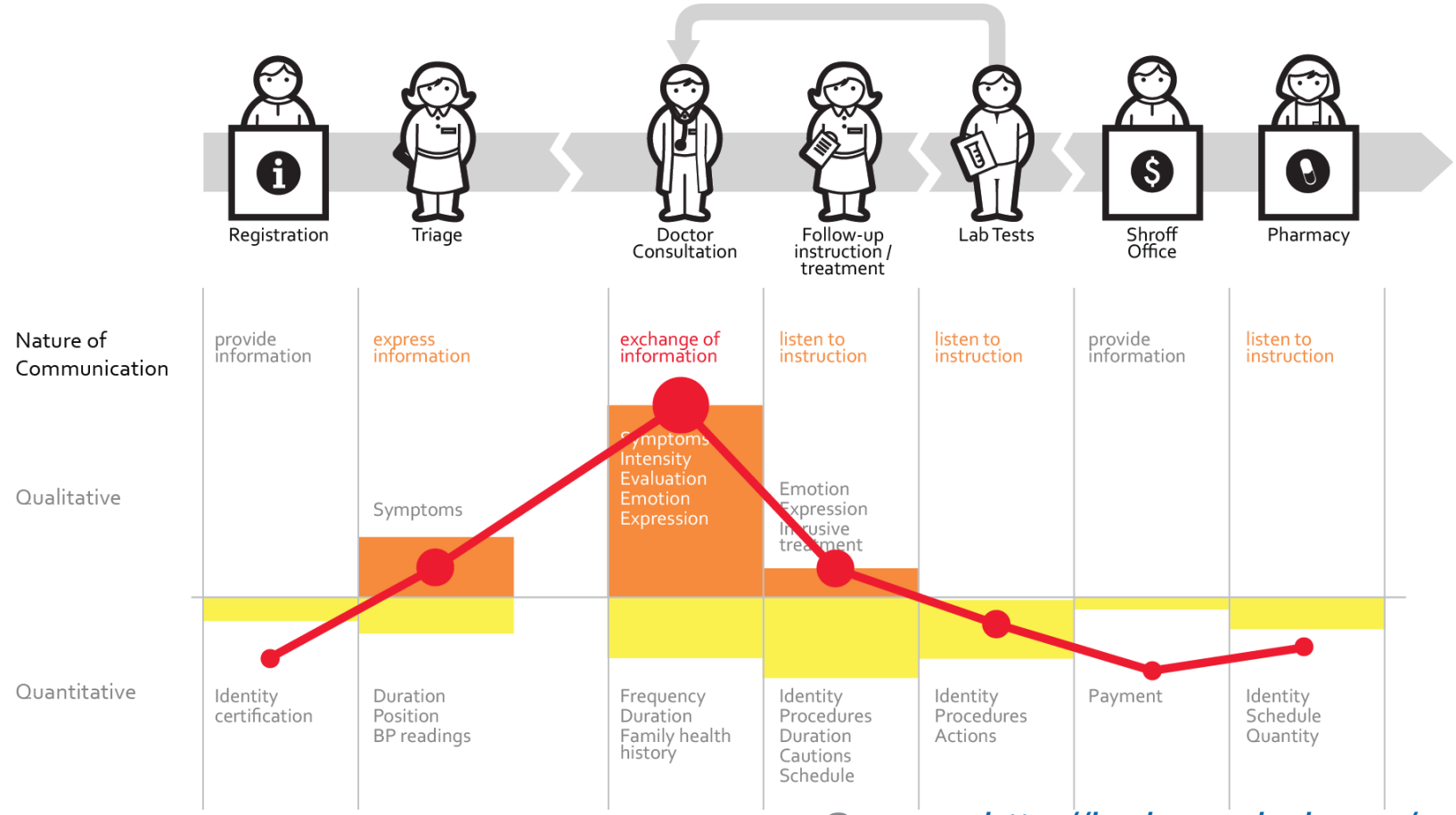
Type of Waste	*Brief Description*	*Hospital Examples*
Defects	Time spent doing something incorrectly, inspecting for errors, or fixing errors	Surgical case cart missing an item; wrong medicine or wrong dose administered to patient
Overproduction	Doing more than what is needed by the customer or doing it sooner than needed	Doing unnecessary diagnostic procedures
Transportation	Unnecessary movement of the "product" (patients, specimens, materials) in a system	Poor layout, such as the catheter lab being located a long distance from the ED
Waiting	Waiting for the next event to occur or next work activity	Employees waiting because workloads are not level; patients waiting for an appointment
Inventory	Excess inventory cost through financial costs, storage and movement costs, spoilage, wastage	Expired supplies that must be disposed of, such as out-of-date medications
Motion	Unnecessary movement by employees in the system	Lab employees walking miles per day due to poor layout
Overprocessing	Doing work that is not valued by the customer or caused by definitions of quality that are not aligned with patient needs	Time/date stamps put onto forms, but the data are never used
Human potential	Waste and loss due to not engaging employees, listening to their ideas, or supporting their careers	Employees get burned out and quit giving suggestions for improvement

Source:



How to analyse the process?

- Once the map has been completed the team can think about a series of questions such as :
  - How many steps add value for the “customer”?
  - How many steps add no value for the “customer”?
  - How many times does the process move from one person to another?
  - What is the approximate time taken for each step (task time)?
  - What is the wait time between each step?
  - What is the approximate time between the first and the last step?
  - What is the difference between the process time and the time line (elapsed time)
  - Where are the problems?
  - What distance is travelled by the stakeholders?



Source: http://jacksonchoi.com/archives/

Steps	*Waiting in waiting room*	*Speaking to the nurse*	*Speaking to the doctor*	*Intervention*	*Planning new appointment*
Activity? *(Describe in your own words what happened)*					
Start time?					
End time?					
How do you feel? *(Please circle)*					
How would you describe your emotional state? *(circle one or more emotions, or describe it yourself on the dotted lines)*	Frustrated Disappointed Stressed Confused Nervous Happy Excited Comfortable Confident Supported	Frustrated Disappointed Stressed Confused Nervous Happy Excited Comfortable Confident Supported	Frustrated Disappointed Stressed Confused Nervous Happy Excited Comfortable Confident Supported	Frustrated Disappointed Stressed Confused Nervous Happy Excited Comfortable Confident Supported	Frustrated Disappointed Stressed Confused Nervous Happy Excited Comfortable Confident Supported ....
Any further comments?					

Possible solutions / Change concepts

- Minimise hand offs
- Remove steps
- Do tasks in parallel
- Consider people as in the same system
- Find and remove bottlenecks
- Use automation
- Listen to patients
- Reduce set-up or start-up time
- Reduce wait time
- Eliminate multiple entries
- Use reminders
- Reduce classifications
- Match the amount to the need

Source: The Improvement Guide, 2nd Ed. Langley, Nolan, Nolan, Norman Provost, Appendix A; pgs. 357-408

Change concepts

Eliminate waste

1. Eliminate things that are not used
2. Eliminate multiple entry
3. Reduce or eliminate overkill
4. Reduce controls on the system
5. Recycle or reuse
6. Use substitution
7. Reduce classifications
8. Remove intermediaries
9. Match the amount to the need
10. Use Sampling
11. Change targets or set points

Improve work flow

12. Synchronize
13. Schedule into multiple processes
14. Minimize handoffs
15. Move steps in the process close together
16. Find and remove bottlenecks
17. Use automation
18. Smooth workflow
19. Do tasks in parallel
20. Consider people as in the same system
21. Use multiple processing units
22. Adjust to peak demand

Optimise Inventory

23. Match inventory to predicted demand
24. Use pull systems
25. Reduce choice of features
26. Reduce multiple brands of the same item

Change the work environment

27. Give people access to information
28. Use Proper Measurements
29. Take Care of basics
30. Reduce de-motivating aspects of pay system
31. Conduct training
32. Implement cross-training
33. Invest more resources in improvement
34. Focus on core process and purpose
35. Share risks
36. Emphasize natural and logical consequences
37. Develop alliances/cooperative relationships

Enhance the product/customer relationship

38. Listen to customers
39. Coach customer to use product/service
40. Focus on the outcome to a customer
41. Use a coordinator
42. Reach agreement on expectations
43. Outsource for “Free”
44. Optimize level of inspection
45. Work with suppliers

Manage time

23. Reduce setup or startup time
24. Set up timing to use discounts
25. Optimize maintenance
26. Extend specialist’s time
27. Reduce wait time

Manage variation

51. Standardization (Create a Formal Process)
52. Stop tampering
53. Develop operation definitions
54. Improve predictions
55. Develop contingency plans
56. Sort product into grades
57. Desensitize
58. Exploit variation

Design systems to avoid mistakes

59. Use reminders
60. Use differentiation
61. Use constraints
62. Use affordances

Focus on the product or service

63. Mass customize
64. Offer product/service anytime
65. Offer product/service anyplace
66. Emphasize intangibles
67. Influence or take advantage of fashion trends
68. Reduce the number of components
69. Disguise defects or problems
70. Differentiate product using quality dimensions
71. Move steps in process closer together
72. Manage variation, not tasks

Source: The Improvement Guide, 2nd Ed. Langley, Nolan, Nolan, Norman Provost, Appendix A; pgs. 357-408

Future state mapping

Quality Improvement knowledge

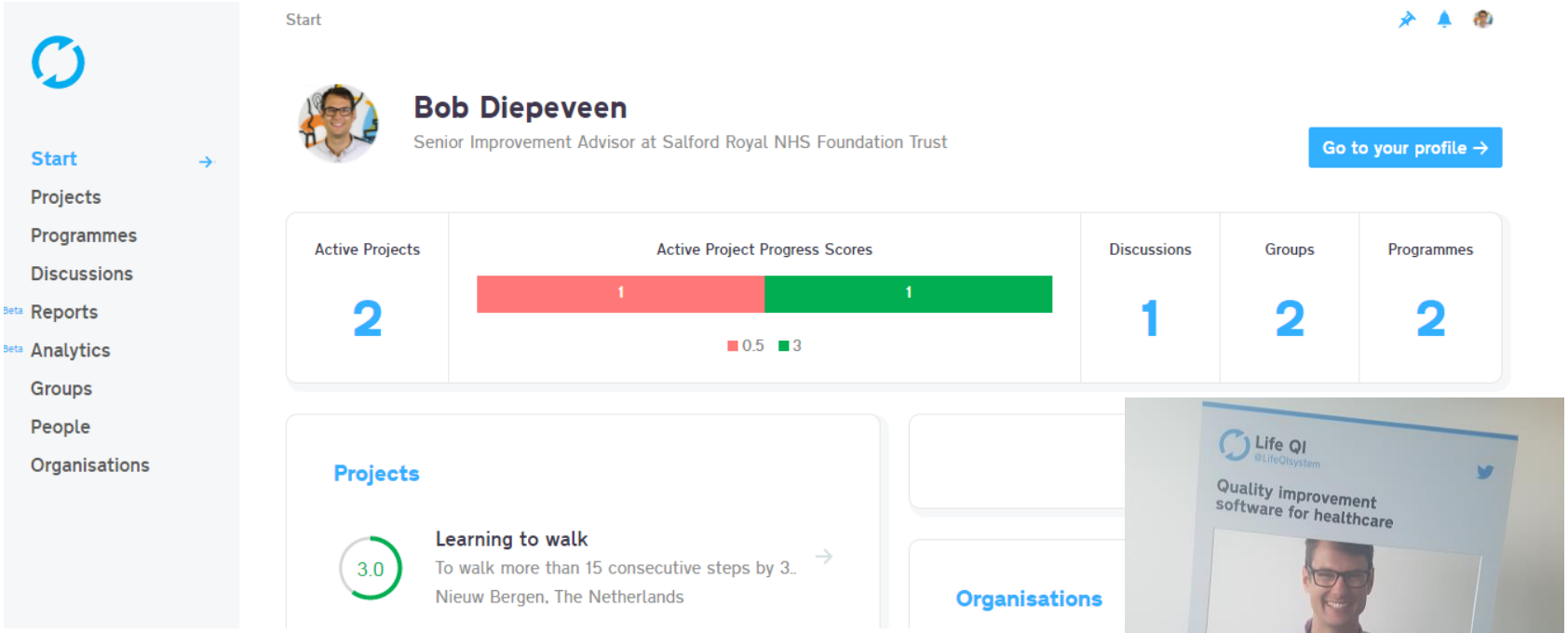
- Please fill out this short questionnaire :

https://www.surveymonkey.co.uk/r/RVSWWDR

Please rate yourself for each of the following theories, methodologies or skills of Quality Improvement using the scoring below:

Level 0	I have no knowledge of this.
Level 1	I have some awareness of this but I do not know how to apply it.
Level 2	I am able to apply this in limited scenarios with some assistance.
Level 3	I know when, where and how to apply this and am able to do so on my own.
Level 4	I have good experience of using this and am able to adapt to use in a multitude of situations.
Level 5	I can teach this theory, methodology or skill to others.

Life QI platform



https://uk.lifeqisystem.com/

LifeQI Webinar

- 5th July 10:00-11:00
- 11th July 10:00-11:00
- https://join.me/LifeQI-webinar

- *You won't need to install anything but you may need to allow pop-up alerts in order to access the meeting, so look out for any messages in your browser altering you to this. You can get audio through your computer if you have speakers and a microphone built in.*
- *Alternatively if you would prefer to dial in by phone the details are:*
  - *Tel:* ***020 3582 4515***
  - *Access Code:* ***723 655 835*** *#*


A connected community working together to improve health and care quality across the UK
Delivered by
The Health Foundation

- Q's mission is to:

  foster continuous and sustainable improvement in health and care.

To achieve this, we are creating opportunities for people to come together and form a community – sharing ideas, enhancing skills and collaborating to make health and care better.

- Q is open for applications, visit https://q.health.org.uk/

For further information on Health Innovation Manchester Patient Safety Collaborative QI

Bob Diepeveen

Improvement Advisor, GM Patient Safety Collaborative

Bob.Diepeveen@healthinnovationmanchester.com

@diepbob

@healthinnovmcr

Tel: 0161 509 3851

HInM, Suite C, Third Floor, Citylabs, Nelson St, Manchester , M13 9NQ