Use of process mapping in service improvement

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Service improvement seeks to continuously adapt and improve processes and pathways to benefit patients, carers and healthcare providers, and to support clinical excellence (NHS Institute for Innovation and Improvement, 2008).

Recently, national initiatives have emphasised the importance of frontline staff in service improvement; ensuring that these staff can influence and manage change is essential for delivering new models of care (Kerridge, 2012). Clinical pathways and service processes have evolved over time, often through a local response to workforce, service or clinical modifications rather than through conscious decisions to improve them. This can often result in complex patient pathways that lack logic; when asked why something happens, the answer can frequently be “because that’s how it’s always been done” rather than “because this is the best way”.

The aim of pathway and process reviews is to give a clear and full understanding of the existing state so problems can be identified and changes made to improve the patient experience and care pathway. One way of doing this is through process mapping, which aims to clarify the clinical pathway by providing a visual presentation of each step of the process (Hong, 2010).

**Process mapping**

A process is a series of connected steps or actions that achieve an outcome (III, 2008). Process mapping can be used to document the steps of any process or pathway, whether at a high or more detailed level. Fig. 1 illustrates a high-level process map of a patient arriving at the emergency department and being admitted to a ward.

Taylor and Randall (2007) describe process mapping as a simple but powerful tool to unpick the many layers to both service processes and patient pathways, which involve a number of staff in different roles and departments. It is a valuable method of identifying issues, developing solutions and enabling interdisciplinary teamwork (Taylor and Randall, 2007).

Many clinical pathways are complex in nature, which makes it difficult to clearly maps can reveal where issues arise
identify the issues or problems that affect their efficiency and the patient experience. As Kerridge (2012) noted, it is often difficult to pinpoint exactly what is wrong and use this information to develop a solution to put it right.

Using a process map makes the pathway more transparent as each step is described, making it easier to highlight the problems and propose solutions. Having a map also prevents assumptions being made about the problems, which can result in solutions that do not address the actual issues.

Process mapping is a valuable and useful way for teams to reflect on the way they work, diagnose and understand problems and identify areas where they can improve. Creating a visual representation of the steps involved in a clinical pathway enables everyone involved to see the overall picture.

A key to successful process mapping is seeking clarification for the reasons behind a step or decision made during the clinical pathway. A useful technique for obtaining more detailed responses when talking to those involved is using the “5Ws and 1H”, which refers to open questions starting with why, what, when, who, where or how. It can also be beneficial to map a process that is unfamiliar as it averts the temptation to make assumptions about the pathway or process. By working out how things are done currently, the team can reflect and decide what the ideal clinical pathway should be.

A successful process mapping exercise should reveal:

» Unnecessary steps, handovers, delays;
» Any waste – duplication of effort;
» Things that do not add value to the patient journey;
» Bottlenecks and constraints;
» Unhelpful variation;
» Potential to create safer care;
» Understanding of the patient experience;
» Where further analysis is required (NHS III, 2008).

It is important to communicate with a service, department or staff group before starting any process-mapping exercise, particularly if a service improvement team, or someone who is not part of the team running the service in question, leads the exercise. It is essential for teams to feel involved with the improvement process because it will be up to them to deliver any changes the process shows are necessary.

Involving staff can be done in the form of a briefing session, task and finish group or informal discussion with staff, all of which are good opportunities to seek the team’s views on current practice and any issues they are already aware of. The aim is to inform staff, seek engagement in the process and mutual acknowledgement that the patient is the focus of any service or clinical pathway review. This is vital because process mapping and outcome feedback can cause anxiety and defensiveness and can be interpreted as judgement and criticism if not handled sensitively.

Observational process mapping
Observational process mapping involves observing the clinical pathway first hand so the observer can note patients’ experiences while mapping the pathway; “go and see for yourself” is a useful message.

When using observational process mapping it is important to capture the patient’s perspective without preconceived ideas (NHS III, 2008). The observer should try, where possible, not to intervene in the steps of the clinical pathway. For example, if a patient arrives in a department and is not greeted immediately by a receptionist or nurse, the role of the observer is not to initiate communication, but to wait with the patient to see what happens in “reality”. This, however, should be balanced with a duty of care to ensure the patient is not adversely affected by this passive approach.

Conventional process mapping
Conventional process mapping involves bringing together a range of people who represent different roles and functions associated with the clinical pathway. The group is involved in mapping the pathway using a table-top exercise where everyone has opportunity to discuss the steps taken through the pathway from their perspective. The overall outcome is the same as observational process mapping; a visual representation of the steps is produced but this is without the patient’s perspective unless a patient is involved in the mapping exercise.

Spaghetti diagram
A spaghetti diagram is a helpful tool to establish the optimum layout of a department or ward based on the distances travelled by patients or staff.

These diagrams often expose inefficient layouts and can identify large, unnecessary distances that patients need to travel between stages in the pathway (NHS III, 2008). The simplest way to create a spaghetti diagram is to draw a simple map of a layout, then lines indicating flows. The diagram can be used to redesign a process by showing how the flow can be improved or reduced.

Writing up a process map
While completing an observational process map, it is useful to take detailed notes including time-recorded steps, for example:

» 9.00am, patient arrives at reception;
» 9.05am, patient called into assessment room;
» Each step of the clinical pathway should be annotated with detailed observational notes that relate to patient experience or general observations. These will assist the observer when writing up the pathway as well as giving additional information if the process is complex. For example:
» The receptionist was welcoming and smiled when the patient arrived;
» There was no reading material in the waiting area;
» The patient commented the waiting room seats were uncomfortable;
» The nurse made sure the patient understood all aspects of their care.

When mapping a clinical pathway using the conventional method, steps can be noted on Post-it notes or slips of paper so their order can be changed on a larger piece of paper to complete the pathway and additional notes can be added.

A process map should not be written up until after the observation to make sure the observer focuses on mapping the clinical pathway and is not distracted by capturing the process, resulting in the discussion being stifled and possible solutions being missed. Not writing up until after the event also gives an opportunity for reflection, which is a valuable in considering solutions to problems. However, write-up should not be left too long after the observation so that the events are still fresh in the observer’s memory.

Basic flowchart symbols
Numerous software programmes can be used for mapping processes, some of which are free. Although these are useful they are not essential; most process maps
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Can be written up using Microsoft Word or Excel. There are some standard basic flowchart symbols used to identify specific activities in the map (Fig 3).

### Analysing the pathway/process

On completing the observational or conventional process-mapping exercise and write-up, the problems and possible solutions often become self-evident. However, the following questions may be useful to assist with analysis (NHS Institute, 2008):

- How many steps does the patient have to complete and are they all necessary?
- How many times is the patient passed from one person to another?
- How long does each step take and what is the time between steps?
- How long does the whole pathway take?
- What are the delays – do they occur regularly?
- Where are there problems for patients and staff?

### Conclusion

Process mapping is a vital tool used in service improvement to clearly understand each step of a clinical pathway or process. Patient pathways often result from the evolution of complex pathways that may not always be as efficient as they could be and do not offer the best care in terms of patient experience.

Mapping a process is useful as it offers, often for the first time, an objective, visual representation of the patient journey highlighting the problems; this activity often generates solutions. There are two methods of process mapping: observational, involving first-hand experience of the patient’s journey by following the patient; and conventional process mapping, that is, a table-top exercise involving all stakeholders who map out each step.

Process mapping can be used not only to map existing practice, but also to evaluate the impact of the change project. A spaghetti diagram can be used to demonstrate distances travelled in a department and establish the most efficient layout.

When writing up a process map, it is useful to use the standard flowchart symbols to clearly indicate activities and decisions through the process (Fig 3); annotated notes can be used to provide patient observations or additional information, particularly if the process map is complex.

### References


### CHANGE MANAGEMENT TOOLS

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