South Devon Healthcare NHS
NHS Foundation Trust

Fracture Clinic Improvement Project Methodology

Summary of methodology used to improve the time patients wait in fracture clinic.

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This report summarises the methodology for designing a scheduling template, as well as some other areas focussed on as part of the Fracture Clinic Improvement Project.

1. **Define Objectives of Project**:

To reduce the time patients wait unnecessarily in fracture clinic.

Outcomes:

- Reduce total patient waiting time
- Reduce overcrowding in waiting room
- Improve flow of patients

a) Write project set-up, using UIC Project set up form and add it to project database.
b) Decide what actions need to be undertaken and by whom (data collection etc)
c) Ensure everyone is clear about their roles and that key stakeholders are involved/informed
d) Have next steps planned – when above actions are due by and ensure they are followed up

Our objectives were regularly reviewed, usually informally, and we found that the project evolved as we revealed many intertwined issues. By working on as many of these as we felt capable of, we reaped greater gains than if we stuck rigidly to the original remit. Even if little acts of improvement had no obvious impact on our overall aim, they would improve buy-in from staff members and add to the improved working conditions and patient experience.

2. **Decide what data is required**:

a) Understand and Measure the Problem.

- Is there really a problem?
- How bad is it?
- What are the problem areas?
- Baseline for demonstrating the effect of any changes implemented.

We needed to know how long patients were waiting and we measured it as discussed below.

We had already decided to develop a tailored scheduling template for the clinic, and were originally going to make use of the Care Pathway Simulator software, but decided that it was simpler to do it without the software (see references on more details for the template).

b) For Scheduling Template the following data was required:

In order to create an effective scheduling template, it is necessary to understand the demand of the clinic. The final template was designed to the 80% rule. For further details on how to do the following, see the references.

- Demand (daily)
- Patient Groups – according to resource requirements & patient journeys
- Proportion of patients in each group per clinic
- The times required at each step in the patient journeys

3. **Gathering the data**:

a) Does the data already exist?
   a. PAS data provided some information:
      - ***Waiting***: the time patients waited from booking in to reception to the time they were seen by the doctor, but patients with apparent long waits could have been having an X-Ray or have their plaster removed in that time and it didn't measure the time patients waited for a procedure or the physiotherapist after seeing the doctor.
      - ***Activity*** data (which we used for ***demand*** as it is closely representative in trauma). This could be broken down on a daily and hourly basis as well as by each doctor.
   b. Physiotherapists were already collecting data on consultation times, which saved us from having to time that step.

b) If not, collect the appropriate data:
   .
   a. We measured ***total patient waiting time*** by following individual patients through the clinic. We used the Telpars scanners (from management services)
   Although this was time consuming, it was a very rich source of information:
      - Accurate timed patient journey with times at each step and waits in between.
      - The patient's perspective including what the patient and those waiting around you are saying and seeing. Very enlightening!
      - Accurate patient journeys for grouping of patients later when creating scheduling templates.

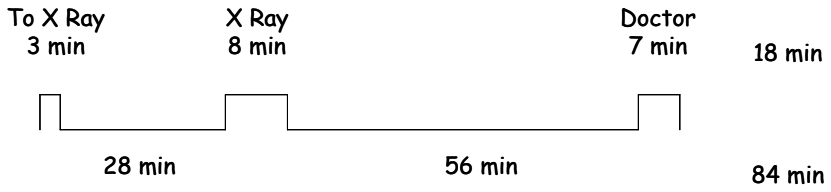


Fig. 1 An example of a patient journey to scale showing the large amount of waiting, for a short time of clinical activity.

   b. The ***problem areas*** became clear by listening to the staff individually and at team events, as well as from the data. The patient journeys as shown in fig 1, showed where the longest waits were (X-Ray and Doctor most frequently).

   c. ***Timed steps in the process*** had to be done separately for the doctor's step, as we found that although the patients were seeing the doctor for an average of 5 minutes (the interval that appointments were scheduled), there was additional time between patients that was taken up by dictation, consulting a colleague, arranging admission or other reasons. Data gathered revealed that a mean of 5 minutes was used between patients in addition to the 5 minute consultation, which informed our decision to spread the appointments out to 10 minute intervals.

   d. ***Patient groups*** according to resource requirement. This is the different possible patient journeys that occur within the clinic, including the different resources used, how long and in what order. To define these was harder than we expected and required some generalisation and a number of refinements in order to keep the

number of groups to a reasonable level. We finally based it on what the booking staff know at the time of booking resulting in:

a) A&E (doctor only),
b) Follow Up (doctor only),
c) X-Ray on Arrival (XROA)
d) Plaster Room and Doctor
e) Plaster Room, XROA and Doctor.

(you could also do it by diagnosis as appropriate)

e. ***Proportion per group*** was also difficult due to the wide variation on a daily basis. After validating that it matches reality (by observing a few clinics and matching information on patient notes to the remarks on the clinic list), we used the 'Remarks' information on PAS to determine the groups, as this included whether patients needed X Ray or Plaster Room. We focussed on XROA patients as this was a cause for backlogs, and accepted a generalisation of the proportions. We could tweak this later if we found that we needed more slots of a particular group and less in another.

4. **<u>Obtain staff buy-in and take actions forward</u>**.

It is important to tailor any tools and techniques and the timing of their use to your own particular circumstances. Here I am documenting what we did, but it may not necessarily be appropriate for other projects or teams.

We decided to hold a couple of team events to:

a) map the patient journey identifying problem areas and
b) envisage the ideal fracture clinic using a rich picture exercise.

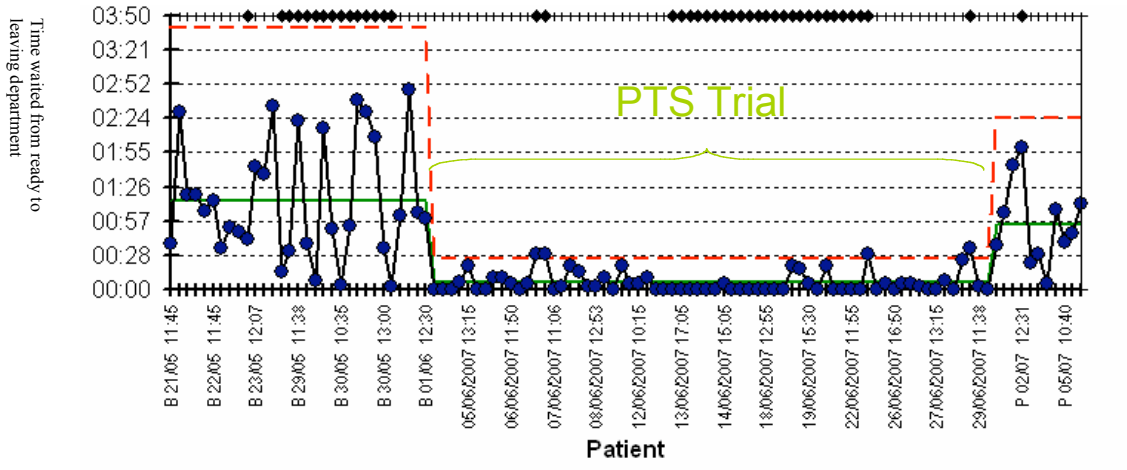
From these events we generated an action list and assigned ownership to each action, making sure that we followed each of these up.

<u>Our action list and their respective outcomes included the following</u>:

- ***Create scheduling template*** - main purpose of project, but this event enabled us to inform the team of the logic behind what we were doing.
- ***Reduce impact of DNA's*** by ringing patients who have previously DNA'd in advance and book previous DNAs at the end of the clinic, reducing the likelihood of long gaps in the clinic.
- ***Address porter issues*** (9am start as opposed to 10am start) – action still being addressed, as it impacts on a department out of our control. Sometimes an obstacle encountered, results in an innovative idea that may even be better than the first one….
- ***Daily ward round by plaster technician*** to identify plastering work for the day early rather than wait for the wards to phone ('pull' in Lean thinking terms) – this allows for more organised planning of the day's work and earlier patient discharge.
- ***Improve physical environment*** – the plaster room was redecorated and redesigned to include a children's area and separate cubicles for increased patient privacy. Staff members played a role in choosing curtains etc. A change in practice has also resulted in a smoother flow of patients and work, by assigning trolleys to specific doctors each day rather than allow trolleys to become blocked by patients waiting for the same doctor.
- Consider greater use of ***Friday capacity*** with new middle grades due to start

- ***Address X-Ray step***. This was found to be greatly improved by implementing the scheduling template. The next step would be to have a dedicated X-Ray adjacent to the clinic rather than forcing patients to travel the unpleasant and potentially hazardous long route to level-3 X-Ray. Other issues regarding incorrect information on patient letters were also corrected.
- ***Information board for waiting area***. This has multiple benefits including informing patients of expected waiting times and useful information about transport (in order to reduce the burden on Patient Transport Services).
- Address ***patient transport*** issues (long waits for patients going home). A separate project has spun off from this issue resulting in the writing of a business case to have a dedicated single-man vehicle for T&O at peak times as a trial showed a drastic reduction in waiting times.

  The important lessons learnt here were:
  - Consider all the ideas generated by staff members and enable them to be taken forward.
  - Have an open, honest, face-to-face discussion with those involved, even if from another department and even if it seems likely it will lead nowhere.
  - Have a go and trial it.
  - Persevere with any hurdles and work at overcoming them rather than giving up at the first set back.



5. **Scheduling Template**:

We found it very difficult and time-consuming to be scientific and exact when doing this, so we decided to accept a generalisation, but to tailor the template as best we could to each clinic's need. Even this would still make a vast improvement on the current situation. The wide variation found in all aspects of the clinic also reduced the effect of having a highly specific template. Our methodology is as follows, but it is advisable to be familiar with published guidance as found in the references in order to grasp the concept, as the design of scheduling templates will be unique to each department.

a. Data collection - as above

b. Determine the clinic capacity: amount of patients that need to be seen per clinic to meet the demand. *We calculated that 80% of the time a doctor saw up to 24 patients per clinic and so we created the templates with 24 slots.* It is important to recognise that there will be times during the clinic where there are no patients to see (this time could perhaps be used to check e-mails etc) and also that about 20% of the time the capacity may not be enough.

c. Determine the patient groups as discussed, and the proportion of each. For example, one consultant's clinic has about 30% XROA (7 per clinic), 30% A&E (7) and the remainder mostly FU.

d. Design the scheduling template for all clinics running parallel and sharing resources. Fracture clinic has 4 such clinics per morning Mon – Thurs, each requiring its own version of template. Technically, time should be spent to align the patient journeys for the different groups as seen in the references, but we decided to start with just spreading out the patients requiring specific resources (predominantly XROA). Doing this with colour makes it visually easier to do. It was important to take certain constraints into account such as not booking a patient requiring an XROA before 9:20, to allow the patients time to have their X-Ray first (X-Ray opening at 9:00).

Time:	Clinic A	Time:	Clinic B	Time:	Clinic C	Time:	Clinic D
09:00	A&E	09:00	A&E	09:00	A&E	09:00	A&E
09:10	A&E	09:10	A&E	09:10	A&E	09:10	A&E
09:20	FU	09:20	PR & XROA	09:20	FU	09:20	XROA
09:25	FU						
09:30	FU	09:30	XROA	09:30	FU	09:30	FU
				09:35	FU		
09:40	XROA	09:40	FU	09:40	FU	09:40	PR & XROA
09:50	FU	09:50	A&E	09:50	PR & XROA	09:50	A&E
09:55	FU	09:55	A&E			09:55	A&E
10:00	FU	10:00	FU	10:00	A&E	10:00	XROA
				10:05	A&E		
10:10	XROA	10:10	XROA	10:10	FU	10:10	FU
						10:15	FU
10:20	FU	10:20	FU	10:20	XROA	10:20	FU
10:25	A&E	10:25	PR				
10:30	A&E	10:30	XROA	10:30	A&E	10:30	PR
10:40	XROA	10:40	FU	10:40	FU	10:40	XROA
		10:45	FU				
10:50	A&E	10:50	FU	10:50	XROA	10:50	FU
10:55	A&E					10:55	FU
11:00	FU	11:00	XROA	11:00	A&E	11:00	XROA
				11:05	A&E		
11:10	PR	11:10	FU	11:10	XROA	11:10	FU
		11:15	FU			11:15	A&E
11:20	XROA	11:20	PR	11:20	FU	11:20	XROA
11:30	A&E	11:30	XROA	11:30	PR	11:30	FU
11:40	FU	11:40	FU	11:40	A&E	11:40	XROA
				11:45	A&E		
11:50	FU	11:50	XROA	11:50	XROA	11:50	FU
12:00	FU	12:00	FU	12:00	FU	12:00	FU
12:10	A&E	12:10	A&E	12:10	FU	12:10	FU

Looking at one of our templates on the right, you'll see that the XROA patients (green) are spread out across the morning across all 4 clinics to encourage a smooth flow of patients going to X-Ray. Within each clinic the spread was less important, but the proportion was. In order to fit the 24 slots in to the clinic schedule, with 10 minute slot intervals, it was necessary to maintain the occasional 5minute slots on the assumption that most of the time the full capacity of the clinic isn't used and that the times required in reality are very variable anyway.

e. Trial the template and monitor according to PDSA (Plan-Do-Study-Act).

- Ensure everyone involved is clear on any new instructions. For us this included our fracture booking staff and A&E reception. It is worth spending time going through the process on an individual basis and to provide clear written instructions. The former helps to highlight any problems you may not have thought of and both increase your chances of success, especially if a change in practice is involved. Measure the result and make any changes before rolling-out to the rest.

f. Roll-out: Design templates for the remainder of your clinics as above and implement them.

6. **Results**:

Patient Journey Times:

Repeating the timed patient journey exercise and comparing it to the baseline, we showed a vast improvement in patient waiting time and overall journey.

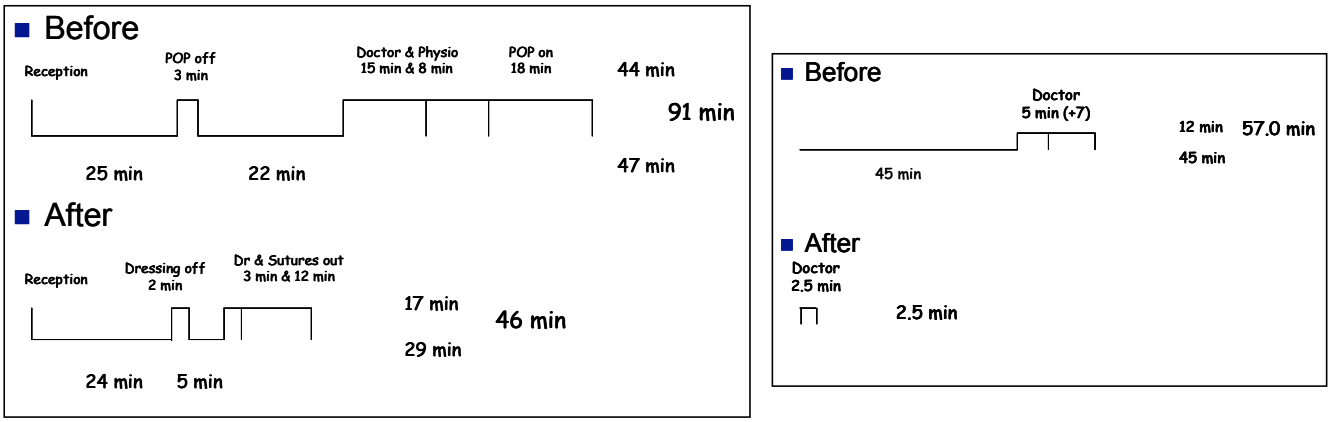


Fig. 2. Effect of clinic scheduling template on patient journeys for patients in different resource groups (a) Plaster Room. And b) Doctor Only)

Summary of benefits realised by the project include:

- Shorter waiting time for patients (see above)
- A waiting room that is no longer overcrowded and much emptier than before. (Technically this could have been measured by doing snapshot counts at different times in a clinic, but we did not do the baseline measurement unfortunately).
- Smoother, calmer work flow for all staff, with less 'chaos'.
- More time freed up during the clinic to continue with improvements or catch up on admin etc.
- More pleasant work environment for staff and patients, including children
- Improved information for patients (electronic board and notice boards in cubicles)

Summary:
Information and guidance on how to make effective improvements using various methodologies, tools and techniques already exist with some referenced below, so I have not attempted to duplicate this. The point is to just do it. This report summarises how we tailored these to the needs of the fracture clinic. We attribute the success to people involvement, persistence, tailoring of available tools to our specific needs and addressing a combination of issues which all contribute to the problem, rather than focus solely on one.

References:

1. ***Improvement Leader's Guides by the Modernisation Agency***: There are hardcopies around the place, or you can get them on the internet. These are well worth reading through to obtain an understanding of the methodologies used in this project.
http://www.institute.nhs.uk/index.php?option=com_content&task=view&id=134&Itemid=35

2. ***NHS Institute for Innovation and Improvement*** (http://www.nodelaysachiever.nhs.uk/):
The website contains plenty of useful information (although aimed at achieving the 18-week target, the information is generic to service improvement) under 'Service Improvement' including:

- Process Templates:
http://www.nodelaysachiever.nhs.uk/ServiceImprovement/Tools/IT054_Process_templates.htm

- Demand & Capacity:
http://www.nodelaysachiever.nhs.uk/ServiceImprovement/Tools/IT052_Comprehensive_guide_to_deamnd_and_capacity.htm

- Mapping Patient Journeys & Processes:
http://www.nodelaysachiever.nhs.uk/ServiceImprovement/Tools/IT220_MappingProcessesandPatientJourneyOverview.htm