

Getting it Right First Time in Trauma Clinic: How a Pandemic Improved Service Provision for Orthopaedic Patients

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Abstract

Introduction: The 2019 coronavirus outbreak (COVID-19) fast became a global pandemic. In the United Kingdom, guidelines were introduced to help control the spread of this virus. Hospitals made significant changes to accommodate for the change in demand. Orthopaedic trauma services needed to remain, however, the management of orthopaedic trauma needed modifying to comply with government and hospital guidelines.

Method: Queens's hospital, Burton, is a level III trauma unit. The orthopaedic department manages upper and lower limb trauma as well as head and chest and spine trauma. Injured patients can be referred to the orthopaedic team from the community or from the Major and Minor Emergency Department. To accommodate new guidelines, the orthopaedic department introduced a 'virtual clinic' and a 'trauma clinic'. The virtual clinic took place in the morning and discussed referrals from the day before. The 'trauma clinic' followed on from the virtual clinic and lasted the remainder of the day.

Results: The intervention introduced to Queens's hospital was beneficial for patients, staff and for the hospital. It improved waiting times, reduced the time patients spent in hospital, reduced the number of hospital attendees and enhanced knowledge of common orthopaedic injuries for staffing involved in reviewing and managing these injuries.

Conclusion: For our department, these changes improved service provision, staff education and patient safety. These benefits could be seen in other trusts if a similar method of managing trauma patients was introduced.

Introduction

As health care providers, we strive to provide the best care possible to our patients. How we achieve this, however, is under constant evaluation and scrutiny. The quality of care delivered to patients is difficult to measure and involves the subjective experience from the patients as well as the degree of knowledge, resources and competencies from the individuals(s) and institution that are providing the service. In pursuit of excellent care to our patients, changes in our knowledge and understanding of service provision drive changes to the way in which we practice. One of the major changes was focusing towards 'patient-centred medicine' rather than 'illness-orientated medicine', which was first coined in 1969 [1]. Since then strategies have been implemented to improve the management of patients as a whole rather than as a diagnosis. The ideology of patient centred care (PCC) is now recognised world-

wide and is a focus for many health care providers, as it has been found to improve treatment adherence, patient experience, and quality of care [2-5]. Providing a service that optimises PCC is of utmost importance and a recognised goal for health care providers. However, in order to provide optimal PCC, there are considerations that must first be addressed. One of these considerations is financial. The financial difficulties faced by the NHS is continuous and for a number of years now, department across the UK have undertaken methods for reducing costs. Changes to patient demographics and patient expectations combined with advances in technologies and treatments, make cutting the cost difficult. The ability to provide optimal cost-effective PCC is a skill, and interventions that improve either should be recognised and shared. Getting It Right First Time (GIRFT) acknowledged the difficulties faced by Orthopaedic departments in reducing the expenditure on

service provision and provided initiatives that focused on reducing the cost whilst ensuring optimal patient outcome [6]. One of the identified targets for reducing cost was in the referral system. Fracture clinics are busy, with a high patient turnover. There is an increasing number of patients that are being referred to the fracture clinic from both the Emergency Department (ED) and the community. It is also recognised that not all of these referrals are necessary. Introducing an intervention focusing on improving the referral system for patients will improve PCC and cost-effectiveness. In this paper, we discuss how the recent coronavirus outbreak provided an opportunity for our department to review the referral system and introduce a method of reducing total number of referrals and number of inappropriate referrals. By introducing this, we were able to reduce costs, optimise PCC and ensure patients are being managed appropriately.

COVID-19

In December 2019, in Wuhan, Hubei province, China, the first case of Coronavirus (COVID-19) was reported [7]. Initially it was classified as a pneumonia of unknown origin and believed to have originated from a nearby wholesale fish market [8]. In early January, genome sequencing performed in China identified the causative pathogen as the novel Coronavirus (COVID-19), and this finding was presented to the World Health Organisation (WHO) on the 12th of January 2020 [9]. The first cases of COVID-19 diagnosed in the United Kingdom were made the week commencing the 27th January 2020 [10]. At this time the virus had spread significantly with over 7,000 cases in China and 90 cases elsewhere [11]. By 31st of January, COVID-19 was declared a public health emergency of international concern, and had spread to 19 countries [12, 13]. Evidence suggested that the mode of transmission of COVID-19 was human to human, and that the major route of transmission is droplet and close contact [14, 15]. It was declared a global pandemic by the WHO on the 11th of March 2020 [16].

By the 23rd March 2020, COVID-19 claimed 335 lives in the UK and it was at this time when the UK went into lockdown, whereby strict guidelines were introduced to minimise the spread of the virus [17]. These guidelines promoted social distancing by encourage the general public to stay indoors, only leaving for essential shopping, medical needs and for one form of exercise a day. The introduction of these guidelines was to increase the control of the virus by minimising the risk of transmission. However, in order to optimise the impact of these guidelines, strategies were needed to be implemented in hospitals also. The impact of COVID-19 on UK hospitals was not known.

Guidelines

Changes were needing to be made in all hospitals across the UK, and for all departments. For some departments, this meant increasing staffing, beds and medical facilities, such as ventilators. For others, this meant implementing strategies to reduce the number of patients in the hospital to minimise the risk of spreading the virus. This included re-arranging medical staff to support high demand specialities and to post-pone all non-urgent and elective operations [18]. For our Trauma and Orthopaedic department, elective operations and elective clinics were cancelled. However, despite this, a significant proportion of the orthopaedic workload is managing acute traumatic injuries which would need to continue. In our department, we manage orthopaedic trauma of the upper and lower

limbs as well as head, chest and spine trauma. Many patients, following traumatic injuries, are reviewed in the Orthopaedic fracture clinic. Patients can also be referred directly to the fracture clinic from the Emergency department. Referrals to the fracture clinic are a common method adopted by hospitals for patient who have injuries but do not need to stay in hospital. Current guidelines suggest that patients that are referred to the fracture clinic should be seen within 72 hours of referral [19]. A recent audit performed in our department suggested that over 100 patients attend the fracture between Monday and Friday. This audit also highlighted that of those patients that were seen in fracture clinic, only 15% were seen within the recommended 72 hours. The audit also demonstrated a number of patients that had inappropriate referrals. These patients often had injuries that could be conservatively managed without the need for any follow up appointment.

Effect of COVID-19

With the pressure of COVID-19, and the strict guidelines put in place, changes to the fracture clinic needed to be made. With the high number of patients and staff associated with fracture clinics, adhering the social distancing advice would be difficult. This was identified by the British Orthopaedic Association (BOA) and guidelines were introduced to take necessary action to change practice [20]. We were faced with the challenge of continuing to manage acutely injured patients whilst minimising their risk of exposure to the virus, or, transmission of the virus to members of staff and other patients in the hospital if the patient was to be a carrier. Changes were also needed in the emergency department to accommodate the continual influx of patients with and without symptoms of the virus.

In response to the COVID pandemic and the influx of patients attending the emergency department (ED), reorganisation of the department was needed. The 'Majors department' was allocated for patients with suspected COVID infections only. The 'Minors department' was allocated for patients without any signs or symptoms to suggest infection. This minor's department consisted of seven private bays, two triage rooms, a plaster room and three examination rooms often used by the GP's. One the bays was converted into a temporary Resus bay, and another into a High care bay. The minor's department, therefore, also needed to be re-located. As most of the patients attending the minor's department presented with musculoskeletal injuries and wounds, it was decided that it could be moved to the fracture clinic. The reduction in the number of patients that were being seen in fracture clinic from new local guidelines mean that this could be accommodated for. The minor's department is predominantly looked after by experienced nurse practitioners. They are able to manage the majority of cases in the minor's department. Of those that needed further advice, they often contact the Orthopaedic Senior House Officer (SHO) or book them into a fracture clinic for review by a senior registrar or consultant. If the SHO was not able to assist in helping the nurse practitioner, then they would seek further advice from the registrar or advise booking them to the fracture clinic. Fracture clinics are an excellent method of getting a senior opinion for musculoskeletal injuries, and are associated with improved patient outcomes [21]. However, these are often busy and not all patients attending these clinics are necessarily appropriate. Following the poor compliance with national guidelines, this provided an opportunity to devise an intervention to improve fracture clinic performance.

One of the changes made to accommodate, was the introduction of a virtual clinic. The virtual clinic took place every morning between 09:00 and 09:30 am. This was an opportunity for a senior consultant to make a decision on the management of musculoskeletal (MSK) injuries that attended the minor's department. For this to run efficiently, the ED staff created a spreadsheet that was placed in ED minors and ED majors. Patients that were normally seen and referred to the fracture clinic were now recorded on this spreadsheet and discussed the following day in the virtual clinic. Most of these patients were those seen in ED minors the day before, often by the nurse practitioner, but also by doctors and physiotherapists. Each case on the spreadsheet was discussed individually. The senior consultant in fracture clinic that day would lead this virtual clinic. It was attended by all the staff that would be in the minor's department that day and the on-call senior house officer (SHO). The fracture clinic where these discussions took place was a large and open area. This meant that this virtual clinic could be performed whilst obeying the rules of social distancing. Following the virtual clinic, the trauma clinic would proceed as usual, from 09:30 am onwards. This was managed by two consultants and a middle grade registrar. The on-call senior house officer (SHO) was also present. The minor's department ran concomitantly and any concerns they had with a patient or their management were discussed directly with the consultant in the clinic. This enabled a quick and effective decision for treatment and reduced the case load to be discussed in the virtual clinic on the following day. The referrals to the SHO on call, from the major's department and from the community, were also discussed with one of the senior consultants in the trauma clinic. Again, this meant that a senior decision was made at the point of referral.

Benefits

This was a relatively simple intervention to implement into practice. It did not require any additional staffing or any additional resources. It also did not require any additional space as the fracture clinic area was able to accommodate for the new minor's department. The result of this intervention was that senior decisions were being made quickly for patients with traumatic injuries. The cases were either directly discussed with the consultant at the time of referral, or, the following day in the virtual clinic. Either way, both pathways were resulting in senior decisions being made about the injured patient within the recommended 72 hours. This resulted in a management plan for each patient being made quickly and effectively by a senior consultant and this management plan was then explained to the staff and then to the patient. Another added benefit of this method, which is often missed in typical fracture clinic, was the educational benefit to the nurses, physiotherapists and junior doctors with regards to identify and managing common orthopaedic injuries. This was complimented by the development of different pathways to manage these injuries. The development of a wrist injury pathway was particularly relevant with this being a common injury witnessed in the minor's department with a number of different management options depending on the patient's demographics, fracture pattern and severity. This was perhaps most useful for the foundation doctors on their orthopaedic rotation as other teaching sessions usually presented to the doctors were restricted during COVID pandemic. Patients that required further imaging, investigations, interventions or an additional examination from a senior were called back to the clinic at an appropriate time. Those

injuries that did not require any further orthopaedic input were discharged or referred on to the appropriate team. The fact that these decisions were made virtually, whilst the patients were at home, reduced the number of inappropriate referrals and the number of patients attending hospital. The ability to reduce the number of referrals to the trauma clinic combined with the ability to make senior management plans early for patients with orthopaedic injuries resulted in an intervention that provided more time with patients, thus optimising PCC, and resulted in less inappropriate referrals, thus saving the trust money. Additionally, this intervention was also able to benefit the emergency department at a time they needed it the most by alleviating the pressures faced by the doctors for their advice and input on the orthopaedic injuries. These injuries by-passed the emergency department as these were able to be directly discussed with an orthopaedic consultant.

Across the country, virtual fracture clinics have been gradually increasing and have been shown to improve both clinical and cost-effectiveness [22]. Some trusts have incorporated virtual clinics for specific injuries such as Achilles tendon injuries and wrist and hand injuries [23, 24].

The combination of a 'trauma clinic', where trauma cases are immediately and directly discussed with a senior consultant or Registrar, and a 'virtual clinic', where patient that are not reviewed virtually the following day, has potential to significantly improve service provision. Having a senior decision made at the time of admission or the following morning is of benefit to the patient as it results in less time in hospital and less potential visits to the hospital. It also benefits the Orthopaedic department by having fewer patients who attend the fracture clinic and thus better distribution of resources and workload. It also reduces the workload for the Emergency Department and reduces cost. Although, the benefit of this intervention are particularly relevant during adverse situations such as COVID pandemic, implementing this simple strategy can be beneficial year round, particularly at times with high rates of trauma admissions such as summer months [25].

Limitations

We understand that there are limitations to this intervention. The introduction of COVID-19 saw a decrease in the number of patients attending the hospital. This was partly due to government advice and also due to patients concerned with the risk, to themselves and others, of coming to hospital for their injuries. As a result, the number of patients that were seen, both in ED and in the community were reduced which consequently reduced the number of patients that were referred to the virtual clinic. We anticipated this and are confident that the allocated time for the virtual clinic is sufficient for when the number of referrals increase, potentially higher than usual, following the lockdown. Another limitation is that during the COVID-19 pandemic, with the cancellation of elective services, more orthopaedic doctors were available to assist in the virtual clinic or the trauma clinic. Despite this, however, it was often a single consultant that led the virtual clinic before another consultant and two registrars were present for the trauma clinic afterwards. Additionally, we appreciate that our hospital set up allowed the orthopaedic team to work closely with the health care professionals that manage the minor's department. This intimate collaboration may be difficult in other trusts. These benefits

of virtual clinic have been identified previously [26].

Summary

One of the changes made following COVID-19 outbreak was the management of acute orthopaedic injuries in hospitals. The introduction of a trauma clinic and a virtual clinic not only provided an opportunity to manage these injuries whilst respecting and optimising government guidelines on social distancing, but also demonstrated improved service provision by providing and senior decision early. This was beneficial for the patient, the emergency department, the orthopaedic department and the hospital.

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