virtual management of simple FRACTURES and soft tissue injuries

After identifying that many of the conditions being referred to their orthopaedic clinics could be managed through fracture clinics, two health services set out to implement a virtual management alternative. This enabled patients with simple fractures and soft tissue injuries to receive clinical advice over the phone, alleviating demand on the outpatient clinic and providing patients with more timely, convenient care.

## Background

Rising activity at Victorian public hospital emergency departments (EDs) has increased demand on outpatient services. For example, between 2010 and 2015, The Royal Melbourne Hospital (RMH) experienced an almost 50 per cent increase in the number of ED referrals to orthopaedic clinics for the management of acute conditions. These referrals included acute simple orthopaedic injuries such as fractures and soft tissue injuries, which have traditionally been referred to fracture clinics for management.

To reduce this demand, RMH and Western Health (WH) implemented a virtual fracture clinic (VFC), an innovative model of care pioneered at the Glasgow Royal Infirmary in the UK. This model of care involves virtual management of certain acute orthopaedic conditions instead of management through face-to-face clinic consultations. Patients are given standardised advice on how to self-manage their condition, which is reinforced with educational resources and referral to community services such as physiotherapy.

Reducing unnecessary referrals to fracture clinics can improve access to specialists for patients on the outpatient waiting list and allow consultants to focus on managing more complex cases.

In trialling the VFC model at their health services, RMH and WH aimed to increase the capacity of their fracture clinics, avoid ED re-presentations of patients managed virtually, and improve the hospital experience for patients with acute orthopaedic injuries.

Virtual fracture clinics

**Lead** The Royal Melbourne Hospital

**Partners** Western Health, North Western Melbourne Primary Health Network

**Duration** October 2016 – October 2017

**Key outcomes**

* Reviewed 1,276 patients across both VFCs, with 290 (23 per cent) directly discharged without a face-to-face clinic appointment
* Fewer than 1 per cent of patients managed virtually re-presented to the ED within 30 days
* Received high satisfaction ratings from patients, with the majority saying they would recommend the service

‘The virtual fracture clinic has been preferable to any other option for this treatment. Staff over the phone have answered my questions thoroughly and I have not spent lengthy periods of time waiting for appointments.’

**– Patient**

‘I like that I don’t have to be at the hospital unless I need to, as it frees up people and resources that would be better placed looking at more serious concerns. It also means I don’t have to waste time travelling and waiting for appointments.’

**– Patient**

## Key activity

The health services implemented two slightly different VFC models which shared the following commonalities:

* patients were excluded from virtual management if they did not speak English; were pregnant; had an open fracture, neurovascular compromise or compartment syndrome; or if their injuries were sustained from high velocity trauma
* patients could access orthopaedic opinion on weekdays during business hours via a phone hotline and email address staffed by physiotherapists
* patients could opt out of virtual management at any stage and be offered a clinic appointment
* the physiotherapist would email condition-specific brochures to the patient, provide medical certificates, complete clinical documentation, and coordinate further appointments as needed, such as with a plaster technician, radiology or physiotherapy.

### Orthopaedic consultant-led VFC at RMH

The RMH VFC was conducted four days a week for 20 weeks by an orthopaedic consultant and an advanced practice physiotherapist, with referrals received from one public hospital ED.

The physiotherapist reviewed all ED referrals and excluded those that did not meet the inclusion criteria. The remaining referrals were passed on to the orthopaedic consultant who reviewed the digital imaging and clinical summary.

For referrals eligible for virtual management, the consultant devised a provisional management plan and allocated one of three follow-up options – direct discharge from the VFC with or without general practitioner (GP) review, virtual review, or a face-to-face clinic appointment.

The physiotherapist gained verbal consent over the phone from patients willing to participate in virtual management, then assessed them for changes in their clinical status. Any significant findings would be discussed with the consultant later.

Finally, the physiotherapist would inform the patient of the consultant’s management plan and treatment options and provide acute management advice and exercises.

### Physiotherapist-led VFC at WH

The WH VFC was conducted five days a week for 17 weeks by an advanced practice physiotherapist with clinical oversight from an orthopaedic consultant. Referrals came from three public hospital EDs.

The physiotherapist reviewed the digital imaging and clinical notes of all ED referrals and applied the exclusion criteria.

They would then either:

* directly book the patient into the fracture clinic if they were obviously in need of a face-to-face consultation
* allocate the patient to virtual care based on established clinical guidelines
* notify the on-call orthopaedic registrar if the patient was obviously in need of an operation, then place the patient on the trauma theatre list
* provide a referral to alternative services as needed (such as plastics, paediatrics or to an orthopaedic specialist clinic), informing the patient by phone

or

* discuss the patient with the orthopaedic consultant.

The latter would occur if:

* the patient required the fracture clinic but likely needed further work up, such as additional imaging
* the physiotherapist was uncertain of the best management option for the patient, in which case the orthopaedic consultant would examine the patient’s imaging and provide a management plan for the physiotherapist to carry out
* the physiotherapist was undergoing training and credentialing to practice in the role.

## Outcomes

### RMH VFC

* 135 (26 per cent) of the 517 acute orthopaedic injuries referred to the fracture clinic were managed virtually without a face-to-face consultation.
* Orthopaedic-related ED re-presentations reduced from 34 pre-VFC to 15 after VFC implementation. Only two virtually managed patients re-presented to the ED. Neither were classified as adverse events, suggesting the VFC provides a safe service.
* Patients received their initial orthopaedic phone call within three days of ED admission after the VFC was implemented. This was significantly earlier than pre-VFC patients who waited six days for their initial fracture clinic appointment.
* The patient ‘did not attend’ rate dropped from 16 per cent pre-VFC to 12 per cent after VFC implementation.
* The fracture clinic discharge rate rose from 31 per cent pre-VFC to 35 per cent post-VFC introduction.
* Patients rated the RMH VFC 10 out of 10 when asked if they would recommend the service.

### WH VFC

* 155 (20 per cent) of the 759 acute orthopaedic injuries referred to the fracture clinic were managed virtually without face-to-face consultation.
* 25 per cent fewer new appointments were offered in the fracture clinics after the VFC was introduced.
* Only six virtually managed patients re-presented to the ED within 30 days.
* Patients rated the WH VFC nine out of 10 when asked if they would recommend the service.

### Benefits

* By determining which fracture clinic a patient needed to attend and the exact timeframe, the VFC helped ensure patients were seeing the right clinician in the right subspecialty at the right time.
* To reduce unwanted variation in clinical practice, RMH’s orthopaedic consultants agreed on the clinical management of 28 acute orthopaedic conditions, developing guidelines and an accompanying patient information sheet for each. These were adapted for use at WH.
* The VFC helped patients reduce the cost and travel associated with attending a hospital appointment by enabling virtual management via phone.
* Reducing unnecessary clinic appointments through the VFC meant patients on the outpatient waiting list had more timely access to specialist services.
* The newly established VFC hotline provided patients with direct access to the orthopaedic service, potentially reducing the number of ED presentations.

## Key learnings

* The main conditions managed virtually in this pilot were similar to those managed by the team at the Glasgow Royal Infirmary in the UK: radial head, distal radius, fibula and metatarsal fractures. This suggests the UK model of care has high transferability to the Australian healthcare setting.
* Less than 3 per cent of patients preferred a face-to-face fracture clinic appointment over virtual management. This indicates the VFC model of care is acceptable to patients.
* In this project, the orthopaedic consultant-led model managed a higher proportion of patients virtually than the physiotherapist-led model. This could reflect the relative seniority, breadth of clinical experience, and perceived authority of orthopaedic consultants. The consultant-led model, however, required more orthopaedic consultant time, a resource that not all health services have readily available.
* Staff resources for the physiotherapist role in the consultant-led model were greatly underestimated. Despite being consultant-led, the RMH model required more physiotherapist time than the WH model as each patient reviewed by the VFC received a telephone call from the physiotherapist. Large metropolitan hospitals with fracture clinics that receive approximately 2,500 ED referrals per year are likely to require the equivalent of one full-time staff member for this role. A job share position could facilitate leave cover and minimise the effects of staff changes.