

# Implementation of A Telephone Triage System for Management Of Acute Nasal Fracture in Response to The Coronavirus Disease 2019 Pandemic

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## Abstract

*Background: Acute nasal fracture is a common referral to ENT outpatient clinic. During the Covid-19 pandemic, NHS outpatient services were increasingly stretched and placed patients and staff at risk of Coronavirus. Virtual clinic appointments provided an effective method for reducing Covid-19 risk and improving the efficiency of outpatient services. We sought to implement a telephone triage system for the assessment of nasal fractures.*

## Method

*A telephone triage pathway for nasal fracture was implemented in October 2021. Data on nasal fracture appointments and outcomes were retrospectively collected for 2 months prior to, and after, the introduction of the telephone triage pathway. All patients with suspected nasal fracture referred to ENT by the Emergency Department at Colchester Hospital were included.*

## Results

*At baseline, 32 patients were referred for face-to-face (F2F) clinic, 20 (62%) attended and 12 (38%) did-not-attend (DNA). Of those who attended, 17 (85%) were managed conservatively and 3 (15%) had manipulation under anaesthetic (MUA). 24 patients were included in the telephone triage pathway, 13 (54%) attended and 11 (46%) DNA. Of those who attended, 11 (84%) were discharged and 2 (16%) were brought in for F2F assessment. One was managed conservatively and the other had a MUA (8%). The increase in DNA rate from the F2F pathway to the telephone triage pathway was not statistically significant.*

## Conclusion

*Our data suggests that the telephone triage system for nasal fracture management results in fewer F2F appointments. This reduces COVID-19 transmission to the public and hospital staff but also improves utilisation of outpatient capacity.*

**Keywords:** Covid-19; Nasal deformities; Nasal fracture; Manipulation; Triage

## Introduction

Acute nasal fractures are a frequent cause of referral to the ear, nose and throat (ENT) emergency clinic. Most commonly, patients are referred from the emergency department after an acute nasal injury and are seen face-to-face (F2F) in the ENT emergency clinic within ten days. During this period, soft tissue swelling reduces and any underlying deformity can be better assessed. The patient is then consented for manipulation under anaesthetic (MUA) of nasal bone fracture if deemed necessary.

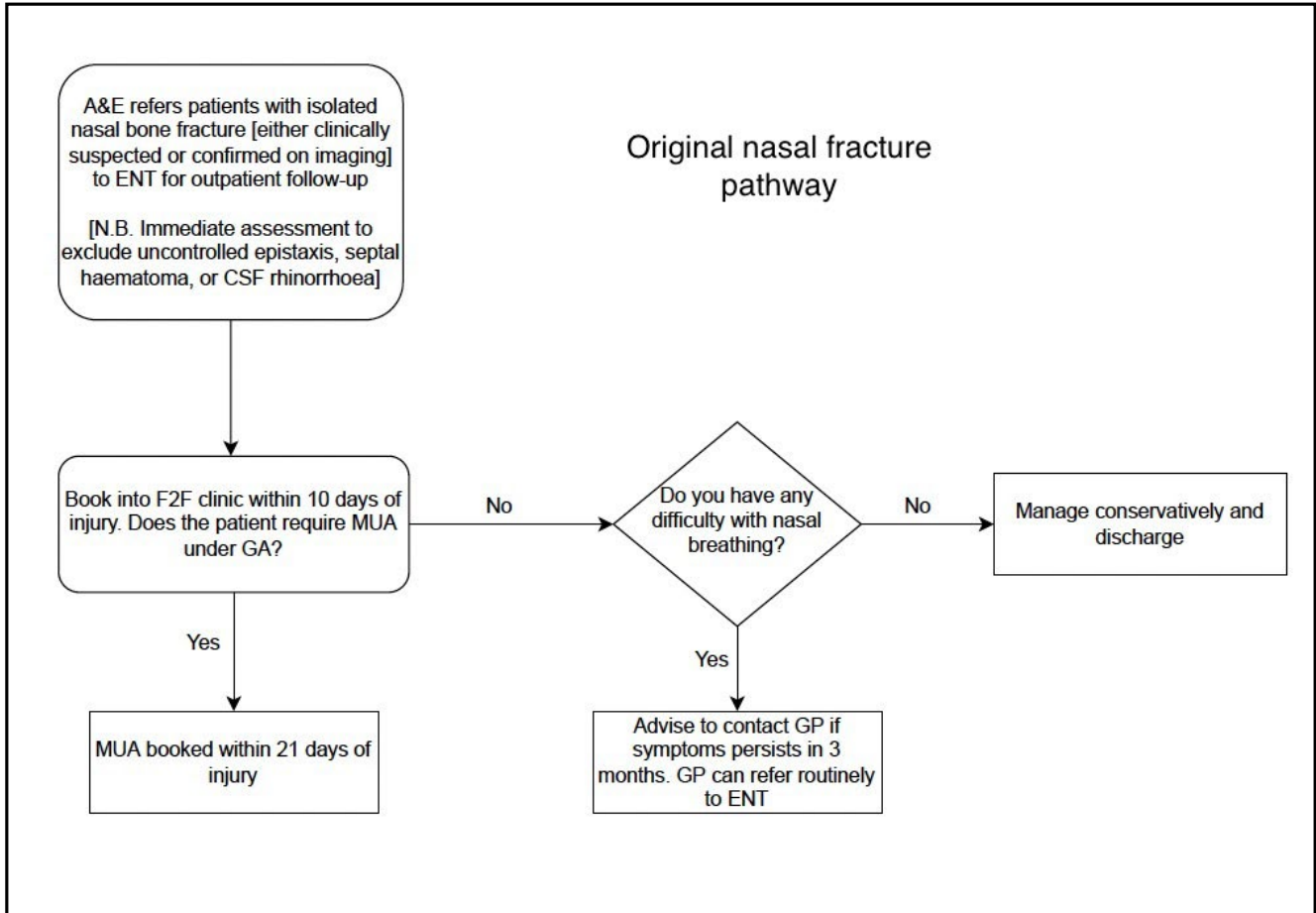
The coronavirus disease 2019 (Covid-19) pandemic forced us to

reconsider the need for F2F appointments within ENT. NHS providers were advised to avoid F2F where possible in order to reduce risk of infection to both patients and healthcare professionals (1). Furthermore, the pandemic led to increasing pressure on already stretched NHS outpatient services. Virtual clinic appointments provide a way to reduce Covid-19 risk and improve efficiency of outpatient appointments. A telephone triage system has previously been used to assess nasal fracture management prior to the Covid-19 pandemic (2). We sought to prospectively evaluate a nasal fracture telephone triage system in a district general hospital in light of the ongoing Covid-19 pandemic.

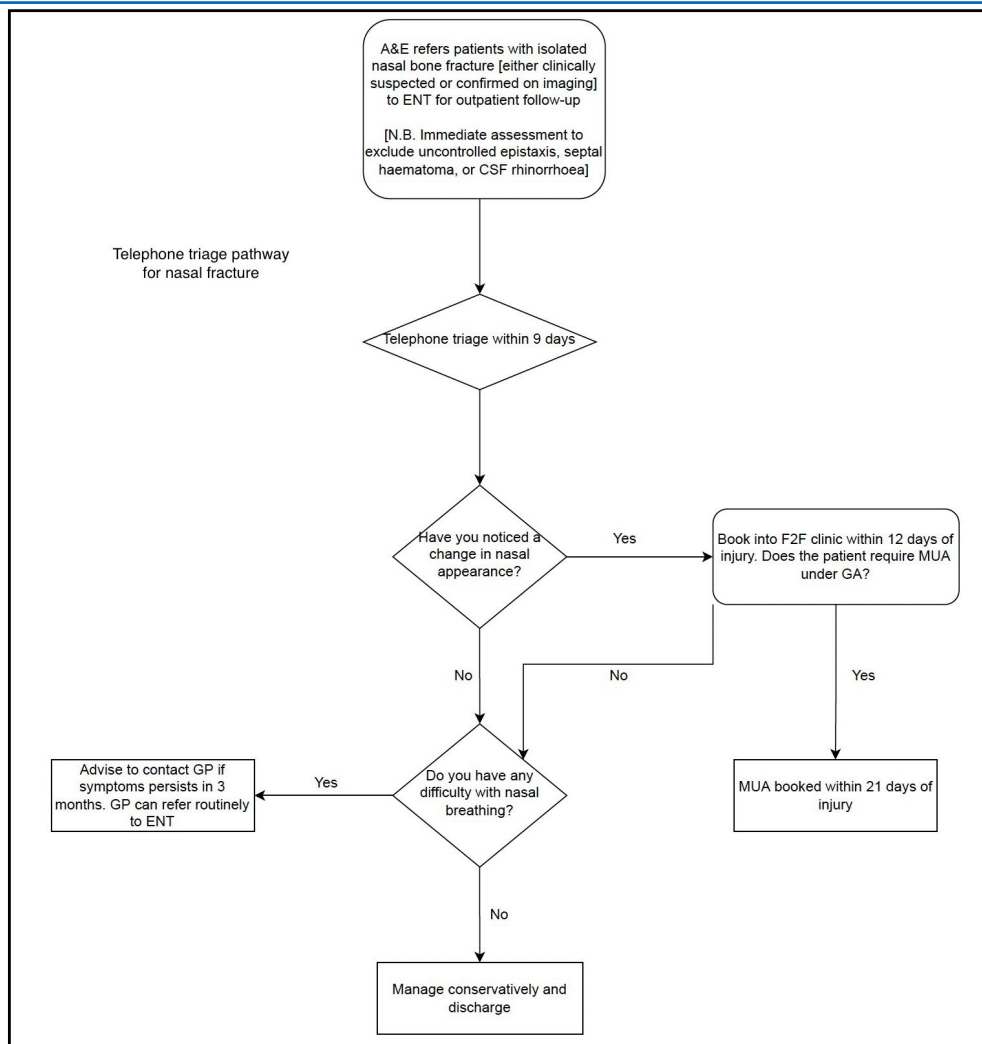
**Methods**

Originally, patients presenting to the emergency department with a suspected nasal fracture were referred to the ENT emergency clinic for a face-to-face (F2F) appointment within 10 days of the injury. At this appointment, they were assessed for suitability of manipulation under anaesthesia (MUA) of nasal bone fracture and, if necessary, booked to have it performed within 2 weeks (shown

in Figure 1). We decided to implement a telephone triage pathway for nasal fracture in October 2021. Patients were scheduled for a telephone triage (TT) consultation 7 days after injury. Patients requiring nasal fracture reduction after telephone assessment were brought in for a F2F appointment and if necessary, booked for MUA under local/general anaesthetic (shown in Figure 2).



**Figure 1:** original nasal fracture pathway



**Figure 2:** telephone triage pathway for nasal fracture

All patients referred to ENT for nasal fracture reduction by the Emergency Department at Colchester Hospital were included. We retrospectively collected data on the previous F2F pathway between August-October 2021. We compared this to the data collected after the telephone triage pathway was introduced between October - December 2021. The primary outcome measures for both the baseline and post-intervention cycles were the number of appointments in the ENT emergency clinic for acute nasal fracture, the proportion of conservative management vs requiring MUA, and the rate of did-not-attend (DNA) appointments. Data was analysed using Microsoft Excel for Mac (version 16.57, Microsoft Corporation, Redmond, WA, USA). Categorical data was compared using Fisher's exact test. Significance level was set at  $p < 0.05$ .

### Results

In the baseline cycle, 32 patients were referred for F2F clinic, of those 20 (62%) attended and 12 (38%) DNA. Of those who attended, 17 (85%) were managed conservatively and 3 (15%) had a MUA performed.

In the post-intervention cycle, 24 patients were booked into a telephone triage (TT) clinic, 13 (54%) attended and 11 (46%) DNA. Of those who attended, 11 (84%) were discharged without recall and 2 (16%) were brought in for F2F assessment. One was managed conservatively and the other had a MUA performed (8%).

The increase in DNA rates from the F2F pathway to the telephone triage pathway was not statistically significant ( $p = 0.590$ ). There was no significant change in MUA rates when implementing the telephone triage pathway ( $p = 0.627$ ).

### Discussion

The management of nasal fracture is largely dictated by the patient's view of their nasal deformity. If the patient is not concerned with their nasal appearance, no further management is required, and they can be safely discharged. However, if the patient wishes to correct the deformity, a MUA needs to be performed within three weeks of injury to prevent significant healing of the fracture. Therefore, a timely assessment of nasal fracture is required to optimise patient outcome.

Since the Covid-19 pandemic, outpatient capacity has been reduced within the NHS and waiting times have been rising. Between April 2020 and November 2021, there were 29.14 million fewer outpatient attendances and 4.22 million fewer elective procedures than pre-Covid-19 averages (3). Therefore, service providers are seeking novel ways to improve the efficiency of outpatient appointments. A popular option is virtual appointments because they require less time for assessment and shown to reduce DNA rates compared to F2F(4). This is supported by Mughal et al, who implemented the telephone triage system for nasal fracture prior to the Covid-19 pandemic (2). This study retrospectively compared two groups of 300 patients and found DNA rate fell by 60% in those with virtual appointments compared to F2F appointments. Unfortunately, this was not reflected in our study, which showed DNA rates were comparable in both the F2F (38%) and TT (46%) clinics. Nevertheless, even with similar DNA rates between both groups, resources are still employed more efficiently in TT appointments because they require less time less than F2F appointments.

The Covid-19 pandemic has also led to a reduction in F2F because they pose a risk of infection to both healthcare professionals and the public [1]. The NHS Long Term Plan (2019) stated over the next 5 years, service providers should reduce F2F appointments by one-third [5]. We were able to reduce F2F clinics drastically from 62% to 16%. In Mughal et al's telephone triage pathway, F2F appointments reduced by 50% [2]. The benefit of virtual appointments is well documented since the pandemic and there are alternative methods to delivering telemedicine. For example, Narang et al introduced video clinic appointments for nasal injury and found 87% of patients were satisfied with the service [6]. There are a multitude of reasons to explain patient satisfaction; patient don't have to travel to their appointment, wait in crowded waiting rooms or take time off from work. Moreover, patients that are particularly unwell or have recently suffered a fall, such as nasal fracture patients, may struggle with travelling to appointments and thus, telemedicine improves access to healthcare [7].

However, there are limitations to this study. Firstly, our sample size is small and further data collection is required before drawing significant conclusions. Moreover, we plan to introduce a patient feedback form so that patient satisfaction can be measured. One major concern of both F2F and virtual appointments is missing patients that are unable to attend. We are working to create a leaflet that can be sent to patients who miss their appointment. The letter will include information on nasal fracture management and how to get in touch.

## Conclusion

In conclusion, a telephone triage system prior to F2F appointment for nasal fracture management is an effective pathway, with comparable initial consult DNA rates and fewer overall F2F appointments. This reduces the risk of Covid-19 transmission to the public and hospital staff but also improves utilisation of outpatient capacity.

## Declarations

There is no conflict of interest. Ethical approval was not required for this study. No patient identifiable information was used.

All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Dana Low, Sarah Moin, Bhavesh Tailor and Dimitrios Ioannidis. The first draft of the manuscript was written by Haran Devakumar and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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Competing interests = the authors declare that they have no competing interests.

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