Pandemic Adaptive Measures in a Major Trauma Center: Coping With COVID-19

To the Editor:

In light of the current global crisis due to COVID-19, communication among the scientific community is both time sensitive and imperative to curtail the projected strain that is predicted to overwhelm our global healthcare services. "Social distancing" is now considered a vital measure in controlling this pandemic spread.[1] We also know that healthcare workers with increased exposure times to the virus are more likely to contract the infection.[2] We therefore describe some pragmatic "pandemic adaptive measures" (PAMs) that have been implemented by the orthopedic department in our level 1 trauma center to reduce viral exposure times for patients and doctors:

1. doctor-patient interaction time
   - *virtual fracture clinic*
   - *mobile device application for trauma team communication*
2. doctor-doctor interaction time
   - *virtual fracture clinic*
   - *virtual weekly trauma multidisciplinary team meeting*
   - *essential staffing of posttrauma call round only*

DOCTOR-PATIENT INTERACTION TIME

The most significant doctor-patient contact time occurs during the daily fracture clinic. Typically, in our institution, 60 patients are reviewed by 3 doctors for a 4-hour period. With the announcement of the COVID-19 pandemic, we immediately implemented virtual fracture clinics (VFCs). We already know that greater than two-thirds of patients may be managed virtually without ever needing to attend the fracture clinic in person.[3] This reduces the patient-doctor interaction time and doctor-doctor interaction time, significantly improves the financial burden, and is met with satisfaction in up to 97% of patients.[3,4]

Since the introduction of the VFC, the total number of patients attending on average has dramatically reduced from 60 to 20 and we expect them to reduce further as the service develops. Each doctor is now seeing on average 7 patients instead of 20 per clinic, and the average patient-doctor interaction time has reduced from 200 to 70 minutes in a single clinic.

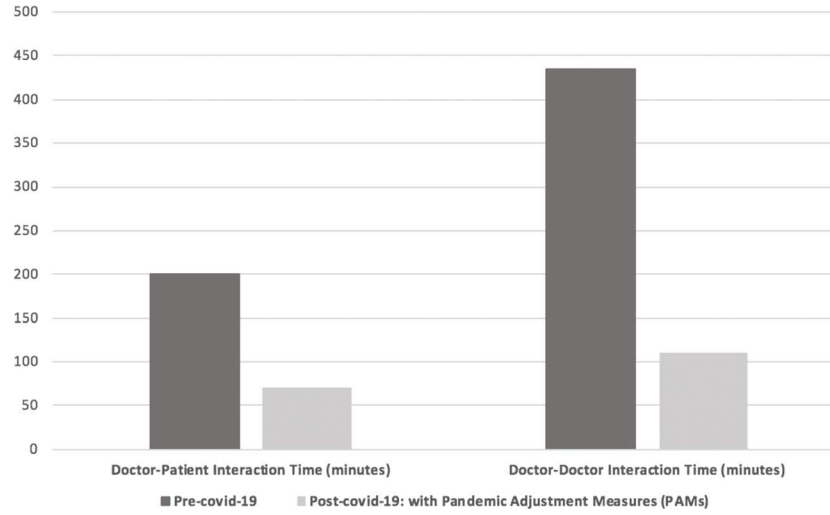

FIGURE 1. Histogram illustrating the significant reduction in weekly doctor-doctor and doctor-patient interaction times with the introduction of PAMs.

To reduce the time spent by patients in the emergency department, another PAM introduced is the online clinical communication platform for the on-call trauma team. This mobile device application is General Data Protection Regulations compliant and involves emergency department staff, house officers, residents, and the attending surgeon on call that day. Immediate decision making allows for the accelerated discharge of patients not requiring emergency surgical intervention. This in turn reduces both patient-patient and doctor-patient contact times in the emergency department of our level 1 trauma center.

DOCTOR-DOCTOR INTERACTION TIME

Reducing the rates of intradepartmental contact time is possibly the most important behavioral change that we could instigate at an institutional level at this time. We know that healthcare workers are particularly vulnerable to viral contraction.[2] If one member of staff becomes infectious, the risk of transmission within the department leading to significant numbers of surgical staff in self-isolation can become quickly overwhelming leading to the decimation of trauma service provision in the level 1 center.

In this respect, we reduced the numbers of staff attending the daily posttake trauma round to essential staff only (attending on call, resident on call, trauma coordinator). This significantly reduced the number of staff in close confines every morning from 15 to 3. This shift has reduced the weekly doctor-doctor interaction time by 120 minutes per week.

Before the pandemic outbreak, a weekly MDT review meeting was held where all postoperative cases would be discussed and critiqued by the entire orthopedic department with ancillary staff including physiotherapists, nurse specialists, and radiographers. This meeting is essential in maintaining a high standard of care with up to 40 staff members in attendance at any one time. By transferring this meeting to an online multiuser platform, all staff members can login and review the cases presented from a remote location. This eliminates 45 minutes of unnecessary intradepartmental exposure time for each staff member.

Introduction of the VFC also has ramifications for intradepartmental exposure. For example, each resident would typically staff 3 clinic sessions per week (240 minutes total). Since the implementation of the VFC, this weekly exposure time has dropped to 80 minutes and is likely to decrease further as the system evolves.

To quantify the impact that these PAMs have had in our institution, consider the following histogram demonstrating a significant reduction in both doctor-patient interaction time (in clinic) and doctor-doctor interaction time (in general) for a standard orthopedic resident on a weekly basis in our level 1 trauma center (Fig. 1).

In summary, these pragmatic PAMs may be implemented by any surgical specialty facing the challenges of the COVID-19 pandemic to reduce patient and doctor exposure times while simultaneously maintaining a high standard of trauma care at this challenging time.

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