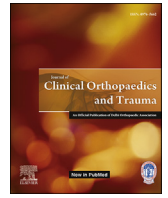




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Annotation: The COVID-19 pandemic and clinical orthopaedic and trauma surgery

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ABSTRACT

This article provides a brief overview of the current COVID-19 pandemic crisis and the impact on trauma and orthopaedic surgeons. The principles of protect, avoid, restrict and abbreviate are recommended. Coordination of response, communication and support are also important. The versatility of orthopaedic surgeons lends them to having an important role.

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The COVID-19 pandemic is one of the largest global healthcare crises in nearly a century. The novel coronavirus (2019-nCoV) crisis started in Wuhan, China in late 2019¹ and has spread worldwide. At the time of writing this paper, there were over 460,000 cases in 199 countries accounting for nearly 21,000 deaths (26 March 2020).² It causes clusters of fatal pneumonia. Healthcare workers particularly those exposed to aerosol generating procedures are at risk.

Different countries have responded in different ways but social distancing, lockdowns and curfews, self-isolation are common across the world. Singapore instigated contact tracing of confirmed infections, and for health care workers mandatory two weeks leave for anyone who had travelled to the People's Republic of China, compulsory twice-daily temperature testing and a cessation of inter-hospital deployments, which served well in terms of disease containment.³ Healthcare systems have been stretched to the limit with the building of temporary hospitals for example the NHS Nightingale 4000 bed, 2 morgue hospital at London's ExCel Exhibition Centre an example of how in a time of crisis resources can be mobilised. Companies such as Dyson have converted from manufacturing vacuum cleaners to ventilators in a matter of days.⁴

In some quarters, both public and healthcare, there has been a relative dismissal of the severity of COVID-19. The attitude "it is no worse than seasonal flu" is common and has led to flouting of social distancing measures. It is only as the virus has taken hold that a

more circumspect approach has been taken.

Trauma and Orthopaedics is a unique surgical speciality. The breadth is extra-ordinary. From developmental conditions such as Congenital Talipes Equinovarus and Developmental Dysplasia of the Hip, through childhood Perthes and Scoliosis right through to osteoarthritis in the older population. From bone and soft tissue sarcomas to metastatic malignancy. And then trauma, affecting all ages and all extremes of severity. Never before has the healthcare system been so stretched. Whilst planned procedures can be and indeed have been ceased, cancer doesn't stop and trauma will continue – although there has been a decrease in outdoor activity injuries, the DIY injuries have spiked in past few weeks, posing a different challenge.

As the disease hit Europe and started to affect the UK, NHS England started to issue instructions to increase critical care capacity and free up beds for respiratory patients.⁵ Trauma units have been relocated in a matter of days. New policies have been drawn up for the management of conditions during the COVID-19 crisis. Not necessarily because orthopaedic surgeons are on the front line against COVID-19 but because of the very nature of our practice, we will be exposed to patients with COVID-19 infection and want to protect our patients from it.

The safest place for patients during the COVID-19 crisis is not in the hospital. The British Association of Oral and Maxillofacial Surgeons (BOAMS) developed guidelines⁶ because of the high susceptibility of oral surgeons to developing COVID-19 infection because their workspace is in a high aerosol generating area (AGA). These guidelines essentially came down to four essential things.

PPE (personal protective equipment)

Avoid (avoid contact, avoid transfer of patients, avoid surgery)

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Restrict (restrict number of visits, generation of aerosols, restrict visitors)

Abbreviate (abbreviate waiting times, abbreviate treatment)

Personal protective equipment has been a huge challenge in many countries. There are changing recommendations ranging from evidence based to availability based creating a massive confusion for healthcare workers. Where scrupulous care is taken and PPE used appropriately, healthcare worker infection can be incredibly low.

Avoidance, restriction and abbreviation of contact by the use of virtual clinics, simplifying treatments, the use of braces and boots rather than plaster casts can all reduce number of visits to the hospital and also the exposure to densely packed waiting rooms which are a breeding ground for the disease. There is also an acceptance at this time that it may be better to accept a sub-optimal clinical outcome and avoid hospital inpatient stays now if there is a suitable remedy later (for example non-operative management of an ankle fracture that is likely to lead to arthritis but decreases the risk of COVID-19 infection. Orthopaedic procedures using saws, drills and suction are all aerosol generating but laminar flow and theatres with high numbers of air changes are helpful in dispersal of the virus.

Currently there is only antigen testing for COVID-19. This tests for active infection and has a reported false negative rate of between 10 and 30%. However, testing is currently restricted to patients who require hospital admission. The majority of healthcare worker are young and healthy, and a significant number have young children. It seems that children are likely to be only mildly affected or asymptomatic carriers. But at this time of year, fever, coryzal symptoms and cough are common among young children, and may result in self-isolation of staff members who would otherwise be keen to return to work. We also know that virus is likely to cause minor symptoms for the majority (more than 80%) of people affected. As mentioned above, many healthcare workers are likely to fall into this category. On the other hand, majority of the patients we treat are frail and vulnerable. We also cannot put those patients at risk if there is doubt about diagnosis. Testing for staff allows them to stay in work, or to remain at home, both of which could be lifesaving at this time. Lessons need to be learnt from Italy in particular, where doctors were not routinely tested, and the death rate among medical personnel is now double that reported in china. Antibody testing is also being developed and is likely to be equally valuable. Testing for healthcare workers will allow return to work earlier at a time the workforce is significantly depleted. The option of deploying NHS staff who have tested positive, and have recovered, if assumed to develop immunity is not just ideal, but likely to become a necessity as the crisis progresses.

This crisis represents a huge challenge for Trauma and Orthopaedic Surgeons. Particularly at-risk individuals have been placed in non-patient facing roles. There have been significant number of clinical staff self-isolating either because of symptoms or members of their family having symptoms. Testing of health care workers allows for an earlier return to work.

Another danger is information overload from the tsunami of guidelines hitting us. Huge amount of documentation is being circulated in a very short period of time. Documentation is being superseded almost before it has been published. In order to stay up to date strategies need to be in place to facilitate this: one example is tagging the document (e.g. INFORMATION ONLY/NEED TO READ/

PLEASE REPLY AGREE OR DISAGREE). If a document is sent for information only the person circulating should send a brief and salient summary along with the document.

It is key to have a task force co-ordinating and communicating regularly: if people do their own things, then there is duplication of work and unnecessary disjointedness. There needs to be a clear management structure and chain of command with delegated responsibility and reporting structure. Time targets are small, and strategies need to be implementable.

Multidisciplinary team (MDT) meetings in Trauma and Orthopaedics are important in the management of cancers and the frail elderly. Education of residents is also important. Some of these can involve large numbers of people in small rooms. Utilisation of videoconferencing (particularly on smartphones and tablets) can revolutionise this. Meetings can be arranged and held in minutes irrespective of the location of individuals. Where days of planning had previously been required this has been dramatically changed.

The COVID-19 crisis has resulted in people working outside their sub-specialty and increasingly outside their specialty. Orthopaedic surgeons have been providing support to physicians and intensivists. Training programmes have been developed in hospitals on how to safely manage patients in theatres, and on ventilators. The use of online and simulated training models has led to a large number of healthcare professionals being trained in a relatively short period of time.

Emotional support is necessary for oneself, colleagues both medical and non-medical, patients and families. Patients are scared. Families are scared. At a time like this it is necessary to express your feelings rather than bottle them up. Talk to your colleagues, co-workers and families; be there for them, you will need them there for you.

Orthopaedic surgeons have a reputation. It is built on our versatility and our strength.⁷ Whilst we may be the brunt of jokes by our medical and anaesthetic colleagues, in times of need it is that strength and versatility they rely on and turn to. We must stand together, with each other and with the wider healthcare community in this time of COVID-19 crisis. Driven by joint replacement surgery, we are the exemplar of hand hygiene. We need to educate widely on this.

Follow your local guidance, support your teams, wash your hands, social distance. Most importantly stay safe.

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