Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Leading by Example During COVID-19: Physicians Can Model Collaboration and Collegiality

Tino Mkorombindo[a], Craig S. Roberts[b,*]

[a] University of Louisville School of Medicine, Louisville, Kentucky, USA
[b] Department of Orthopaedic Surgery, University of Louisville School of Medicine, 550 S. Jackson Street, Louisville, Kentucky, USA

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The lack of collaboration and collegiality during the height of COVID-19 was striking. We know there is an obvious irony in this statement from two citizens of the United States of America (U.S.), after the last four years of American foreign policy. We ask you that you hold that thought and suspend judgement for a few minutes. Collegiality is defined as "a friendly relationship between people who work together or do the same job"[1]. Collaboration has been defined as "the situation of two or more people working together to create or achieve the same thing"[1].

New York Times writer Farhad Manjoo recently posed the question, "But what if we've hit the limit in our capacity to get along?" whilst at the same time, he acknowledged the impressive feat of "producing effective vaccines against this scourge in record time"[2]. We will discuss three examples from the COVID-19 pandemic experience with regard to collaboration and collegiality.

The first example is the development of multiple COVID-19 vaccines in record time. Perhaps this is the best example of how the world can collaborate and be collegial when faced with a common enemy. The United States initiated Operation Warp Speed. This program allowed for public-private partnerships to accelerate the development, manufacturing, and distribution of COVID-19 vaccines, therapeutics, and diagnostics. This effort included the Food and Drug Administration (FDA), National Institutes of Health (NIH) and the Centers for Disease Control and Prevention (CDC). The European Commission greatly contributed to several vaccine efforts with roughly a 7.4 billion Euro pledge for vaccine research through funding provided by the European Union, global leaders, banks, and other organisations. In China, state-owned firms such as Sinopharm, collaborated to oversee the development of their vaccination efforts. A global alliance called Coalition for Epidemic Preparedness Innovations (CEPI) was founded by Norway, India, the Bill and Melinda Gates Foundation, the United Kingdom (UK)-based Welcome Trust, and the World Economic Forum. This example suggests that the world can still actually collaborate when there is a crisis.

The second example is the disruption of the global supply chain by COVID-19 of essential goods and medical specialty items [3,4]. Supply chains are based on broad collaborations of international companies who come together to provide the goods and services for a final product such as a car. The disruption of the supply chain interrupted this collaboration. Many countries even stopped exporting goods related to the medical field. Linton and Vakl (2020), writing in HBR, noted that "many multinationals still have not built resilient supply chains"[5]. Goodman and Bradsher recently wrote that the world supply chain is "stymied by its reliance on lean production and fast shipping"[6]. This effect on the supply chain identified how intertwined the world economy is, and the co-dependence of countries on each other for various goods and services. These disruptions severely impacted collaboration in manufacturing and, therefore, the production and supply of just about everything.

The third example is the loss of the social contract. A social contract is defined as "the sacrifice of individual freedoms in exchange for protection and social benefit." Collegiality and collaboration are components of the social contract. It was first introduced by Thomas Hobbes (1588-1679) who emphasised how we sacrifice some individual rights so that the government in return will protect the people and the common good [7].

Swiontkowski recently brought the concept of a social contract to the forefront of orthopaedic surgery. He stated, "Medicine is a profession with a social contract. In exchange for placing patient interests above our own and focusing on public health as our priority, we are granted the privilege of self-regulation"[8]. The social

* Corresponding author.
E-mail addresses: tinomkor@gmail.com (T. Mkorombindo), craig.roberts@louisville.edu (C.S. Roberts).

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contract concept is linked to the idea of the common good. Manjoo noted, “The internet has undercut our greatest trick: doing good things together” and raised the issue of the commons described by Garret Hardin and Nobel Prize winner Elinor Ostrom [2,9,10].

William Foster Lloyd in 1833 and then Garrett Hardin argued that people will “maximise individual utility at the expense of the common good.”[9] Said another way, “an individual will overuse other people’s resources when it’s in their best interests”[9]. Although Lloyd and Hardin may have been focused more on communally owned farmland and fisheries, there is an application to the modern world of decreasing natural resources and climate change. Interestingly, Hardin later realised that his work may have “mislead others” and that he should have used the title, “The Tragedy of the Unmanaged Commons,”[9] suggesting that some component of management of property was necessary to avoid tragedy. We assume he did not mean just “management” but “good management.”

Ostrom spoke of the need to manage the commons and govern resources based on local conditions without “government coercion or planning”[10]. She made the optimistic prediction that “humans have a more complex motivational structure and more capability to solve social dilemmas” than economists thought [2].

We have discussed three examples of collaboration and collegiality during COVID-19. These examples suggest possible ways that physicians can model collaboration and collegiality, and potentially provide a way forward to solving future COVID-19 size challenges and problems. How can we as readers of the journal **Injury** lead the way?

First, **Injury** is the perfect platform. It is “an international journal dealing with all aspects of trauma care and accident surgery” with a common mission: “to facilitate the exchange of ideas, techniques, and information among all members of the trauma team”[11]. So, it is already part of our purpose. Second, **Injury** has an editorial board comprised of individuals from 28 countries and geographic regions [11]. This geographical spread and diversity is an ideal network for collaboration and collegiality. This network has the potential to organize both the generation of new scientific evidence through prospective multi-centre trials and scientific collaborations, as well as the dissemination of knowledge through digital systems, scholarship, and actual physical (or virtual) scientific meetings.

We have learned many other things during COVID-19 and we will briefly mention a few. The COVID-19 pandemic appears to be associated with an increase in gunshot injuries and patient volumes at some U.S. trauma centres [12,13]. The U.S. experience with COVID-19 has further illuminated healthcare disparities: the pandemic has disproportionately affected Black, Latinx, and Indigenous communities compared to their white counterparts [14]. Each one of these is a project by itself (or at least another editorial).

There are soft voices of hope. G.R. Holt noted “amazing efforts of collegial unity to develop the most clinically relevant guidelines for providing patient care with maximal safety, in the face of little scientific knowledge or experience with this virus”[15].

As we continue to face new global challenges, platforms such as **Injury** are even more critical than ever to increase dialogue and enhance collegiality. In the words of Desmond Tutu and Creighton Adams, "There is only one way to eat an elephant: one bite at a time." On a micro-level, the first bite must begin with the individual, which is you, the reader. Take time to encourage collegiality with others, even if it requires you to go outside your cultural or institutional norms. An even bigger bite, or macro-level, will require leading change in systems that are no longer appropriate and sustainable for our current world. Inclusive leaders need to have fresh eyes and a fresh outlook to create the change we desperately need by implementing new ways to optimise collaboration and collegiality in medical science and scientific research. Science is a universal language that allows independent verification and dialogue. Physicians have a tremendous opportunity to lead by example through collaboration and collegiality to solve pandemic-size problems. Let us get on with it, and let us not forget the “common good.”

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