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## COVID-19

### Thinking Beyond the Box: Preparing for the End of COVID-19 Outbreak in a Vascular Surgery Department



On February 11, 2020, the World Health Organization declared the COVID-19 outbreak a pandemic, and since then, there has been a race against the clock to readjust health care systems, to limit the spread, to find a treatment, or to develop a vaccine.

Hospitals have reorganized their activity to protect health care providers and have suspended elective cases. Guidelines prioritizing vascular intervention during the outbreak were elaborated by the scientific societies.<sup>1-3</sup>

In a recent letter to editor, JJ Ng et al.<sup>4</sup> showed that more than 90% of the vascular units had suspended or scaled down elective cases.

Our department reduced the medical staff to the minimum necessary to perform emergency interventions and all other procedures were canceled after careful revision.

Here, we present our point of view regarding the preparation needed of a vascular unit for the end of COVID-19 crisis. The extrapolation can help other units to find the best way to organize and to foresee upcoming events.

### AORTA

For EVAR and TEVAR, preparation is needed to re-evaluate the cases that are fit for outpatient procedures<sup>5</sup> and re-evaluate the priority according to the risk of rupture and the need of postprocedural intensive care. For FEVAR procedures and other custom-made prostheses that are already manufactured, attention must be paid to ensure that CT scans are not older than 6 months.

### CAROTID

An ultrasound examination must be provided followed by a medical visit after the lockdown is lifted to confirm permeability, mostly for tight lesions, to ensure usual follow-up and to prepare the further interventions if necessary.<sup>6</sup>

### ILIAC ARTERIES AND PERIPHERAL ARTERY DISEASE

Most of these patients can be treated as outpatient procedures, but care must be taken to identify the patient at risk of complications. To plan interventions for peripheral artery disease patients, preoperative examinations must be scheduled: Ultrasound examinations to evaluate the permeability, venous cartography for bypasses, and angiography for below the knee pathologies.<sup>7</sup> The necessity of balloon and stents will increase after the end of the outbreak and device companies may not be able to keep up with orders.

### HEMODIALYSIS ACCESSSES

Most hemodialysis access was not postponed but other patients will need follow-up and reinterventions and must be considered in the future operating schedule.

### CLINICAL TRIALS

Most clinical trials were temporarily stopped and follow-up visits must be organized as soon as possible.

### GENERAL CONSIDERATION

The use of operating theaters must be prepared in conjunction with other surgical units. For inpatient capacity, a network of rehabilitation centers, home-care nurses, and telemedicine<sup>8</sup> must be organized to ensure an optimal inflow and outflow of patients. Vascular patients must not become collateral damage of COVID-19; continuity of follow-up is key. The current crisis is unexpected and unique and we need to find solutions, be innovative, and hope for the best and prepare for the worst.

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## REFERENCES

1. Zhu W, Wang Y, Xiao K, et al. Establishing and managing a temporary coronavirus disease 2019 specialty hospital in Wuhan, China. *Anesthesiology* 2020;132:1339–45.
2. Ueda M, Martins R, Hendrie PC, et al. Managing cancer care during the COVID-19 pandemic: agility and collaboration toward a common goal. *J Natl Compr Canc Netw* 2020;20:1–4.
3. Vascular Society issues guidance on COVID-19 and vascular surgery: VASCULAR prioritisation. *VascularNews*. Available at: <https://vascularnews.com/vascular-society-issues-guidance-on-covid-19-and-vascular-surgery/>. Accessed March 24, 2020.
4. Ng JJ, Ho P, Dharmaraj RB, et al. The global impact of COVID-19 on vascular surgical services. *J Vasc Surg* 2020.
5. Wanhainen A, Verzini F, Van Herzele I, et al. Editor's Choice - European Society for Vascular Surgery (ESVS) 2019 clinical practice guidelines on the management of abdominal aortoiliac artery aneurysms. *Eur J Vasc Endovasc Surg* 2019;57: 8–93.
6. Naylor AR, Ricco JB, de Borst GJ, et al. Management of atherosclerotic carotid and vertebral artery disease: 2017 clinical practice guidelines of the European Society for Vascular Surgery (ESVS). *Eur J Vasc Endovasc Surg* 2018;55:3–81.
7. Conte MS, Bradbury AW, Kolh P, et al. Global vascular guidelines on the management of chronic limb-threatening ischemia. *Eur J Vasc Endovasc Surg* 2019;58: S1–109.
8. Hollander JE, Carr BG. Virtually perfect? Telemedicine for COVID-19. *N Engl J Med* 2020;382:1679–81.