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Telemedicine for screening and follow-up of abdominal aortic aneurysm



I read with much interest the report by Rokosh et al.¹ The suggested guidelines were based on the evidence that postoperative surveillance is required to reduce the risk of late rupture and aneurysm-related death after both endovascular abdominal aortic aneurysm repair and open surgical repair. Rokosh et al¹ commented “The development of validated strategies to improve patient compliance with post-EVAR [endovascular abdominal aortic aneurysm repair] surveillance represents a critical need, with recent reports noting $\geq 50\%$ nonadherence at 5 years.”

Similar attendance problems have been found for patients with small abdominal aortic aneurysms monitored with serial ultrasound examinations.²⁻⁴ These problems have been accentuated during the COVID-19 (coronavirus disease 2019) pandemic period. Selway et al⁵ reported that only 59% of the 200 interviewed patients who had been followed up with serial scans before the pandemic because of a small aneurysm would attend their surveillance scan appointment. Most of those surveyed were more concerned about catching COVID-19 than their aneurysm.

It is possible that the problems of low attendance to postoperative follow-up and screening appointments could persist and increase in the future. Selway et al⁵ have underlined how it will be difficult to return to the attendance rates of the pre-COVID-19 pandemic period. Thus, although it might sound unethical, the critical conditions resulting from the pandemic might provide the stimulus to perfect a new vision of surgery.

Telemedicine offers a variety of horizons, and it could be more applicable, with lower costs, and more easily accepted by patients. A simple application on the cellphone or computer might allow for a sophisticated and accurate ultrasound analysis that could provide all the dimensions of the aneurysm (ie, transverse diameter, difference from the previous examination, elasticity of the aneurysmal wall) and the presence of graft complications. The patients would only apply the ultrasound probe to the navel, and all the information would be sent to the health center. If needed, the patient could be called in for a more detailed study at the clinic. After the COVID-19 pandemic crisis, the improvements in telemedicine will remain and might represent the basis for future patient-physician relationships. The use of telemedicine can facilitate follow-up visits and diffuse screening programs, even for people in distant regions and countries.

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REFERENCES

1. Rokosh RS, Wu WW, Schemerhorn M, Chaikof EL. Society for Vascular Surgery implementation of clinical practice guidelines for patients with an abdominal aortic aneurysm: postoperative surveillance after abdominal aortic aneurysm repair. *J Vasc Surg* 2021;74:1438-9.
2. Rokosh RS, Mastracci TM, Chaikof EL. Society for Vascular Surgery implementation of clinical practice guidelines for patients with an abdominal aortic aneurysm: screening for an abdominal aortic aneurysm. *J Vasc Surg* 2021;73:1126-7.
3. Zaiem F, Almasri J, Tello M, Prokop LJ, Chaikof EL, Murad MH. A systematic review of surveillance after endovascular aortic repair. *J Vasc Surg* 2018;67:320-31.e37.
4. Chaikof EL, Dalman RL, Eskandari MK, Jackson BM, Lee WA, Mansour MA, et al. The Society for Vascular Surgery practice guidelines on the care of patients with an abdominal aortic aneurysm. *J Vasc Surg* 2018;67:2-77.e2.
5. Selway WG, Stenson KM, Holt PJ, Loftus IM. Willingness of patients to attend abdominal aortic aneurysm surveillance: The implications of COVID-19 on restarting the National Abdominal Aortic Aneurysm Screening Programme. *Br J Surg* 2020;107:e646-7.

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Reply



In his letter to the editor, Sterpetti¹ highlighted that patient adherence to preoperative aneurysm surveillance, which has been persistently suboptimal, deteriorated even further during the COVID-19 pandemic. In addition to exposing the fragility of our global systems of healthcare, the pandemic has also set into motion technological innovations in digital medicine and telehealth that will continue to evolve and profoundly affect the practice of medicine.

Sterpetti¹ suggested patient self-administration of ultrasound examinations through a personal device to improve compliance with aneurysm surveillance. In 1918, Elliott Joslin² was among the first to advocate placing patients at the center of the management of their disease by encouraging frequent home urine testing for those patients with diabetes. Empowering patients to autonomously administer self-care has been an initiative supported by the Food and Drug Administration and has been associated with significant cost savings,³ with home healthcare equipment such as glucometers, infusion pumps, peritoneal dialysis machines, and vacuum-assisted wound closure devices. Spurred by the COVID-19 pandemic, a recent transition has occurred to customer-initiated at-home diagnostic testing kits by companies such as Lets-GetChecked (available at: www.letsgetchecked.com) and Everlywell (available at: www.everlywell.com) for the diagnosis of COVID-19, sexually transmitted diseases, and Lyme disease, in addition to celiac disease, prostate and colon cancer, and the evaluation of testosterone, thyroid, liver, and cortisol levels, among other home testing kits.

The adoption of at-home diagnostic devices, whether the Apple Watch for the detection of atrial fibrillation or an ultrasound device, has been associated with a number of unique challenges. Ensuring device reliability, robustness, resilience to cyber-physical or other misuse, establishing the security of the data transfer and consistency of data interpretation, either algorithmically or through a healthcare provider represent only a few of the critical issues. More importantly, the limited ability of racial and ethnic minorities and underserved communities to have access to such technologies or the internet connectivity necessary to stream information to a healthcare unit will only exacerbate pre-existing healthcare disparities.⁴

In thoughtfully augmenting consumer at-home technologies that places patients at the center of their care, the potential exists to not only regain lost ground in disease surveillance, but also to progress toward a durable change in community health and wellness that achieves consistent and accessible healthcare of the highest quality.

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REFERENCES

1. Sterpetti AV. Telemedicine for screening and follow-up of abdominal aortic aneurysm. *J Vasc Surg* 2022;74:1497.
2. Joslin EP. *A Diabetic Manual for the Mutual Use of Doctor and Patient*. Philadelphia, PA: Lea & Febiger; 1918.
3. US Food and Drug Administration Center for Devices and Radiological Health. Medical Device Home Use Initiative. 2010. Available at: <https://www.fda.gov/media/78647/download>. Accessed November 28, 2021.
4. Rokosh RS, Lewis WC II, Chaikof EL, Kavradi LE. How should we prepare for the post-pandemic world of telehealth and digital medicine? *NAM Perspectives*. Commentary, National Academy of Medicine, Washington, DC. 2021. Available at: <https://doi.org/10.31478/202106a>. Accessed November 28, 2021.

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