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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Editorial

A roadmap to nationwide monitoring of Cardiovascular Implantable Electronic Devices in Greece: staying safe in the era of COVID-19 pandemic

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Cardiovascular Implantable Electronic Devices (CIEDs), that is implantable cardioverter defibrillators, pacemakers, and implantable cardiac monitors, are first-line tools for the therapeutic or diagnostic management of cardiac rhythm disorders. After CIEDs implantation, regular follow-up of these medical devices is required to evaluate device integrity, to interrogate the device for recorded arrhythmias, and possibly to reprogram the device. Remote monitoring (RM) of CIEDs is an important alternative to in-office follow-up of these medical devices as it offers continuous surveillance of both CIEDs and patients, in order to improve the safety and cost-effective delivery of health care.[1-3]

Presently, RM could further enhance patients' safety by achieving the required social distancing due to the COVID-19 pandemic. In a recent update (April 15, 2020), the Heart Rhythm Society (HRS) Task Force on the management of CIEDs urged health care professionals that "Every effort should be made to perform CIED interrogation via remote monitoring rather than in-person visits". https://www.hrsonline.org/COVID19-Challenges-Solutions/hrs-covid-19-task-force-update-april-15-2020.

To achieve a nationwide sustainable implementation of RM of CIEDs in Greece, the e-Cardiology Unit of the 1st University Department of Cardiology at Hippokration Hospital proposed the following roadmap. The number of patients with a CIED in Greece was calculated based on data from the European Heart Rhythm Association (EHRA) for implants in Greece from 2008 to today[4] (Fig. 1) and the annual data of the Cardiology Clinic of the University Hospital of Heraklion from 1998 to 2006.[5] On the basis of the historical data, the implants from 2019 to 2029 were anticipated by accounting for a 5% annual increase. The survival of patients with CIEDs was projected for the 10-year period (2019 to 2029) based on clinical studies assuming a 95% annual survival rate.[6-8] Thus, the prevalence of CIED patients in Greece was cumulatively calculated and presented in Fig. 2. In the proposed roadmap, RM of CIEDs will be achieved with the mediation of six central tertiary university hospitals (**Central Hubs**). Special computers that interrogate the CIEDs will be installed in the health centers or in the secondary hospitals of each territory (**Control Stations**). The data will be transmitted from these Control Stations to the Central Hubs, where experts organized in a specialized unit will rate the priority of transmission. Continuous monitoring requires the presence of two cardiologists on a rolling shift per Central Hub (16 hours). Transmissions of actionable arrhythmic or technical events will then be sent to the implanter of each patient at the respective implantation center. Control stations will be settled in health centers which are at least 50 km away from any of the six Central Hubs. In cases of CIED pa-

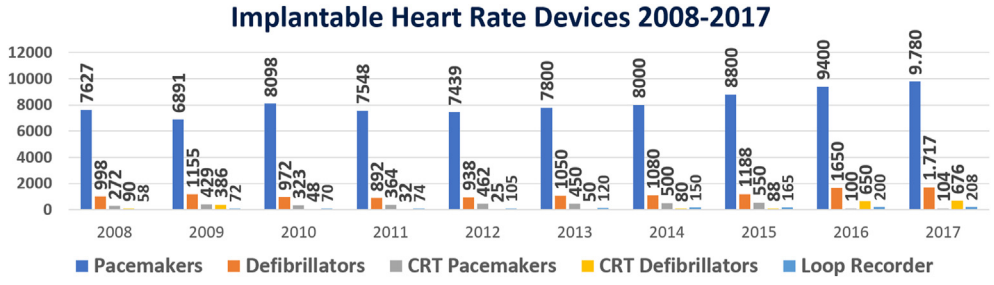

Fig. 1. Cardiovascular Implantable Electronic Devices in Greece from 2008 to 2017.

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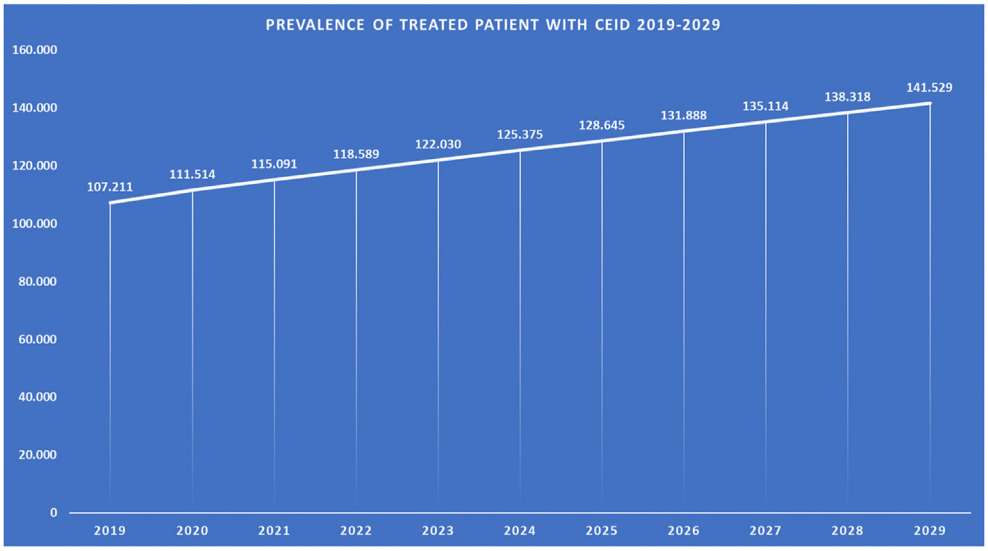

Fig. 2. The prevalence of CIED patients in Greece from 2019 to 2029.

tients who are residents of small islands, a personal transmitter will be provided. Patients' informed consent, as well as strict implementation of the EU General Data Protection Regulation (GDPR) 2016/679 and the EU Medical Device Regulation (MDR) 2017/745, are prerequisites for the commencement of this project.

In conclusion, with respect to HRS recommendations, both arrhythmia consultations and follow-up CIED clinics should amplify RM of CIED patients during the pandemic, and the proposal presented herein provides a blueprint for streamlining this process.

Conflict of interest

The authors have no potential conflict of interest to declare.

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