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Transforming primary health
care during the pandemic

INTRODUCING PAPERLESS, REMOTE ePRESCRIPTION – A GAME-CHANGER FOR PRIMARY CARE SERVICES

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MOTIVATION

The COVID-19 pandemic has disrupted the delivery of essential health services, especially regarding preventing and managing noncommunicable diseases (1) and has also exposed pre-existing vulnerabilities in the national health system.

The pandemic found Greece with an extremely stretched health system, after a long-term economic crisis and with primary health care, despite the continuous reform attempts since 2014, still fragmented, understaffed and underfunded (2). Less than 20% of the population was enrolled in a family doctor's list.

There were deep concerns that primary health care in Greece not only could not meet the need to act as an essential foundation of the response to the pandemic but could also have collapsed, resulting in many people living with chronic diseases no longer receiving appropriate treatment or access to medicines (1).

Adaptive and innovative approaches were necessary to protect and promote essential health service delivery in response to the pandemic and in the recovery phase (3). The pandemic signalled a turn in Greece's health system towards digitalization and acted as a catalyst to tackle longstanding obstacles in implementing many digital health tools. Introducing a paperless electronic prescription (ePrescription) system that did not require the patient's physical presence proved to be a game-changer that enabled primary care services to respond effectively to the extremely challenging circumstances and also triggered further digitalization of the health system (4).

ePRESCRIPTION BEFORE THE OUTBREAK

An ePrescription system for doctors became compulsory in Greece in 2012, replacing handwritten prescriptions and diagnostic test referrals. The ePrescription system was one of the reforms implemented after the economic crisis began, aiming to reduce costs by enabling the monitoring of doctors' prescribing behaviour and pharmacists' dispensing patterns. It is a nationwide web-based system developed by the eGovernment Centre for Social Security for creating, transmitting, dispensing and monitoring medicine prescriptions and diagnostic test referrals with an almost universal penetration (>98%). ePrescription enabled the prescription renewal period to be extended for up to six months based on patient needs, reducing significantly the number of visits for reissuing prescriptions for patients with chronic diseases.

Although a wide range of tools and services were developed around ePrescription, many functions were not implemented because of resistance from professional groups, safety and data protection issues, interoperability issues between ePrescription and the National Organization for the Provision of Health Services and hospital electronic services, conflicts between interest groups or even inertia. Therefore, during previous years, although an electronic system had been implemented for the physicians to issue prescriptions and diagnostic test referrals, patients had to visit their doctors in person to get their paper copy printed, signed and stamped. This was the case even for refilling prescriptions for patients with chronic conditions who were stable and on continuous medication regimens.

THE PANDEMIC AS A CATALYST IN THE TRANSITION TO PAPERLESS ePRESCRIPTION

The need to safeguard clinically vulnerable patients, especially older patients and/or patients with pre-existing chronic conditions, to contain the spread of the infection at hospitals and medical practices and simultaneously not to limit the access to essential health services led to the rediscovery of telemedicine globally, including in Greece (5). Health systems raced to adapt and to develop virtual services that could have served as their frontline for patients.

The paper form of the ePrescription created limitations and obstructions for the patient's care. A teleconsultation could have been incomplete and inadequate to meet patients' needs if the doctor could not prescribe medications or refer to diagnostic tests remotely when necessary. The COVID-19 pandemic proved to be the catalyst to tackle longstanding obstacles in implementing a paperless ePrescription system — a service developed and legislated since 2018 (Law 4523/2018) but not activated since then (6). Many issues have been solved, while several telehealth regulatory requirements have been relaxed on a temporary and emergency basis to expand the provision of telehealth services.

The Ministry of Health and Ministry of Digital Governance soon realized the urgent need to accelerate the transition to paperless medication prescriptions and diagnostic test referrals. An Act of Legislative Content published in March 2020 — containing urgent measures to limit the spread of COVID-19 — included the implementation of the paperless medication prescription (7). Shortly afterwards, the more technically demanding transition to the paperless diagnostic test referrals (because of interoperability issues) was also accomplished (8). Although these digital tools were used by primary health care providers in selected remote consultations as soon as they were available, it was not until the Law 4715/2020 — published in August 2020 — that the decision as to whether an in-person visit is required for patients with chronic conditions stable on their regimens was left for the first time to the discretion of the doctor, and the refilling of remote prescriptions was officially allowed (9).

Paperless ePrescription is not obligatory yet, but it is an option provided in Greece. Its activation requires the individual's online enrolment and consent in an application developed and managed by the eGovernment Centre for Social Security. After the activation, every time a doctor issues an ePrescription or a diagnostic test referral, a code is sent to patients as a text message (SMS) and/or as an email. Using these codes, patients can retrieve their prescriptions and diagnostic test referrals while any pharmacist or laboratory physician can retrieve and assess them in the online platform.

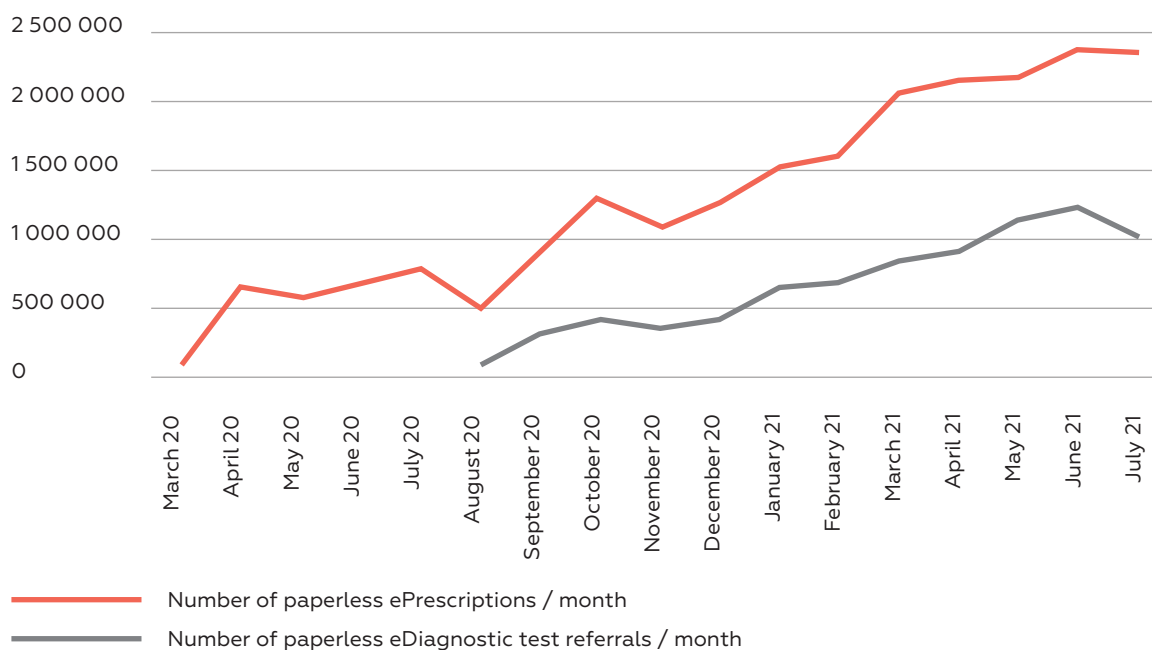
Since the paperless ePrescription system was implemented (in March 2020) until the end of July 2021, 2 380 198 people have been enrolled (Fig. 1), while 22 212 104 paperless ePrescriptions and 8 048 476 paperless eDiagnostic test referrals have been issued in total (Fig. 2). In July 2021, the percentages of the paperless ePrescriptions and eDiagnostic test referrals issued reached 32.83% of the total number of prescriptions and 34.17% of the total number of diagnostic test referrals issued during the month (Fig. 3).

Fig. 1. Trend in the number of people enrolled in the paperless ePrescription system from March 2020 until July 2021



Sources: authors based on eGovernment Centre for Social Security data.

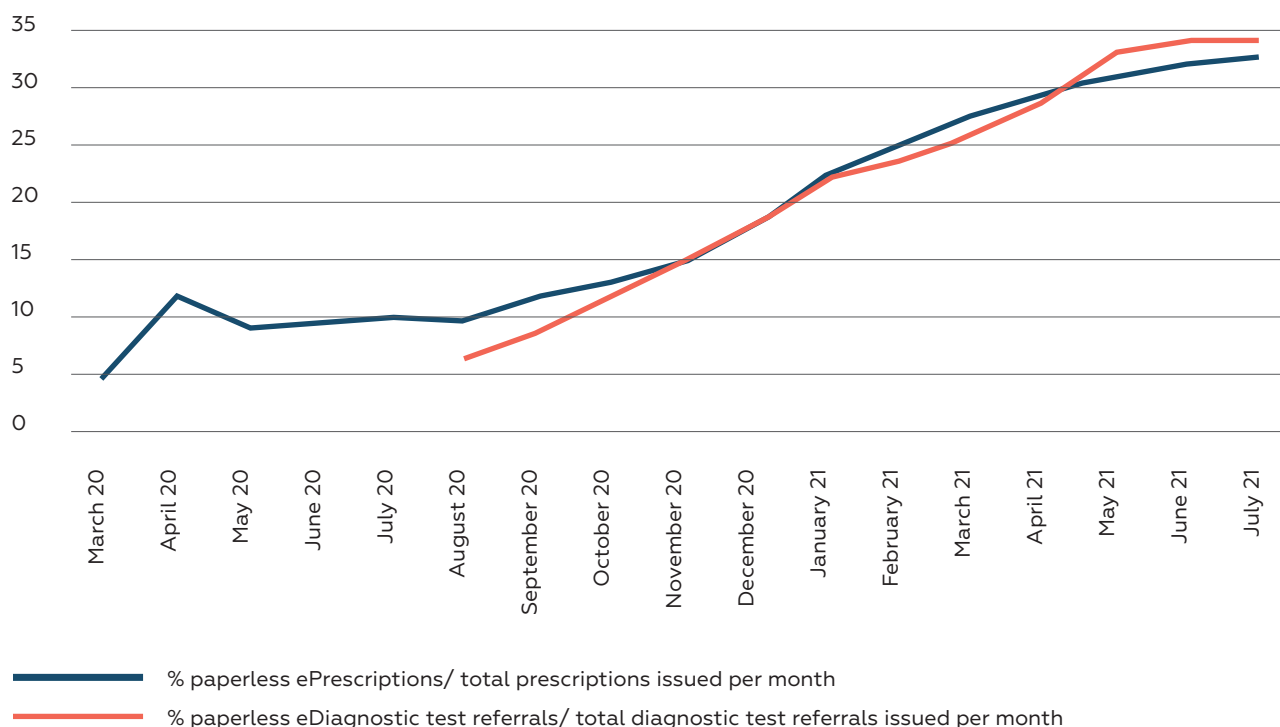
Fig. 2. Trend in the number of paperless ePrescriptions and eDiagnostic test referrals issued per month from March 2020 until July 2021



^a Introduction of paperless eDiagnostic test referrals: August 2020

Sources: authors based on eGovernment Centre for Social Security data.

Fig. 3. Trend in the percentages of paperless ePrescriptions and eDiagnostic test referrals over the total number of prescriptions and diagnostic test referrals issued per month from March 2020 until July 2021



^aIntroduction of paperless test referrals: August 2020.

Sources: authors based on eGovernment Centre for Social Security data.

PARAMOUNT IMPACT OF PAPERLESS ePRESCRIPTIONS ON PRIMARY HEALTH CARE CAPACITY AND ON ELIMINATING ACCESSIBILITY BARRIERS

Paperless, remote ePrescribing enabled health-care users to access from home a wide range of primary care services – both public and private – for chronic or acute conditions, through an online or even a telephone consultation, including the evaluation of the control of their chronic conditions and the renewal or modification of their prescriptions, the assessment of symptoms in potential COVID-19 cases, any other acute illnesses and conducting routine preventive health checks. Patients were given the option to avoid crowded waiting rooms, being exposed to potential infection. Even during lockdown periods or in those on COVID-19 quarantine, the paperless ePrescription enabled the completion of remote primary health care encounters.

The paperless, remote ePrescription reduced the prescription processing burden for primary care physicians and staff. Indeed, most in-person visits to primary care physicians involve prescribing medication. In case of the previous system with exclusively paper-based ePrescription, even for refilling prescriptions for patients who were stable on their medication regimen, an in-person visit to a doctor was required. Moreover, these visits were combined with additional administrative and regulatory burdens, primary care teams experienced considerable strain and an increased workload. The introduction of the paperless ePrescription and the fact that no physical presence was anymore needed to get a prescription provided essential time savings for the physician and staff.

The paperless, remote e-prescribing system also provided critical lifelines to ensure that private practices remain operational and offsetting the huge decline in office visits by being available to their patients throughout the pandemic. Moreover, the Ministry of Health and the National Organization for the Provision of Health Services established for the first time a fee-for-service payment for contracted family doctors for remote consultations for patients with COVID-19 to improve access to care, motivating the deployment of teleconsultations.

FURTHER DIGITALIZATION OF THE HEALTH SYSTEM

Several adaptive and innovative approaches were necessary to protect and promote essential health service delivery in response to the COVID-19 pandemic and during the recovery phase. The Ministry of Health and Ministry of Digital Governance soon developed an electronic COVID-19 patient registry to monitor patients diagnosed with COVID-19 and to ensure continuity of care. This registry, as a reference point for COVID-19 cases in Greece, enabled epidemiological risk assessment. It also enabled attending doctors to follow their patients' progress through telemedicine and to prescribe necessary medication.

Further, a dedicated website (emvolio.gov.gr) for Greece's COVID-19 vaccination programme, entitled Freedom, was developed, providing information and access to an appointment management application built on the standards of an airline booking system. People registered in the paperless ePrescription system automatically received an SMS and/or an email with their assigned appointment number when they became eligible for vaccination, including the date and time of vaccination and the vaccination centre. Then they had the options to confirm, modify or reject the proposed appointment. This function significantly accelerated the enrolment of citizens in the paperless ePrescription system, especially of older people and the most vulnerable people. Almost 2.5 million people have booked their vaccination appointments through the platform. The eligibility for vaccination was determined according to the vaccination priority groups as set by the National Vaccination Committee and by using data extracted through ePrescription (age and ICD codes). The described procedure represents an illustrative example on the interoperability of electronic services.

LEADING ROLE OF PRIMARY HEALTH CARE SERVICES DURING THE PANDEMIC AND INTEGRATION WITH PUBLIC HEALTH SERVICES

During the pandemic, the National Public Health Organization advised the public to stay at home and consult "their family doctor" if they felt unwell, but most people in Greece wondered who they were going to consult and what this phrase actually meant, increasing the public awareness about the necessity of primary health care. Public and private primary care services had a leading role in following up COVID-19 patients remotely but also to ensure the continuity of care for patients with chronic conditions using the paperless ePrescription. Further, primary care services were significantly reinforced by the work of the mobile units of the National Public Health Organization that provided daily easy and cost-free access to COVID testing in the community. The strengthening of the role of primary health care has led numerous citizens that had not previously used the primary care services available in their community to consciously choose primary health care to avoid the emergency departments of hospitals. As a result, the number of requests to enrol in the list of a family physician increased significantly.

SUSTAINABILITY PROSPECTS AND NEXT STEPS

The introduction of the paperless, remote ePrescription enabled primary health care to respond effectively during the pandemic, catapulting telehealth into the mainstream, where it is likely to remain after the pandemic subsides. It has also proven its effectiveness in saving precious time for both patients and physicians. Incorporating paperless, remote ePrescription in every clinical practice is expected to further reduce the amount of time spent on prescribing medication for family physicians, providing available time for appointments with more patients. Further, it is expected to reduce patients' accessibility barriers and travel costs, especially for those with chronic diseases, who can avoid, even after the end of the pandemic, having to be physically present each time they need to refill their prescriptions.

"INCORPORATING PAPERLESS, REMOTE ePRESCRIPTION IN EVERY CLINICAL PRACTICE IS EXPECTED TO FURTHER REDUCE THE AMOUNT OF TIME SPENT ON PRESCRIBING MEDICATION FOR FAMILY PHYSICIANS."

The COVID-19 pandemic signalled a turn in Greece's health system towards digitalizing health services delivery by developing innovative tools and solutions, counteracting long-lasting systematic deficiencies and enhancing the overall system capacity and preparedness to better meet the broader health needs, especially of the most vulnerable people. Building on the momentum of innovations in health services delivery during the COVID-19 crisis, new digital applications and health services are being developed and are expected to be operational soon (10). By using the tested digital tools that emerged in the people-centred Freedom vaccination programme during the upcoming months, Greece is expected to take another important step towards digitalizing health care, investing in preventing disease.

The Ministry of Digital Governance and the Ministry of Health are once again joining forces, giving a digital push to implementing the National Public Health Programme (Spyros Doxiadis). The ePrescription system will be used to send personalized messages to people, depending on their age, sex, geographical area and state of health for critical preventive diagnostic tests for cancer, cardiovascular diseases and immunizations (flu vaccination, children's vaccinations according to the National Vaccination Programme etc.). At the same time, the launch of the Myhealth application has been announced. For the first time, this application will give the patients enrolled in paperless ePrescription access to their own health data – prescriptions, diagnostic test referrals and medical certificates – that have been registered in the database of the ePrescription system, a precursor of an electronic medical record. A very optimistic message for the future of digital transition in Greece's health system comes from the recent approval of the funding of up to €278 million for digital transformation in health care under the Recovery and Resilience Facility during 2021–2026. Investing in effective and efficient services delivery for COVID-19 and essential health services will not only support the response to and recovery from COVID-19 but will also strengthen the health system's resilience for future challenges.

The **effectiveness of remote consultations in monitoring the control of noncommunicable diseases**, promoting disease prevention and screening services, evaluating signs and symptoms of acute conditions, including COVID-19, giving the appropriate medical advice and keeping spirits up even by telephone **reminded of the power of telemedicine**. The option of using online video communication platforms that would also enable visual contact could definitely be more beneficial. Telemedicine should be regarded as a precious tool that could be upgraded and be available for patients and physicians in the future, possibly in the form of a national online communication platform for health-care services by the Ministry of Health (3).

Introducing a pay-for-performance component for the remote consultations and for the paperless ePrescribing is essential, especially in the private sector. Responding to the emerging needs during the pandemic, a fee-for-service payment for contracted family doctors for remote consultations for patients with COVID-19 was introduced. It is obvious that the payment for remote consultations should be expanded to the wide range of the various reasons for remote consultations that could be offered even after the pandemic.

A new extensive legal framework for telemedicine is needed to ensure its sustainability after the pandemic. The regulatory requirements enacted at the beginning of the pandemic to facilitate access to telehealth will expire once the COVID-19 public-health emergency has ended and will need to be properly replaced.

Putting in place effective measures to tackle the digital divide, ensuring that these new developments do not exacerbate health inequalities, is of paramount importance. Individuals and households with limited access to the Internet or without smartphones and those with limited digital literacy – especially older people – are unlikely to benefit from services and information provided digitally if specific action is not taken to avoid this (5).

The **integration of primary care, public health services and hospital services** that played a crucial role in addressing the pandemic should be further pursued in the ongoing effort to strengthen health services in Greece.

LESSONS LEARNED

- 1. A health crisis can act as a catalyst to tackle longstanding obstacles in the introduction of sustainable changes in services delivery, accelerating long-due reforms.** Many of the digital tools described, such as paperless ePrescription, were already developed in Greece before the pandemic, but their implementation became possible only under the pressure of the pandemic strengthening the political will.
- 2. Implementing the paperless, remote ePrescription was an indisputable game-changer during the COVID-19 pandemic that enabled primary health care to respond effectively when the remote consultations were the only possible way to deliver health-care services.** The paper-based ePrescription set limitations on remote primary health-care encounters since most involve medication therapy or diagnostic test referrals.
- 3. The expanded utilization of paperless ePrescription combined with the option of remote consultations could improve efficiency,** in an effort to overcome accessibility barriers in primary health care and to save time for both the physicians and the patients. Developing virtual services that will be remunerated and completed with paperless ePrescription could be an option routinely employed in primary health care.
- 4. The effective involvement of the primary care services in the response to the pandemic can be promoted to increase the prestige of primary health care.** In countries like Greece, where the development of primary care has become a prerequisite and the main focus of reforms for improving efficiency and access, the success story of COVID-19 being managed by primary health care can be promoted in the effort to engage the community in the primary health-care reform.
- 5. The integration of primary care and public health services, social services, mental health services and hospital services that has been implemented because of the pandemic is expected to be a key element in promoting population health.** We should build on the momentum of improving the connection between public health, primary care and secondary care to strengthen the health systems and achieve high-quality health services for all. In accordance with the Declaration of Astana (11), investing in primary health care and health services that are digital, integrated, safe, effective, efficient, patient-centred, comprehensive, accessible, available and affordable for everyone and everywhere will not only support the response to and recovery from COVID-19 but also strengthen health systems to cope better with future challenges.





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