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RESEARCH ARTICLE

Vaccination Rate for COVID-19 in a Primary Healthcare Center in Greece

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ABSTRACT

The novel coronavirus SARS-CoV-2 has been the contributing factor to the COVID-19 disease pandemic, since early 2020. It first appeared in December 2019 and since then rapidly spread worldwide. The severe symptoms of COVID-19 disease, especially in the population groups with higher risk of infection or disease complications, along with the increased mortality rates determined the need for adequate protection and prevention measures to be taken. From the beginning of the pandemic, efforts have been made to develop and produce vaccines that could stop the spread of the disease. The vaccination in most countries was performed in phases, with priority to population groups with a higher risk of infection or disease complications, such as the elderly and patients with chronic diseases, and to population groups with a high risk of professional exposure. This study presented data from the vaccination program, implemented at a primary healthcare center in Greece, that served as a vaccination center during the pandemic. Relying on the results, both the attendance rate and the vaccination rate were very high, which proves that the necessity of the vaccine is well established and that vaccination hesitancy is mitigated among the population served at the Nikea Health Center.

Keywords: COVID-19, EMA, ICU, SARS-CoV-2.

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1. Introduction

COVID-19 infection, caused by the coronavirus SARS-CoV-2, had a deleterious impact on public health worldwide. The pandemic came to Greece at the end of February 2020 and according to the official report of the Hellenic National Public Health Organization on May 2023, there have been 36,863 deaths attributed to COVID-19 (eody.gr). Vaccinations are widely applied preventive measures, which have reduced the number of cases of many infectious diseases. Their effectiveness is strongly related to the vaccination coverage of the population. Herd immunity is an important concept for epidemic control. It is defined as the indirect protection of the population immunized by natural infection or vaccination, to stop generating large outbreaks. Herd immunity ensures that people who cannot be vaccinated due to their medical condition can be protected against diseases [1], [2]. The percentage of the population who need to be immune, in order to achieve herd immunity, varies according to the disease. For example, herd immunity against measles requires about 95% of the population, while against polio requires about 80% [3]. As regards SARS-CoV-2, the transmission models showed that vaccine-induced herd immunity requires coverage above 80%–90%. Since the beginning of the pandemic, efforts have been made to develop and produce vaccines that could stop the spread of the infection. The approved vaccines provide a high degree of protection and prevention of serious and lethal outcomes, as well as contain symptomatology and admissions in the ICU wards. The update of vaccines has a target to increase the possibility of adequate prevention not only against serious disease manifestations but also against inflammation and mild symptomatic disease [4]. Vaccination in most countries was performed in phases. Priority was given to population groups with higher risk of infection or disease complications, such as the elderly and patients with chronic diseases. Moreover, priority was given to population groups with a high risk of professional exposure, such as civil protection personnel (military, police, and coastguard personnel) and healthcare professionals [5], [6]. The aim of this study is to present the vaccination program that was implemented at a primary healthcare center in

Greece, which served as a vaccination center during the pandemic.

2. Materials and Methods

Data were collected from the health center information system. Every day we recorded the number of expected citizens (appointment via the national vaccination platform), the number of citizens who visited the center, the number of citizens who were vaccinated, and the number of citizens rejected from vaccination, due to various medical conditions. Moreover, we recorded the vaccination doses administered and the vaccination doses rejected. Data were collected from January 20, 2023, until March 30, 2023. All patients were vaccinated with the Pfizer Vaccine. The study was approved by the Local Ethics Committee.

3. Results

During the aforementioned time, 115,340 vaccination appointments were scheduled. Overall, 110,565 patients were presented at the vaccination center facilities. The attendance rate was 95.86% which is presented in Fig. 1. Among them, 463 (0.43%) patients were excluded from vaccination due to medical conditions. The exclusion rate is presented in Fig. 2. Patients were excluded due to fever and infection symptoms, recent vaccination with influenza vaccine, severe allergic reactions and thrombocytopenia. Moreover, 188 patients (0.18%) visited the center before the required time interval had passed since the previous vaccine dose and were suggested to visit the health center later. A total of 109,914 patients were vaccinated. The vaccination rate was equal to 99,40% and the results are presented in Fig. 3. Moreover, as regards the vaccine doses, a total of 315 doses were rejected, due to defects in the content or the container (such as turbidity, leaks, etc).

4. Discussion

Vaccinations for COVID-19 began in Greece in late December 2020 and in May 2021 the Greek authorities introduced mandatory vaccination for certain population groups [7]. However, in the beginning, mandatory vaccination raised serious ethical and social concerns. Moreover, there was an ongoing process of misinformation about vaccine safety and side effects [8], [9]. According to the literature, there are many determinants of intention to get vaccinated against COVID-19, such as gender, educational level and professional status among others [10]–[12]. In this study, both the attendance rate and the vaccination rate were very high, which proves that the necessity of the vaccine is well established and that vaccination hesitancy is mitigated among the population served at the Nikea Health Center. As the pandemic persists, vaccination policies will continue to play an important role in the management of the virus spread and further efforts must be made in order to limit misinformation and raise vaccine uptake rates. This can be achieved by educational

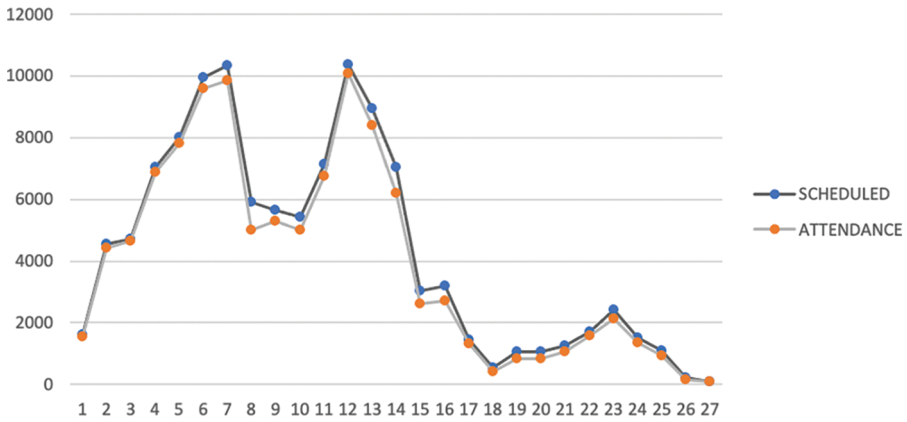

Fig. 1. Time series chart of attendance (light grey line) and scheduled vaccinations (dark grey line).

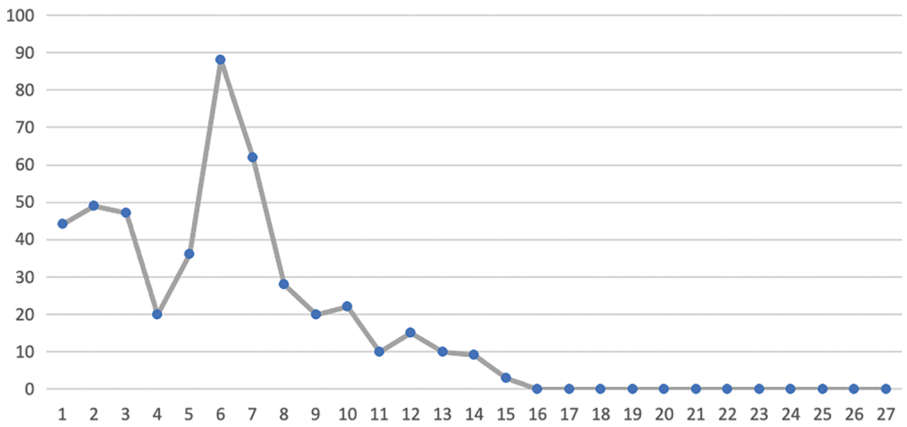

Fig. 2. Time series chart of exclusion rate.

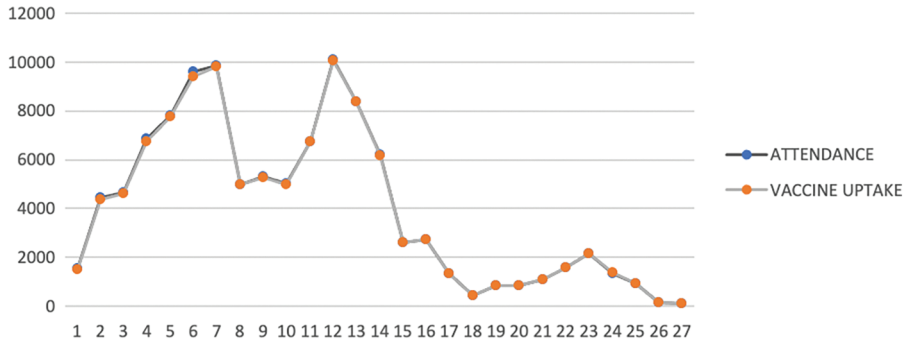

Fig. 3. Time series chart of attendance rate and vaccine uptake.

interventions and public awareness campaigns that should focus on the importance of herd immunity.

5. Conclusion

This case study presents the attendance rate, the vaccination rate, and the rejection rate for vaccination against COVID-19, in a primary health care center in Nikea, Piraeus, Greece. The aforementioned center served as a vaccination center during the pandemic. Both the attendance rate and the vaccination rate were very high, which proves that the necessity of the vaccine is well established and that vaccination hesitancy is mitigated among the population under study.

Conflicts of Interest

Authors declare that they do not have any conflict of interest.

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