

## Review Article

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# COVID-19 Pandemic Increased the Flu Vaccine Use: A Brief Report from the Campania Region

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## Abstract

Covid-19 pandemic has powerfully influenced on the worldwide Healthcare Assistance, changing priorities and duties. Indeed, the importance of the Influenza vaccination has been remarkably pointed out from all Authorities, as a co-circulation of Influenza virus and SARS-CoV-2 cannot be excluded.

For this reason recent studies have shown that the Covid-19 pandemic has significantly influenced the population's propensity for influenza vaccination. In this regard, the Campania Region has analysed and compared the needs expressed by the Local Health Authorities in the vaccine campaign: the main aim was to expand the free and effective offer of Influenza vaccine to the most vulnerable targets of population. As we can see from this report five types of vaccines have been adjudicated for the 2020/2021 season.

The other aim of this study was to understand a possible increase in Influenza vaccination needs/coverage, comparing the last year campaign and this year's one, due to Covid-19 pandemic. To confirm, there has been a statistically significant increase of Influenza vaccines in population over 65 years old, monitored by the regional platform “AVR”.

The Region has offered also efficient strategies for reaching an higher coverage, as the involvement of General Practitioners and Paediatricians, using the Assisted Data Bank and consultation of the lists of exemptions for pathologies.

Even if the pandemic emergency has compromised regular vaccine activities, the Campania Region has granted, however, vaccines activities and the implementation of the coverage, showing that the demand of Influenza vaccine has increased from the Local Health Authorities.

**Keywords:** Flu vaccination; COVID-19 pandemic; Campania Region; Local Health Authorities; Needs

## Introduction

Public Health generally and the Campania Region in particular are constantly concerned to ensure effective and safe interventions or the prevention of infectious diseases: vaccination certainly ranks among the most efficient ones. The objective of vaccination prevention programmes is to confer a state of protection to those healthy people who, for some epidemiological, health, occupational or behavioural conditions are exposed to the risk of contracting certain infections, as well as to achieve the

reduction and, where possible, eradication of certain infectious diseases.

In this regard, the flu vaccine is the most effective prevention weapon against seasonal flu, a disease affecting the respiratory system due to flu viruses. It is an effective and safe means both for the flu prevention and for the decrease of physical, social and economic complications [1-3].

During this year the importance of the Influenza vaccination has been especially pointed out, as a co-circulation of Influenza virus and SARS-CoV-2 cannot be excluded, particularly in high risk subjects of all ages. Indeed, it is a mean to simplify the diagnosis and management of suspected cases, given the similar symptoms

between Covid-19 and Influenza [4]. Vaccination against Influenza reduces Influenza complications in those subjects at risk and also accesses to first aid [5,6].

So, how did the Covid-19 pandemic affect the flu vaccination campaign? Recent studies have shown that the Covid-19 pandemic has significantly influenced the population's propensity for influenza vaccination [7,8]. For example, a UK- Wide Observational Study demonstrates how Covid-19 has increased acceptance of flu vaccination in those previously eligible but unvaccinated and motivates substantial uptake in the newly eligible [9].

In the Campania Region, for the 2020/2021 season, the flu vaccination campaign has started on October 1st 2020. In this regard, we have decided to analyse and compare the needs expressed by the Local Health Authorities. Vaccines have been delivered to Local Health Authorities according to the needs that they have indicated to Designated Regional Offices. Then Local Health Authorities have distributed them to Prevention and Pharmaceutical Departments that have sorted them to Sanitary Districts, Hospitals, University Hospitals and local services [10].

The Sanitary Districts have distributed them to General Practitioners, Paediatricians, vaccines centres, Residential Care Homes and Home Care Assistance Services.

The main objects have been the following:

- Granting vaccine, primarily to persons under the age of 65 and persons suffered from chronic diseases, of all ages, who could develop an higher risk to secondary complications to the flu and to healthcare professionals;
- Expanding, for the 2020/2021 season, the free and effective offer of Influenza vaccine to children aged between 6 months and 6 years and persons over the age of 60;
- Providing home injection to people caught and disabled with difficulties of reaching clinics, also under Home Care Assistance Service Programs;

- Providing vaccine for persons residing or hospitalizing in medical facilities, injected from the employed healthcare professionals [11].

Vaccines adjudicated have been the following:

- **FLUAD**, flu vaccine containing the antigens annually determined by the WHO. Inactivated adjuvant vaccine (MF59C1) for patients over the age of 65, vial-syringe;
- **FLUARIX**, tetravalent flu vaccine containing 4 antigens annually determined by the WHO: two subtypes of Influenza A virus and two types of Influenza B virus;
- **FLUCELVAX**, tetravalent flu vaccine containing 4 antigens annually determined by the WHO: two subtypes of Influenza A virus and two types of Influenza B virus. Developed on cell cultures meant for healthcare professionals;
- **EFLUELDA**, quadrivalent flu vaccine (virion split, inactive), 60 microgram HA/strain for adults aged 65 and over (Residential Care Homes);
- **FLUMIST QUADRIVALENT** nasal spray, delivered from Astra Zeneca to the Campania Region through the Ministry of Health, indicated in children and teenagers between 24 months and 18 years [11].

We therefore proposed studying Local Health Authorities whether any remarkable increase in flu vaccination needs/coverage occurred between last year's flu vaccination campaign and this year's campaign, due to the COVID-19 pandemic.

This analysis has been carried out exclusively for the FLUAD vaccine, so the results are referred to population over 65 years old. As we can see from Table 1, there has been a statistically significant increase (tested with one-tail Z Score) in Influenza vaccination needs across all the Local Health Authorities.

Local Health Authorities	2019-20		2020-21		p-value (one tail)	Z-score
	Needs	Residents	Needs	Residents		
AV	24.680 (26.7%)	92.525	35.833 (40.5%)	88.585	<0.0001	-62,134
BN	13.000 (20.6%)	63.235	18.000 (29.6%)	60.865	<0.0001	-36,676
CE	54.000 (32.7%)	164.995	100.000 (63.5%)	157.596	<0.0001	-174,643
NA1	100.000 (50.5%)	197.920	140.700 (74.8%)	188.059	<0.0001	-155,7
NA2	110.000 (66.3%)	165.860	110.000 (64.9%)	169.282	>0.0001	8,171
NA3	70.000 (35.4%)	197.918	78.000 (40.5%)	192.534	<.0001	-33,125
SA	120.000 (53.3%)	229.218	140.300 (62.5%)	224.635	<0.0001	-68,821
<b>The Campania Region</b>	<b>491.680 (44.2%)</b>	<b>1.111.671</b>	<b>622.833 (57.6%)</b>	<b>108.155.6</b>	<b>&lt;0.0001</b>	<b>-197,831</b>

**Table 1:** Flu vaccine Fluad® needs expressed by the Local Health Authorities-(absolute and relative frequencies).

This could mean that COVID-19 acted as an incentive to Influenza vaccination in over 65 population. In our Region efficient strategies have been used for reaching an higher coverage, as the involvement of General Practitioners and Paediatricians, using the Assisted Data Bank and consultation of the lists of exemptions for pathologies.

It has been grant a continuous monitoring of all vaccination activities due to a regional platform “AVR” (Regional Vaccination Register) that dialogs with all the Local Health Authorities and with Doctors as well as with the Regional Vaccination Register [11].

Although the analysis has been performed without taking into account other potential confounding factors, COVID-19 pandemic has been an important difference factor between 2020/2021 campaign and the previous ones [12]. It can be considered a significant incentive that has significantly risen the accession of public health good practices as the vaccination.

Finally, despite the pandemic emergency has greatly influenced on the risk of a general decrease of regular vaccine activities, both for the displacement of healthcare resources towards check activities of the pandemic, and for social distancing measures imposed, the Campania Region has granted, however, vaccines activities and the implementation of the coverage following also the recommendations of the Ministry of Health. From our study it appears that the Influenza vaccine campaign has been promoting from different stakeholders with an increase of the demand of Influenza vaccines from the Local Health Authorities.

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