

## “COVID- 19 Vaccination utilization pattern of the beneficiaries attending COVID 19 vaccination centre at a Medical college in Haryana, India”

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### Abstract

**Introduction:** The COVID vaccination was introduced this year and there was lot of hesitancy amongst the people including health care workers. The pace of COVID vaccination increased with each passing day. No previous data was available about the utilization pattern of beneficiaries of COVID vaccination. **Objective :** This study was conducted to know the vaccine utilization pattern amongst general population as well as health care workers at a tertiary care health institute. **Method:** The beneficiaries who received COVID vaccination from 16<sup>th</sup> January 2021 to 15<sup>th</sup> June 2021 at a COVID Vaccination Centre of a tertiary care health institute in Haryana ( n= (Total = 9721). **Result :** Total number of beneficiaries vaccinated with 1<sup>st</sup> dose during the study period were 9721. Out of total vaccinated, 1600 (16.45%) were health care workers. Coverage of vaccination with first dose was maximum in the administrative staff (Data Entry Operators /Clerk/IT/other managers, Receptionist, Technical Staff etc) was 100 % and minimum in doctors ( 66.4 % ). **Conclusion:** Vaccine coverage in HCW with first dose in the study hospital was 82.27 % and for 2<sup>nd</sup> dose was 64.35% which is comparatively less to first dose. More sensitization of HCW is required to motivate them for second dose of Covid vaccination.

**Keywords:** Covid Vaccination, COVIDSHIELD, Pandemic, COVID-19, Health Care Workers, Vaccine utilization.

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### Introduction

The year 2020 saw the pandemic of COVID-19 with its spread to every corner of the world and had various effects on the life of citizens like social, economical, cultural, political and mental aspects. The whole world adjusted to a new life style like social distancing, hand washing, mask wearing. In many countries including India lockdown was imposed frequently across states to control the spread of pandemic to more people and new areas. School and colleges were closed across the country.

On 30<sup>th</sup> January 2020, World Health Organization (WHO) declared that the outbreak due to a novel corona virus, SARS-CoV-2, also known as COVID-19, was a public health emergency of international concern (PHEIC). By 12<sup>th</sup> March 2020, due to its rapid global spread, the outbreak was declared a pandemic. The pandemic has already caused the loss of more than 1.5 million lives and disrupted the lives of billions more. One essential strategy to control this pandemic is the rapid development of safe and effective vaccines [1].

Many countries started work on the development of the vaccine. In India, at the time of study period, three vaccines have been given Emergency Use Authorization (EUA). These are Covishield, which is a patent of AstraZeneca and manufactured in India by Serum institute of India, Covaxin, manufactured by Bharat Biotech Limited and Sputnik V, which has been certified by the Russian Ministry of Health

[2]. Efficacy of available vaccines ranges from 81% to over 90% [2,3].

India began its vaccination program on 16<sup>th</sup> January 2021, operating 3,006 vaccination centres on the onset. The first phase of the rollout involved health workers and frontline workers including police, paramilitary forces, sanitation workers, and disaster management volunteers [4]. The next phase of the vaccine rollout covered all residents over the age of 60, residents between the ages of 45 and 60 with one or more qualifying co-morbidities and any health care or frontline worker that did not receive a dose during phase1[5]. From 1 April, eligibility was extended to all residents over the age of 45 years [6]. Now vaccination has been approved for all above 18 years [2]. Till date, nearly 143 crores people have been vaccinated in India including 1<sup>st</sup> and 2<sup>nd</sup> dose [7].

Early preparations were done and cross checked by conduction of a DRY RUN activity at various hospitals across the country to know the challenges and issues with the complete roll out of the vaccine. The COVID vaccination services were started at Kalpana Chawla Government Medical College, Karnal on 16<sup>th</sup> January, 2021 under the aegis of Department of Community Medicine, KCGMC, Karnal with the Principal Investigator (PI) as Nodal Officer for COVID Vaccination of the institute.

From the day one, thousands of beneficiaries including Health care workers (HCWs) from the institution, Front line workers (FLWs) as well as general public has been vaccinated with COVISHIELD vaccine. There was a lot of confusion and hesitancy amongst the masses regarding the efficacy and safety of the vaccine as it has been invented and released for the first time in the world. Despite the availability of vaccines, there have been reports of vaccine hesitancy

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among people including healthcare workers [8,9,10]. The vaccine drive took time to make pace initially. Vaccine hesitancy was a major hindrance in early acceptance of the vaccine. Initially even the health care workers were having apprehension regarding the vaccine safety and hence the turnover was less. Very less literature is available on the COVID vaccine beneficiaries being a new vaccine.

People from different strata of the community came forward for vaccination in a phased manner. So there was a mixed reaction by the community at a large that towards the whole vaccination drive. Hence a study to know the vaccination utilization pattern of the beneficiaries will certainly help to know the way community reacts a newly introduced vaccine. So this study has been planned to so that the pattern of utilization of COVID vaccination could be identified, analyzed and relevant recommendations could be made for the planning of the vaccination sessions accordingly in the future.

**Material and Method**

**Study area:** COVID Vaccination Centre (CVC), Kalpana Chawla Govt Medical College, Karnal (HR).

**Study Population:** COVID vaccine beneficiaries attending CVC, KCGMC, Karnal

**Study Period:** 16<sup>th</sup> January 2021 to 15<sup>th</sup> June 2021.

**Study Design:** Institutional based analytical, record based, Cross sectional, non-interventional study.

**Study Size and Sample:** All the COVID vaccine beneficiaries who were vaccinated at CVC, KCGMC, Karnal during study period (Total = 9721).

**Study Tools and Techniques:** The already available secondary data at CVC will be utilized for analysis for the study purpose. The data will be analyzed for various parameters as available in record and would be kept anonymous.

**Inclusion Criteria:** All complete data available at CVC will be utilized and it is anonymous.

**Exclusion Criteria:** Any incomplete data of a particular beneficiary will be excluded.

**Statistical Analysis:** The data collected would be entered in an Excel spread sheet. Proportions, percentages, mean and other appropriate statistical tests were applied to analyze the data to identify important relationships between variables and determine the level of significance. P<0.05 will be considered as significant.

**Results**

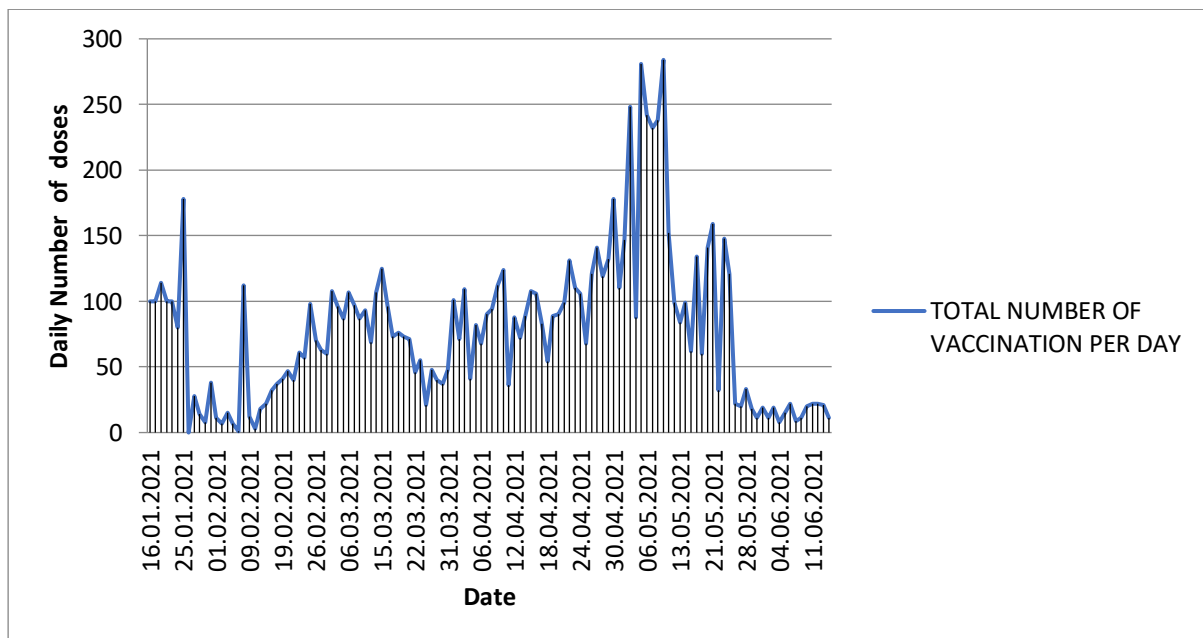
**Table 1: Category-wise total number of beneficiaries vaccinated ( n= 9721)**

| Category-wise total number of beneficiaries vaccinated | I st Dose number. (% age) | II nd Dose number (% age) |
|--|---------------------------|---------------------------|
| Health Care Workers (HCWs)                             | 1600 (16.45)              | 1045 ( 10.74)             |
| General Population (18-44 Yrs)                         | 1287 (13.23)              | 0 (0)                     |
| General Population (45-60 Yrs)                         | 2234 (22.98)              | 330 (3.39)                |
| General Population ( 60 Yrs)                           | 2026 (20.84)              | 1199 (12.33)              |
| Total Vaccination done at KCGMC, Karnal ( n= 9721)     | 7147 (73.52%)             | 2574 (26.48 %)            |

Table 1 shows category-wise total number of beneficiaries vaccinated at KCGMC Karnal from 16<sup>th</sup> Jan, 2021 to 15<sup>th</sup> June, 2021. Total numbers of beneficiaries vaccinated during the study period were 9721 and out of which 7147 ( 73.52 %) were vaccinated with 1<sup>st</sup> dose. Out of total 9721 vaccinated 1600 (16.45%) were health care workers (HCWs) out of which 1588 were from the parent institute i.e. KCGMC, Karnal and rest from outside hospitals. In general

population who got vaccinated with first dose, 1287 (13.23 %) beneficiaries were in age group 18-44 years, 2234 (22.98%) beneficiaries were from age group 45-60 years .

Out of total 2574 beneficiaries who got second dose of covishield from 13<sup>th</sup> February, 2021 to 15<sup>th</sup> June, 2021 ( As eligibility of second dose was after 28 days of 1<sup>st</sup> dose) , 1045 were HCWs.



**Fig. 1: Daily Doses of Covid Vaccination Administered**

Figure 1 shows daily trend of beneficiaries of all categories who got vaccinated ( both first and second doses) during the study period. It is

seen that number of beneficiaries vaccinated were maximum in the month of April and May. More number of people got vaccinated

during that period as eligibility of being vaccinated was extended to all residents over the age of 45 years from April , 2021 and for above 18 years from May, 2021. At the same time the 2<sup>nd</sup> wave of COVID -

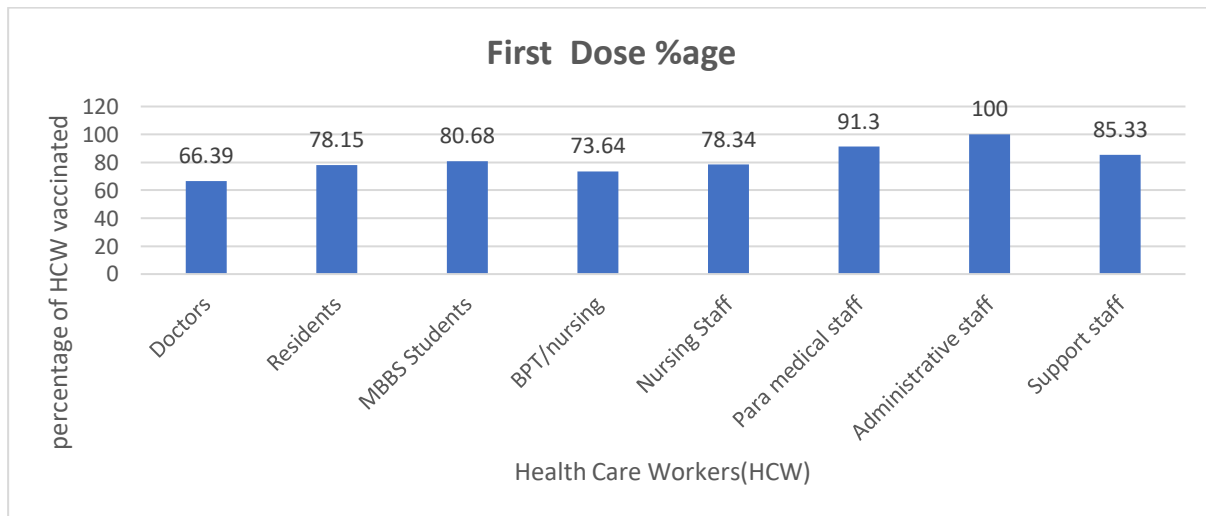
19 was going on which created fear of Covid infection amongst people , so public opted for vaccination enthusiastically .

**Table 2: Category- wise data of HCWs (KCGMC, Karnal) vaccinated for first dose**

| Sr No | Designation          | Total       | 1st Dose (Number) | Percentage (%) |
|-------|----------------------|-------------|-------------------|----------------|
| 1     | Doctors              | 122         | 81                | 66.4           |
| 2     | Resident Doctors     | 119         | 93                | 78.2           |
| 3     | MBBS Students        | 440         | 355               | 80.7           |
| 4     | BPT/nursing students | 129         | 95                | 73.6           |
| 6     | Nursing Staff        | 217         | 170               | 78.3           |
| 7     | Para medical staff   | 115         | 105               | 91.3           |
| 8     | Administrative Staff | 101         | 101               | 100            |
| 9     | Support staff        | 687         | 588               | 85.3           |
|       | <b>Total</b>         | <b>1930</b> | <b>1588</b>       | <b>82.3 %</b>  |

Table 2 shows the categories of health care workers of KCGMC who got vaccinated with first dose during study period. The number of HCWs enlisted at the study hospital eligible for vaccination during the study period was 1930. Out of 122 faculty doctors enlisted in KCGMC only 81 ( 66.4 % ) vaccinated with 1<sup>st</sup> dose during study

period . Out of total 440 MBBS students, 355 (80.7%) got their first dose of covishield. Coverage of vaccination with first dose was maximum in the administrative staff (Data Entry Operators ( DEO)/Clerk/IT/other managers, Receptionist, Technical Staff etc) was 100% and minimum in doctors ( 66.4 % ) .



**Fig. 2: Percentage of HCWs (KCGMC, Karnal) who received COVID 1<sup>st</sup> dose**

Figure 2 shows maximum coverage of vaccination with first dose (100 % ) in administrative staff (Data Entry Operators ( DEO)/Clerk/IT/other managers, Receptionist, Technical Staff etc ) followed by 91.3 % in paramedical staff (counsellors, Physiotherapist

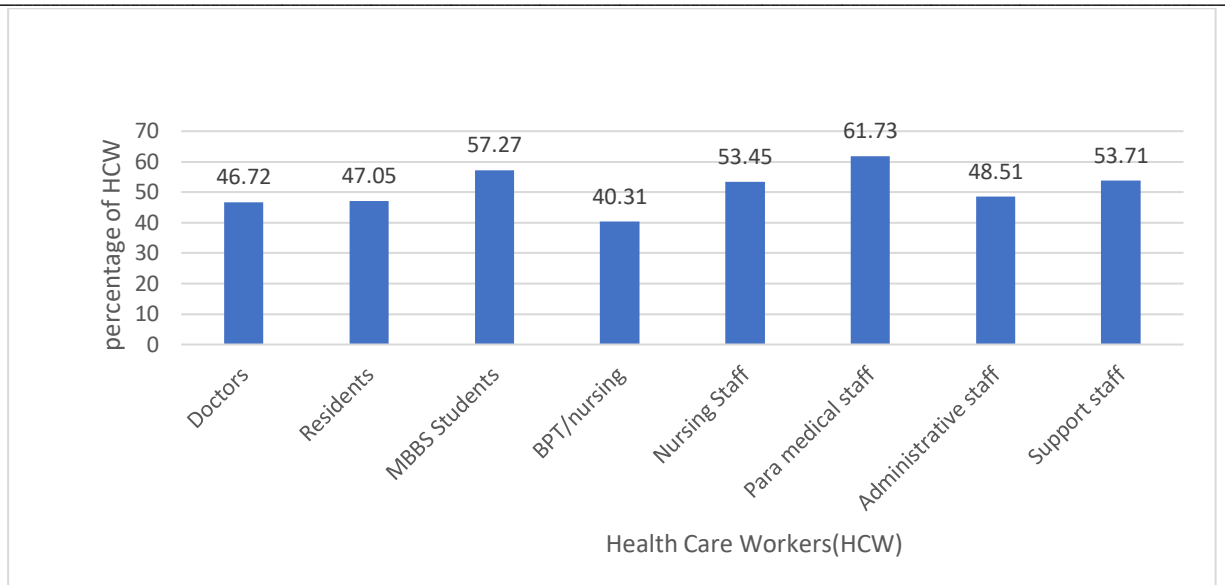
and speech therapist ,Research scientist, Pharmacist, technician) and 85.33% in support staff (Security Guard, Driver, Sweeper, Class IV, Laundry, kitchen , Gardner , Sewer Man ).

**Table 3: Percentage of HCWs (KCGMC, Karnal) who also got 2<sup>nd</sup> dose**

| Sr No | Designation          | 1 <sup>st</sup> Dose Number (%) | 2 <sup>nd</sup> Dose Number (%) out of eligibility after 1 <sup>st</sup> dose beneficiaries |
|-------|----------------------|---------------------------------|---|
| 1     | Doctors              | 81                              | 57 (70.4)   |
| 2     | Resident Doctors     | 93                              | 56 (60.2)   |
| 3     | MBBS Students        | 355                             | 252 (71)  |
| 4     | BPT/nursing students | 95                              | 52 (54.7)   |
| 6     | Nursing Staff        | 170                             | 116 (68.2)  |
| 7     | Para medical staff   | 105                             | 71 (67.6)   |
| 8     | Administrative Staff | 101                             | 49 (48.5)   |
| 9     | Support staff        | 588                             | 369 (62.8)  |
|       | <b>Total</b>         | <b>1588</b>                     | <b>1022 (64.35)</b>   |

Table 3. shows percentage of HCWs who got their 2<sup>nd</sup> dose after 1<sup>st</sup> dose . This shows out of total 1588 HCWs at KCGMC, Karnal who got vaccinated with 1<sup>st</sup> dose , 1022 (64.35%) eligible beneficiaries for second dose got their 2<sup>nd</sup> dose. Out of 81 doctors who got their 1<sup>st</sup>

dose, 57 (70.4)% received 2<sup>nd</sup> dose . Out of total 355 MBBS students who got their first dose of covishield, 252 (71%) got second dose also.



**Fig. 3: Percentage of HCW who got Fully Immunized**

Figure 3 shows percentage of HCW who got fully immunized. Maximum coverage is seen in Paramedical staff . 61.73% of paramedical staff got both doses of vaccination , followed by MBBS students ( 57.27 % ). 53.45 % of nursing staff and 53.71 % of support staff got both doses of covid vaccine. Only 46.72 % of doctors are fully immunized till study period. This cannot be concluded as less coverage in any category as the newer guidelines increased the duration between 1<sup>st</sup> and 2<sup>nd</sup> dose from 6-8 weeks to 12 weeks thus showing less coverage for 2<sup>nd</sup> dose.

#### Discussion

India's cumulative COVID Vaccination Coverage crossed the landmark of 143 crores [11,12]. In our study total number of beneficiaries vaccinated with 1<sup>st</sup> dose during the study period were 9721. Out of total vaccinated, 1600 (16.45%) were health care workers.

The number of HCWs at study hospital during the study period was 1930. Out of total 122 doctors enlisted in KCGMC only 81 ( 66.39 % ) got vaccinated with 1<sup>st</sup> dose . Coverage of vaccination was maximum in the administrative staff (100%) and minimum in doctors

( 66.39 %). 78.3 % of nursing staff got vaccinated with 1<sup>st</sup> dose. This is in contrast to rate of vaccination in US, where among practicing physicians, 96% have been vaccinated. The rate drops to <50% among nurses [13].

Vaccine coverage in HCW with first dose in our hospital is 82.27 % , and for 2<sup>nd</sup> dose is 64.35% which is comparatively less as compared to in a prospective cohort study among staff working in publicly-funded hospitals in the UK in which Vaccine coverage in HCW was 89% [14].

The lesser rate of vaccination in particular categories of health care worker in our study might be due to vaccine hesitancy. A study done by Fares, S., Elmnyer et al among health care workers also shows similar results about vaccine hesitancy. Despite the COVID-19 pandemic, only approximately 21% of Egyptian healthcare workers accepted the COVID-19 vaccination [15]. Vaccine hesitancy represents a major barrier to implementing vaccination programs. The reasons for vaccine hesitancy were absence of enough clinical trials and fear of side effects of the vaccine. Reason for vaccine acceptance was risk of COVID-19 infection.

#### Conclusions & Recommendations

The leading factor that could increase vaccination acceptance among the participants was to get sufficient and accurate

information about the available vaccines. The assessment by experts from the experience of vaccination is that India is in for a long haul. In case the pace of vaccination against coronavirus doesn't shoot up drastically and more vaccine candidates are not included, India could take another few years at the "current rate of lethargy" to inoculate 70 per cent of its entire population, a threshold required to achieve herd immunity [16]. Substantial vaccination levels are needed to achieve herd immunity, for that we must clearly understand the hesitancy and acceptance of a COVID-19 vaccine . Public health officials and policymakers need to create strategic vaccine-acceptance messaging to effectively control the pandemic. Health communication must reach all communities, especially the most vulnerable, to educate community about the safety of vaccines and prevent future infections and deaths [17].

#### Informed Consent

Not required as it a record based study.

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