PRECISE Study

Antibody Test for COVID-19

Prevalence of COVID-19 in Irish Healthcare workers (PRECISE-3): Epidemiology of COVID-19 cases in Irish Healthcare workers during the Delta and Omicron waves

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AIMS:

COVID-19 vaccination has changed the clinical severity of disease, however breakthrough infections still occur. This study aimed to describe the epidemiology of COVID-19 cases in healthcare workers (HCWs) as the first booster vaccines were rolled-out and new SARS-CoV-2 variants evolved. The study was conducted at two tertiary care hospitals by the PRECISE team.

METHODS:

HCWs testing positive for SARS-CoV-2 by PCR between 09/10/2021-12/01/2022 were included. Telephone questionnaires performed (0 and 14 days) collected demographics including, occupation, COVID-19 diagnosis/vaccination history. Positive nasopharyngeal samples were analysed using Whole Genome Sequencing (WGS).

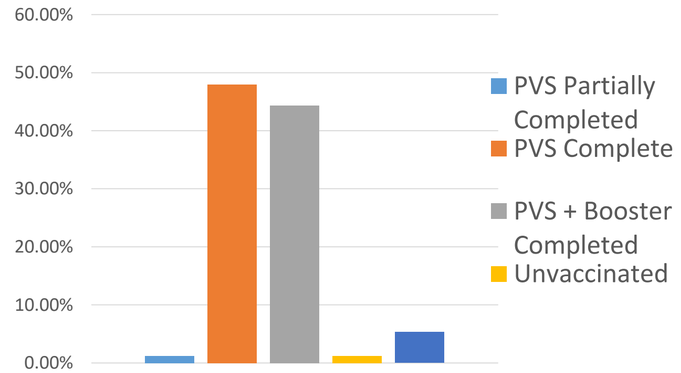
RESULTS:

474 participants enrolled (Hospital 1: 252 (53.2%); Hospital 2: 222 (46.8%)) 2.8% of participants at Hospital 1 and 1.4% of participants at Hospital 2 (p=0.448) attended the ED for care. 0.8% of participants at Hospital 1 and 0.5% of participants at Hospital 2 (p=1.000) required hospital admission.

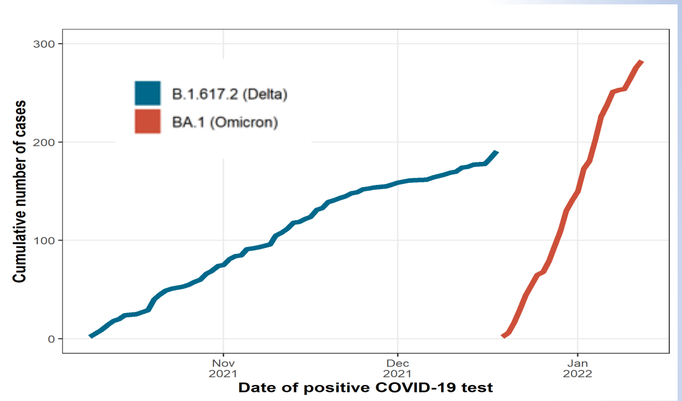
Job Role of Participants	Total (n=474)	
	N	%
Nursing/Midwifery	150	31.6
Medical/Dental	83	17.5
Allied Healthcare	72	15.2
Administration	94	19.8
Healthcare Assistant	31	6.5
General Support	30	6.3

RESULTS:

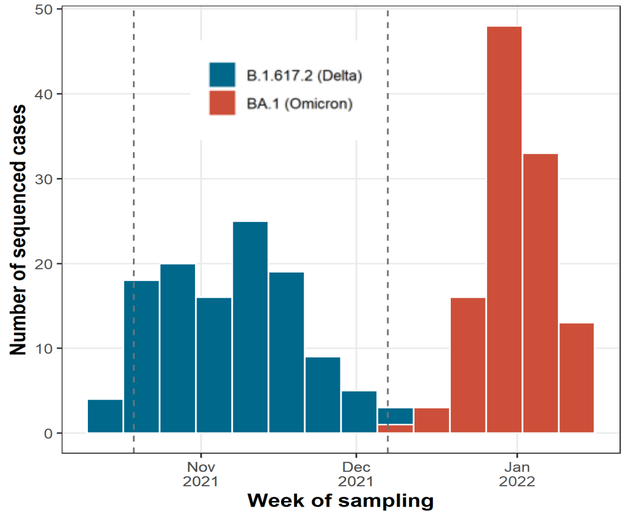
Vaccination Status of Participants



Cumulative number of COVID-19 cases Oct 2021 to Jan 2022 (N=474)



Weekly SARS-CoV-2 Variants (N=232)



RESULTS:

- Mean time from first vaccine dose to positive PCR test was 315.5 (SD 52.8) days for those receiving Comirnaty PVS versus 283.7 (SD 35.5) days for those receiving Vaxzevria PVS (p<0.001).
- Mean time between booster vaccine and positive PCR test was 47.6 (SD 22.1) days for those who received Comirnaty PVS and (any) booster versus 32.9 (SD 17.7) days for those who received Vaxzevria PVS and (any) booster (p<0.001).
- Mean time from last vaccine dose and positive PCR test was 209.7 (SD 87.1) days during the Delta wave versus 93.6 (SD 95.0) days during the Omicron wave (p<0.001).

SUMMARY:

- Despite high vaccination coverage in both hospital sites, including booster vaccination, 479 COVID-19 cases were detected.
- The Omicron variant was associated with a rapid increase in cases.
- Time from vaccine dose to SARS-CoV-2 infection was shorter in those who received Vaxzevria PVS versus Comirnaty PVS.
- The high number of cases resulted in working days lost and potential risk for vulnerable patients, highlighting the need for continued vigilance in the healthcare setting as new variants emerge.