

Vaccine uptake pre and post COVID-19 pandemic among PLWH

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Background

- Immunization for vaccine preventable diseases is highly recommended in people living with HIV (PLWH), but vaccination coverage is often inadequate and vaccination acceptance is poorly studied in PLWH.
- Some reasons for unsatisfactory uptake may rely on unclear responsibility for vaccine counseling and administration, as well as vaccine hesitancy.
- The effect of the COVID-19 pandemic on subsequent vaccine uptake in PLWH has not been thoroughly investigated.

Factors associated with vaccine uptake in the whole follow up and according with time period were evaluated by univariable and multivariable logistic regression. Chi-square test was used to compare the proportion of uptake according to calendar period

Results

1411 PLWH were enrolled, 77% were male and the majority (90%) were aged >50 (median age: 53 years, IQR 44-59)(table 1).

Overall, 997/1317 (75%) pts received a complete schedule for all the vaccinations and the highest completeness was observed for HBV vaccination (373/433 pts, 86%). For Pneumococcal, HAV and MenB vaccine uptake was significantly lower during pandemic and post-pandemic compared to pre-pandemic period (p<0.001).

Table 1. Characteristics of study population at the time of enrollment

Parameters	N=1411
Age, years; median (IQR)	53 (44-59)
Age category; n (%):	
≤50 years	623 (44.1%)
51-65 years	654 (46.4%)
>65 years	134 (9.5%)
Sex, males; n (%)	1082 (76.7%)
Ethnicity; n (%):	
Caucasian	1139 (80.7%)
African	121 (8.6%)
Latin American	143 (10.1%)
Asian	8 (0.6%)
Presence of least one comorbidity*, n (%):	154/832 (26.6%)
Risk factor for HIV; n (%):	
Heterosexual	414 (29.3%)
MSM	524 (37.1%)
IVDU	203 (14.4%)
Other/unknown	270 (19.1%)
AIDS defining conditions, n (%)	236 (16.7%)
HIV-RNA category, cp/mL; n (%):	
<50	1196 (84.8%)
51-199	36 (2.6%)
200	41 (2.9%)
Unknown	138 (9.8%)
CD4+ T cells, median (IQR)	653 (457-850)
CD4+ T cells category, n (%):	
<200	892 (63.2%)
200-499	328 (23.2%)
≥500	57 (4%)
Unknown	134 (9.5%)
HCV Ab, n (%):	
HCV Ab neg	1014 (71.9%)
HCV Ab pos	262 (18.6%)
Unknown	135 (9.6%)
HBV, n (%):	
HBsAg neg HbCAB neg	616 (43.7%)
HBsAg neg HbCAB pos	322 (22.8%)
HBsAg pos	28 (2%)
Unknown	445 (31.5%)
HAV Ab, n (%):	
HAV Ab pos	345 (24.5%)
HAV Ab neg	518 (36.7%)
Unknown	548 (38.8%)

*Comorbidities include: cardiovascular disease, diabetes, pneumological disease, oncological disease, chronic kidney disease, chronic epatopathy

We aimed to evaluate vaccine uptake and its associated factors during the period 2018-2023 according to 3 time points: pre-COVID-19 pandemic, during COVID-19 pandemic and after COVID-19 pandemic. We further evaluated vaccine completeness.

Study Design

This is a retrospective observational study conducted at the Infectious Disease Unit of San Paolo University Hospital, Milan, from 2018 to 2023.

Methods

We assessed subjects' participation in vaccinations (HAV, HBV, HPV, S. pneumoniae, N. meningitidis, RZV) in 3 time periods:

- Jan2018-Dec2019 (pre-pandemic)
- Jan2020- Mar2022 (pandemic)
- Apr2022-Dec2023 (post-pandemic)

Uptake has been evaluated as the proportion of patients who received at least one of the scheduled vaccinations.

Vaccination was incomplete when all scheduled doses were not administered during follow-up.

Global uptake for all the vaccination proposed was 1317/1411 (93%), with the highest uptake observed for HBV (433/445 pts, 97.3%). For uptake and completeness for all the vaccinations see table 2. Only ageing was significantly associated to a lower uptake (each yr more, AOR 0.942, 95% CI 0.912-0.973 adjusting for AIDS and comorbidities).

Table 2. Uptake and completeness overall and according to vaccination

Parameter	Uptake	Completeness	Uptake 2018-19	Uptake 2020-21	Uptake 2022-23	p
Overall	1317/1411 (93.3%)	997/1317 (75.7%)				
Pneumococcal vaccine	863/977 (88.3%)		464/527 (88%)	116/165 (70.3%)	169/225 (75.1%)	<0.001
RZV vaccine	258/317 (81.4%)	160/258 (62%)			258/317 (81.4%)	
HPV vaccine	365/411 (88.8%)	266/365 (72.9%)	125/135 (92.6%)	139/155 (89.7%)	145/170 (85.3%)	0.122
HAV vaccine	289/323 (89.5%)	246/289 (85.1%)	128/136 (94.1%)	102/113 (90.3%)	60/76 (78.9%)	0.003
HBV vaccine	433/445 (97.3%)	373/433 (86.1%)	88/96 (91.7%)	80/81 (98.8%)	82/85 (96.5%)	0.068
Men B vaccine	438/503 (87.1%)	360/438 (82.2%)	210/238 (88.2%)	133/159 (83.6%)	59/83 (71.1%)	<0.001
Men ACYW	1128/1161 (97.2%)		532/541 (98.3%)	105/109 (96.3%)	334/363 (92%)	0.864

RZV vaccine= Recombinant Zoster Vaccine; HPV vaccine= Human Papilloma Virus vaccine; HAV= hepatitis A virus vaccine; HBV= Hepatitis B virus vaccine; MenB vaccine= Meningococcal B vaccine; Men ACYW= Meningococcal A,C,W,Y vaccine

Conclusion

Vaccination uptake is high for PLWH engaged to our clinic and only older age was associated with lower coverage. Yet, for some of the vaccinations, uptake has declined since the beginning of the pandemic and remained lower thereafter, in contrast with findings observed for influenza vaccination in the general population.

COVID-19 pandemic has possibly led to changes in people's attitude toward immunization programs, and further studies are needed to address hesitancy, especially in vulnerable populations. In this context, active vaccine offer along with patients' engagement may play a crucial role in improving vaccine acceptance and adherence, thus incrementing vaccine coverage in PLWH.

References

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