

# Success factors for vaccination completion in a targeted hepatitis B vaccination program directed at people using hard drugs<sup>1</sup>

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## Background

- To prevent people who use hard drugs (PWUD) from getting infected with hepatitis B virus (HBV), targeted vaccination strategies are necessary
- The aim of this study:
  - report on factors associated with completion of a standard series of three vaccinations against HBV in PWUD
  - give an overview of one decade of the activities directed at PWUD

## Methods

Data were used from the register of the national vaccination program of behavioural risk-groups (PWUD, commercial sex workers, MSM and heterosexual with multiple sexual contacts) regarding PWUD, who were immunised against hepatitis B between 2002 and 2011 in the Netherlands. A standard series of three vaccinations (at months 0, 1 and 6) was offered at inclusion and continued if serological markers for past or chronic HBV infection were absent. A logistic regression analysis was performed with completion of a vaccination series (i.e. at least three vaccinations) as a dependent variable.

**Table 1** Characteristics and vaccination completion rate of PWUD participating in the national vaccination program against hepatitis B virus over time per two-year period (N = 18054)

Year starting vaccination series	'02-'03	'04-'05	'06-'07	'08-'09	'10-'11
N	2930	6069	4506	2707	1842
Gender male %	81,2	84,1	82,6	84,6	82,8
Age mean	37,6	37,0	37,2	36,6	38,7*
Anti-HBc %					
Yes	15,7	15,5	13,5	6,6	5,5*
no	76,6	75,9	77,3	75,1	77,6
unknown	7,7	8,6	9,2	18,3	16,9*
HBsAg %					
Yes	0,7	0,8	0,7	0,7	0,4
No	14,7	14,5	12,5	5,6	4,8*
Not tested, anti-HBc negative	84,6	84,8	86,8	93,7	94,8*
IV drugs use					
Yes, in the past	11,5	4,8	2,2	1,2	2,2*
Yes, last 6 months	1,4	3,3	1,1	0,8	0,8
No (harddrug use, not IV)	87,1	91,9	96,6	98,0	97,0*
Vaccination series completed %	74,7	62,4	57,8	42,6	41,3*

\*statistically significant difference compared to year 2002–2003 ( $p < 0.05$ )  
Anti-HBc, antibody to hepatitis B core antigen; HBsAg, hepatitis B surface antigen

## Results

- Of 18,054 included PWUD, 15,746 participants were eligible for vaccination; 12,683 (80.5%) and 9089 (57.7%) received the second and third vaccinations, respectively
- 9592 started their vaccination series at the location of an addiction care facility
- Public health services organised and administered most vaccination series (N = 9410), followed by addiction care institutions (N = 5478)
- Multivariable logistic regression analysis: the year starting a vaccination series, IV-drug use, age, gender, and vaccination at different locations and organisation of vaccine delivery was significantly associated with completion of the vaccination series

**Table 2** Multivariate logistic regression model with completion of a vaccination series as outcome variable

	Sig.	OR*	CI 95%
Gender			
female	,02	1,14	1,02-1,28
IVdrugs	,001		
no		reference	
yes in the past		2,02	1,57-2,59
yes last 6 months		2,06	1,45-2,91
Age (continuous)	<,001	1,02	1,02-1,03
Difference in location of vaccine delivery			
Different locations	<,001	2,10	1,86-2,38
Organisation of vaccine delivery	<,001		
Regional public health service		reference	
Addiction care facilities	<,001	1,38	1,24-1,53
Prison	<,001	0,77	0,68-0,87
Other	0,107	0,78	0,57-1,06

\*Adjusted for cohort period of vaccination

## Conclusion

- The register showed that most vaccination series were administered by public health services (N=9.410) however, more than half of the participants started their series at an addiction care facility
- Despite using a standard HBV vaccination schedule and no financial incentives, a relatively high vaccination completion was achieved among PWUD
- Flexibility in vaccination location, facilitated by the use of a common database, improved completion of a vaccination series
- Administration of vaccines by healthcare workers with sustainable contact with PWUD could improve vaccination programs for this risk-group

<sup>1</sup>Vaccine(2018),36:5282-87