

# Understanding Vaccination Rates and Attitudes among Patients With Rheumatoid Arthritis

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## Background

- The Advisory Committee on Immunization Practices (ACIP) recommends all adults receive annual influenza vaccination (INFX), patients with immunocompromising conditions such as rheumatoid arthritis (RA) receive pneumococcal vaccination (PNVX), and adults age 60 and older receive zoster vaccine (ZVX).
- Vaccinations are particularly important for patients with RA who may receive immunosuppressive therapies that increase their risk of infection
- Current rates of INFX, PNVX, and ZVX are suboptimal. At one rheumatology clinic electronic health record (EHR) data found that 41% of RA patients had ever received PNVX, 19% had received INFX during 2011-2012 season, and 2% had ever received ZVX.
- EHRs have incomplete vaccination data as many patients receive vaccination at other places besides their provider's office.
- We conducted a telephone survey of patients with RA to assess self-reported vaccination status and to understand patient vaccination behavior and attitudes.

## Methods

- Setting and Participants
  - This study took place July-September 2013 at an urban, academic medical center rheumatology clinic
  - Eligible patients had a diagnosis of RA, at least one clinic visit in each of the previous two years, were ≥18 years old, and had English as preferred language
  - A query of EHR data identified eligible patients, from which a random sample was selected for recruitment. Chart reviews were conducted to confirm diagnosis of RA
  - Eligible patients were called up to six times for recruitment; response rate was 55.4%
- Survey took 10 minutes to complete and assessed the following:
  - Self-reported receipt of INFX, PNVX, and ZVX
  - Attitudes about these vaccines, including reasons for not being vaccinated if applicable
  - Provider recommendations about these vaccines
  - EHR query conducted for participants to ascertain vaccination status from medical chart and presence of biologic on active medication list

**Table 1: Participant Characteristics (n=102)**

Female (%)	85
Age, mean (SD)	57.8 (14.5)
Self-reported race/ethnicity (%)	
White	67
Black	20
Hispanic	9
Other/missing	5
Mean years since dx of RA (SD)	15.6 (12.3)
≥1 immunosuppressive drug on active medication list (%)	91%

**Table 3: Participants' Reasons for Not Receiving Vaccination**

	No one recommended it %	Did not think I needed it %	Dislike/lack of trust in vaccine %	Other reason %
INFX, last season (n= 10)	20	10	40	40
INFX, ever (n=10)	0	60	60	20
PNVX (n=44)	73	21	11	5
ZVX (n=93)	53	27	7	22

**Table 2: Vaccination Status by Patient Self-Report versus EHR Documentation (n=102)**

INFX in 2011-12 season		Concordance (Kappa statistic)	
Self Report	Medical Record		
	No	Yes	47%
No/Not Sure	20	1	
Yes	53	28	
PNVX (ever)		Concordance (Kappa statistic)	
Self Report	Medical Record		
	No	Yes	69%
No/Not Sure	38	9	
Yes	23	32	
ZVX (ever)		Concordance (Kappa statistic)	
Self Report	Medical Record		
	No	Yes	85%
No/Not Sure	86	8	
Yes	7	1	

**Table 4: Participants' Report of Provider Recommendations (n=102)**

	"Yes"
Doctor told me about increased risk of infection	75%
Doctor has talked with me about importance of vaccines	64%
Doctor recommended INFX	96%
Doctor recommended PNVX	61%
Doctor recommended ZVX	17%

## Results

- 81/102 (80%) of participants reported receiving INFX during the previous season. However, only 28/81 (35%) of those reporting INFX had this documented in their medical record.
- Only 55 of 102 participants (54%) reported receiving PNVX; 32/55 (58%) did not have this recorded in the EHR. Conversely, of the 41 participants with PNVX in the EHR, 9 (22%) did not recall receiving this. Overall agreement was fair (kappa 0.38).
- Rates of ZVX were very low by both self-report (8%) and the EHR (9%), and there was almost complete disagreement; only one had ZVX according to both self-report and EHR review.
- Vaccination at alternative sites was common
  - Only 54.3% received 2011-12 INFX at a doctor's office
- Most participants recognized the need for vaccination
  - 79% felt it was at least somewhat important
  - Only 15% thought vaccines were not important at all
- Most common reason patients gave for not receiving PNVX and ZVX was that it had not been recommended to them (Table 3)

## Discussion

- Lack of recalled provider recommendation continues to be the most common reason for not receiving vaccination
- Correlation between patient self-report of vaccinations and EHR is poor. This may be due to recall bias by patients and failure to record vaccinations from external sites in the EHR
- Further research is needed to investigate system-level barriers to vaccination, including reasons for inadequate provider recommendations and whether provider-level interventions (e.g., EHR reminders) can improve vaccination rates
- Better capture rates of vaccination status in EHR may be necessary to optimize vaccine rates in populations at risk

## Conclusion

- Vaccination rates for INFX were good, but they were only fair for PNVX and poor for ZVX
- There is poor agreement between self-report and EHR data for vaccination status, making true rates unclear
- The inaccuracy of EHR data may create uncertainty for providers that contributes to failure to offer vaccinations
- Improved communication between patients and providers, as well as between providers and alternate sites of vaccination, may help drive increased vaccination rates.

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