

Cancer Patient Attitudes Towards Influenza Vaccination and the Prevalence of Vaccination in Cancer Patients

Alexandra Dulude, University of Arizona College of Medicine – Phoenix
Ramesh Ramanathan, MD, Mayo Clinic, Scottsdale, AZ

Abstract

Despite the fact that influenza is one of the few vaccine-preventable diseases, thousands of people die from the infection or its complications each year. Immunocompromised cancer patients are among the most vulnerable to influenza, and therefore, vaccination is highly recommended in these patients; however, current vaccination rates and beliefs regarding vaccination remain unknown.

The purpose of this study is to assess cancer patient vaccination rates and attitudes towards influenza vaccination. Eighty four cancer patients at the Virginia G Piper Cancer Center participated in a survey which demonstrated that only 58% of patients received the vaccination post-cancer diagnosis, and that perceptions about vaccine efficacy correlate strongly with vaccination status.

Our findings identify barriers to vaccination in the cancer patient population, and provide targeted insight regarding possible interventions to improve vaccination rates in cancer patients and decrease influenza infection and complications in the future.

Introduction

Because influenza is one of the most common vaccine-preventable diseases, the CDC's Advisory Committee on Immunization Practices recommends "Universal" vaccination to all greater than 6mo of age to maximize the effect of Herd Immunity,¹ however, it is particularly important to immunize populations at high-risk of developing complications associated with the flu, including immunocompromised cancer patients.

Yet, while the actual vaccination rates in these patients remains unknown, previous survey studies have revealed that vaccination rates remain extremely low (17%).² The most common reasons for avoiding vaccination included being on chemotherapy, fear of side effects, lack of efficacy, and because the vaccine was not advised by the physician.² Furthermore, other studies have demonstrated that influenza vaccination is equally effective in those receiving chemotherapy as those who have not.³

Our goal is to determine patient attitudes towards vaccination and vaccination status among cancer patients at Scottsdale Healthcare in comparison to national vaccination rates. We hope to determine barriers to vaccination within this cancer population and identify targets for public health intervention to improve vaccination rates.

Methods

Advanced cancer patients enrolled in phase I (first-in-human) clinical oncology trials at the Virginia G Piper Cancer Center at Scottsdale Healthcare were invited to participate in a voluntary, anonymous survey. The 15-item survey consisted of general demographic information, knowledge regarding the flu vaccine, vaccination status after cancer diagnosis, vaccination while on cancer treatment, and general attitudes in favor of and opposed to vaccination. Surveys were collected and analyzed. Results were stratified by age, gender, education level, and vaccination status. Given the qualitative nature of the questions asked, and descriptive nature of the study, no statistical analyses were performed.

Results

A total of 84 (n=84) advanced cancer patients enrolled in phase I clinical oncology trials completed the survey.

Table 1: Demographic Data

Demographic	n = number (total = 84)	% of total respondents (n/84)
Gender		
Women	52	62%
Men	32	38%
Ethnicity		
Caucasian	69	82%
Hispanic/Latino	5	6%
African American	4	<5%
Asian	2	<3%
Education Level		
High School	40	48%
College	27	32%
Graduate Degree	17	20%
Age		
20-24 yrs	2	<3%
41-50 yrs	9	11%
51-60 yrs	17	20%
61-70 yrs	28	33%
71-80 yrs	23	28%
>80 yrs	4	< 5%

Table 1: Demographic Data of all Survey Participants (n = 84)

Overall Vaccination Rates:

- 71% vaccinated within the last 5 years
- 58% vaccinated since cancer diagnosis
- 48% vaccinated while on cancer treatment

Figure 1: Perceptions of the Flu Vaccine Based on Vaccination Status

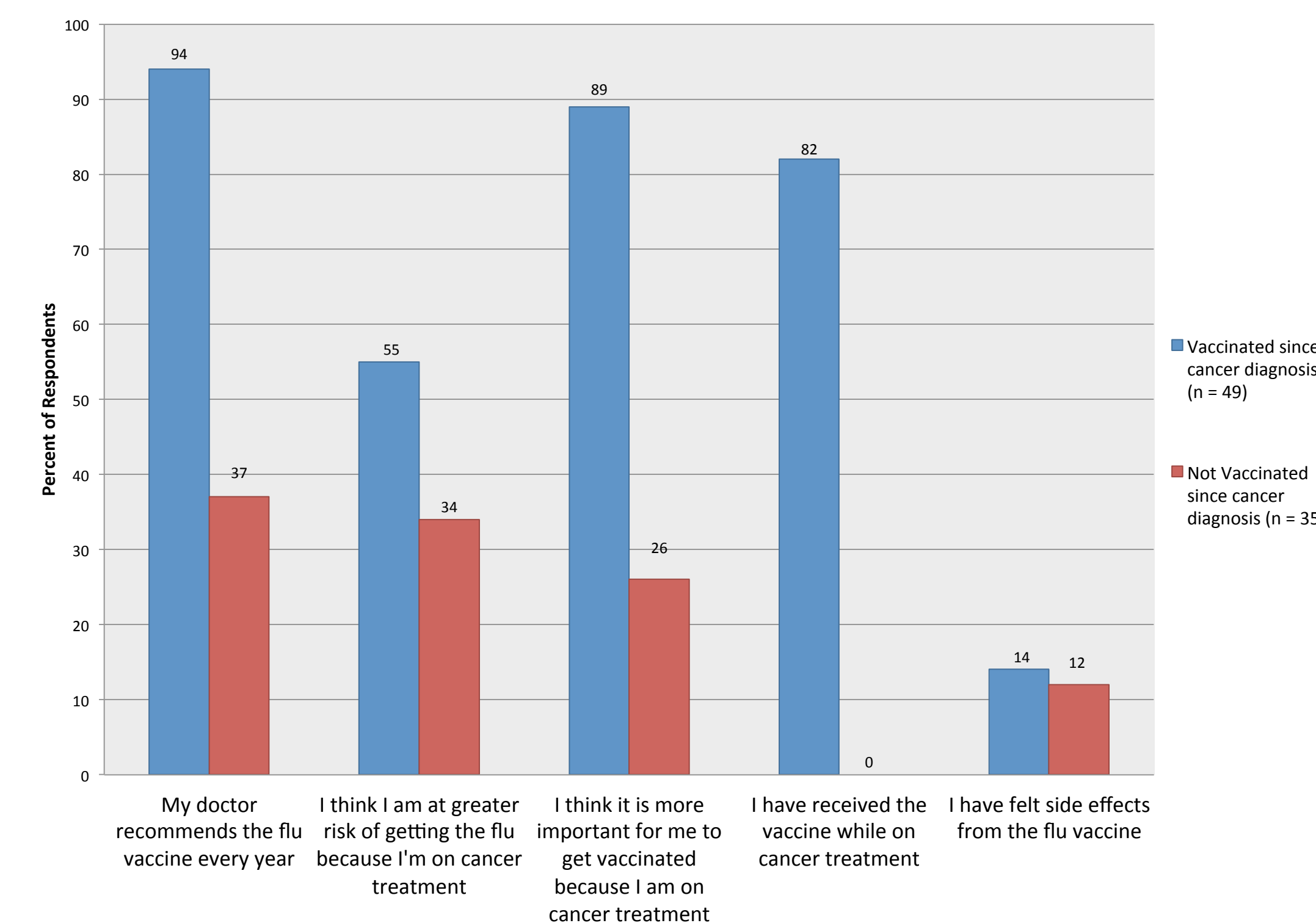


Figure 1: Comparison of perceptions regarding influenza vaccination between patients who have been vaccinated since cancer diagnosis vs. patients who have not been vaccinated since cancer diagnosis.

Figure 2: Patient Attitudes

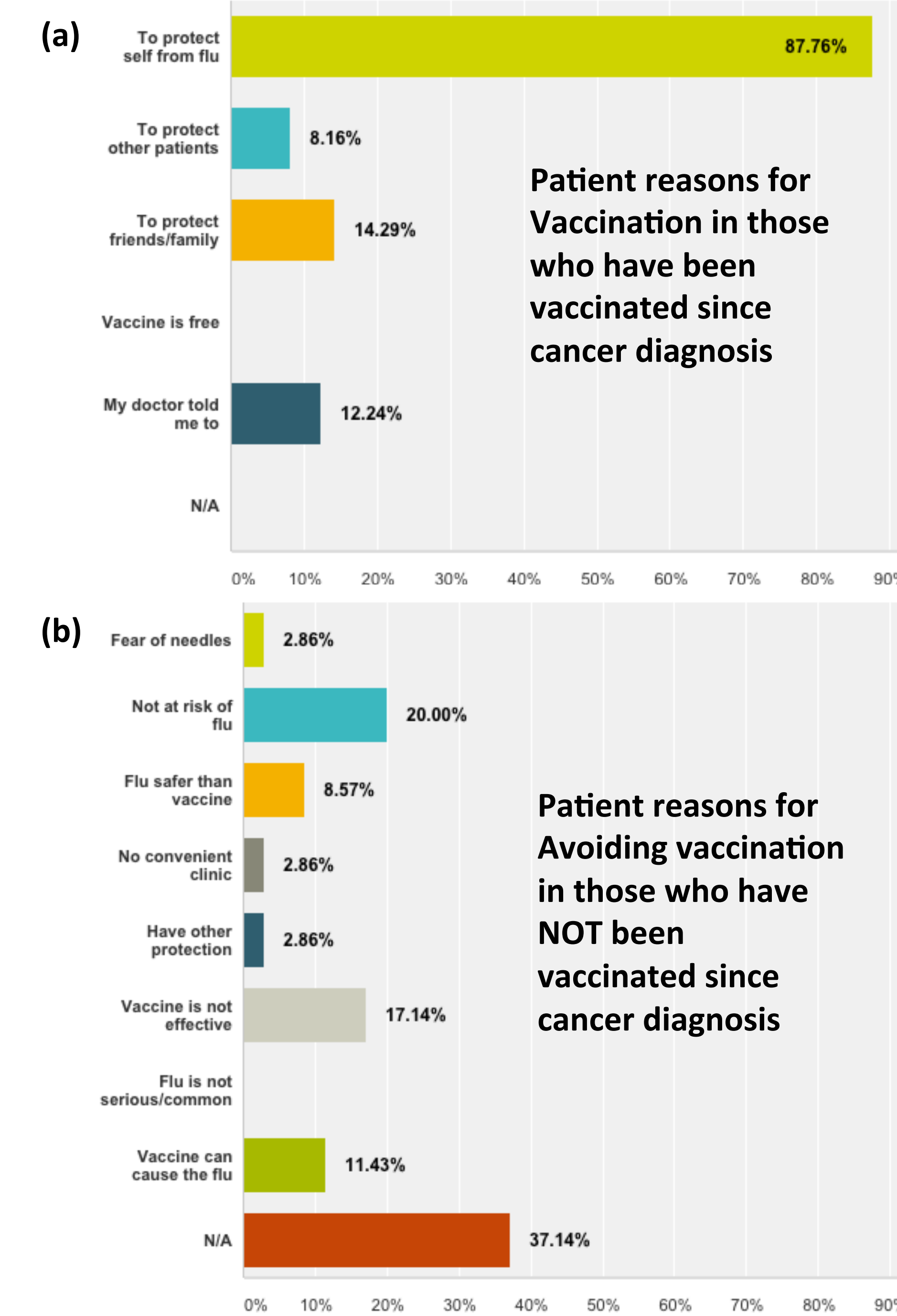


Figure 2: Patient attitudes in favor of (a) and against (b) vaccination

Discussion and Conclusions

Our findings suggest that although the CDC strongly recommends influenza vaccination in cancer patients due to the risk of secondary complications and even death in these immunocompromised individuals, vaccination rates remain low. Our data demonstrates that patients who receive a doctor recommendation for the vaccine are more likely to be vaccinated; however, not all doctors recommend the vaccine to patients. Furthermore, false information regarding the vaccine and its ability to cause infection continues to thrive and deter patients from vaccination. Together, this information offers profound insight into the cancer patient population and provides direction regarding possible interventions to improve vaccination rates and decrease influenza infection and complications in the future.

Future Direction

Given the positive correlation between doctor recommendation for vaccination and vaccination status, we recommend exploring interventions to increase physician recommendation practices. Furthermore, because there are persistent misperceptions regarding the importance of and efficacy of the flu vaccine, we recommend increased patient education efforts.

In addition, the SEER-Medicare combined national database will be analyzed to determine the national rate of influenza vaccination in cancer patients. This information will further delineate trends in vaccination status and possible interventions to improve vaccination rates.

Acknowledgements

This study would not have been possible without the support and direction provided by my research mentor Dr. Ramesh Ramanathan. I am also grateful to the wonderful staff at the Scottsdale Healthcare Research Institute at the Virginia G Piper Cancer Center for their support and help in enrolling study participants.

References

- 1) Vaccine Selection for the 2011-2012 and 2012-2013 Influenza Seasons. Centers for Disease Control and Prevention Website. <http://www.cdc.gov/flu/about/qa/vaccine-selection.htm> Accessed March 19, 2012.
- 2) Urun, Y., Akbulut, H., Demirkazik, A., Cay Senler, F., Utkan, G., Onur, H., and Icli, F. Perception about influenza and pneumococcal vaccines and vaccination coverage among patients with malignancies and their family members. 2013. *J BUON*. 18(2): 511-515.
- 3) Xu Y, Methuku N, Coimbatore P, et al. Immunogenicity of an Inactivated Monovalent 2009 Influenza A (H1N1) Vaccine in Patients Who Have Cancer. *Oncologist* 2012; 17(1):125-34