

INTRODUCTION

- During the 2017-2018 influenza season, >48,000 influenza-related hospitalizations, and 83 deaths with confirmed influenza occurred in children¹
- High risk pediatric patients, including those with asthma and structural heart disease, may have low vaccination rates²
- Influenza vaccines are routinely offered at the Children's Hospital of Wisconsin-Fox Valley (CHW-FV) Asthma/Allergy clinic
- Children with structural congenital heart disease (CHD) seen in the CHW-FV Pediatric Cardiology clinic are not provided the influenza vaccination onsite and must receive influenza vaccination at an alternate time and location

STUDY AIMS

- Determine influenza vaccination rate for high risk pediatric patients seen at CHW-Fox Valley cardiology and asthma clinics
- Determine if there is a significant difference in vaccination rates between Allergy and Cardiology clinic patients based on different clinical operations

METHODS

- Patients seen in each clinic, ages 6 months to 18 years between October 2017 and April 2018 with a diagnosis of reactive airway disease/asthma or CHD
- Clinical demographics, vaccination status, and severity of disease were retrospectively recorded
- Vaccination status was verified using the Wisconsin Immunization Registry

RESULTS

Table 1 Characteristics of patients with reactive airway disease/asthma or congenital heart defects seen during the 2017-2018 influenza season

Patient Demographics	Total (n=200)	Asthma/Allergy		Total (n=293)	Cardiology	
		Adequately Vaccinated* (n=127)	Inadequately Vaccinated (n=73)		Adequately Vaccinated* (n=157)	Inadequately Vaccinated (n=136)
Female	86 (43%)	52 (41%)	34 (47%)	147 (50%)	74 (47%)	73 (54%)
Male	114 (57%)	75 (59%)	39 (53%)	146 (50%)	83 (53%)	63 (46%)
Under eight years old	128 (64%)	87 (69%)	41 (56%)	179 (60%)	111 (71%)	68 (50%)
Over eight years old	72 (36%)	40 (31%)	32 (44%)	114 (40%)	46 (29%)	68 (50%)
Caucasian or White	170 (85%)	109 (86%)	61 (84%)	251 (86%)	137 (87%)	114 (84%)
Non-Caucasian or Non White	18 (9%)	10 (8%)	8 (11%)	21 (7%)	8 (5%)	13 (10%)
Refused or Ethnicity Not Listed	12 (6%)	8 (6%)	4 (5%)	21 (7%)	12 (8%)	9 (6%)

* Adequate vaccination determined using CDC guidelines. Children aged 8 years through 17 years only require one vaccination annually. Children aged 6 months to 8 years of age require a second vaccine booster administered a minimum of 4 weeks apart during their first season of vaccination

Frequency of Adequate Influenza Vaccination by Population

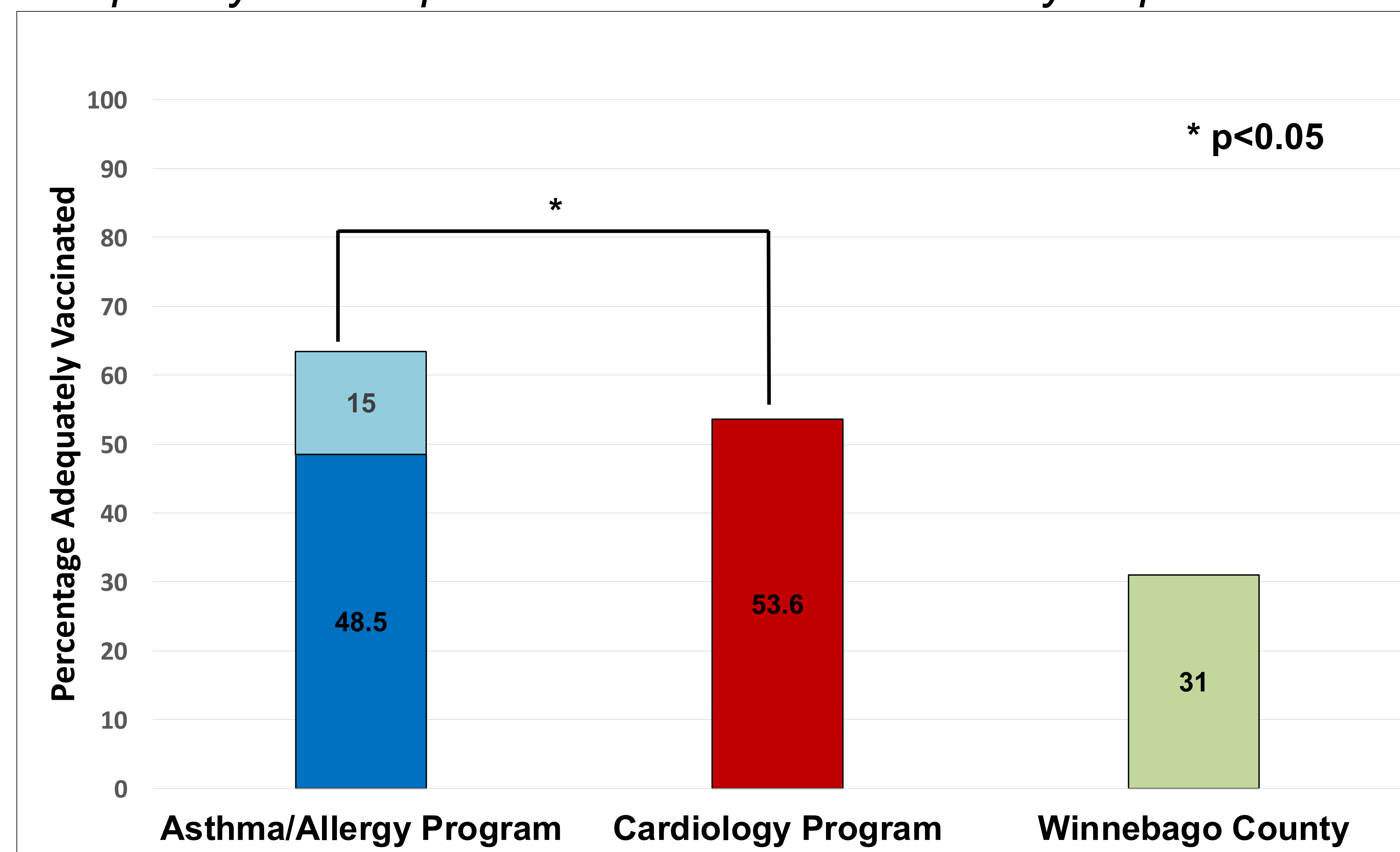


Figure 1. Vaccination rates vary by location. Both the Asthma/Allergy program and Cardiology program had higher influenza vaccination rates than the general population in Winnebago county. Light blue indicates patients who received the influenza vaccination at the subspecialty clinic. Dark blue indicates patients who received the influenza vaccine at an alternate location. There was a statistically significant difference between the Asthma/Allergy program and the Cardiology program. (P=0.0285, p<0.05)

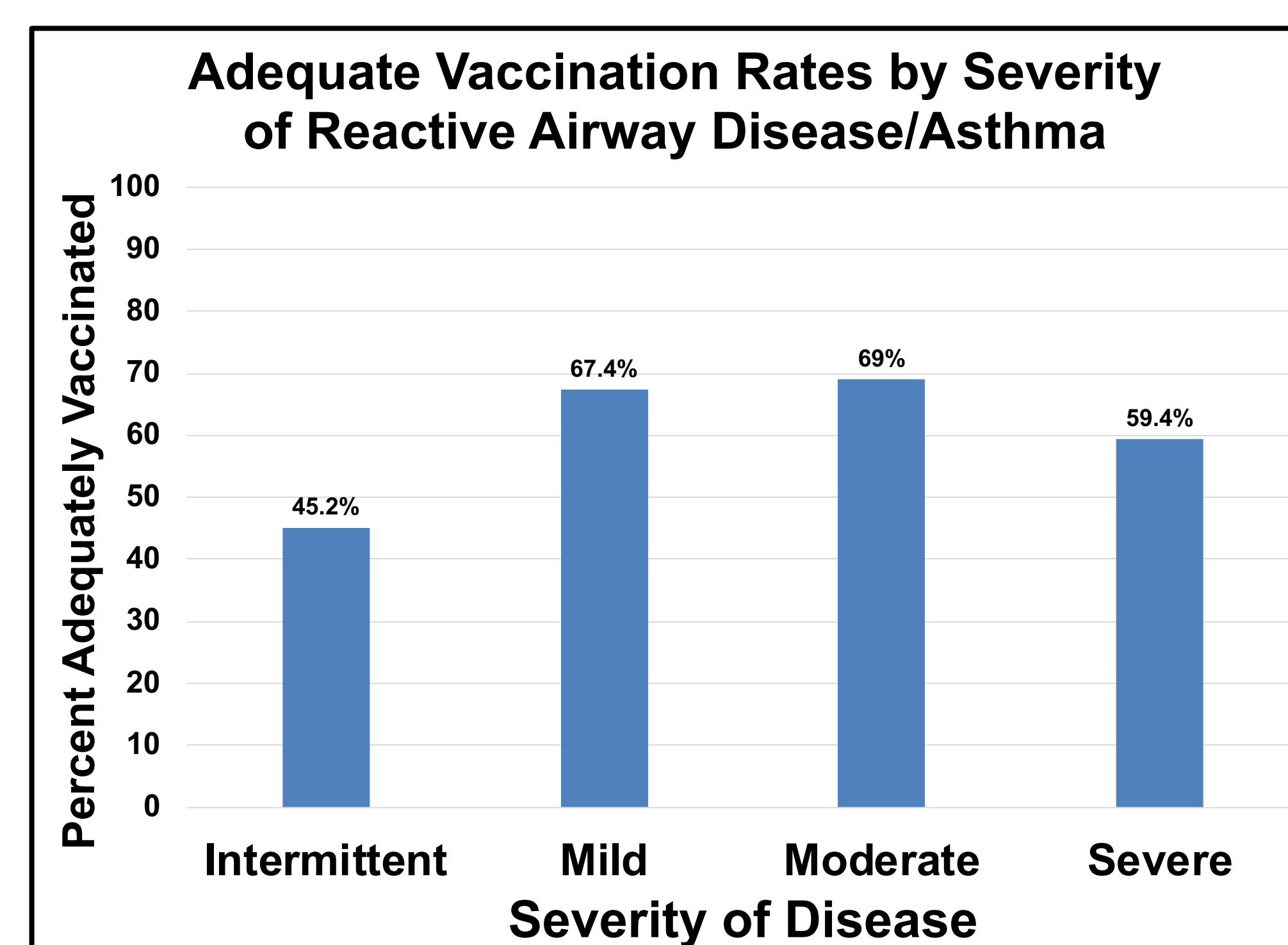


Figure 2.1 Patients with persistent airway disease have a higher vaccination rate than those with intermittent disease.

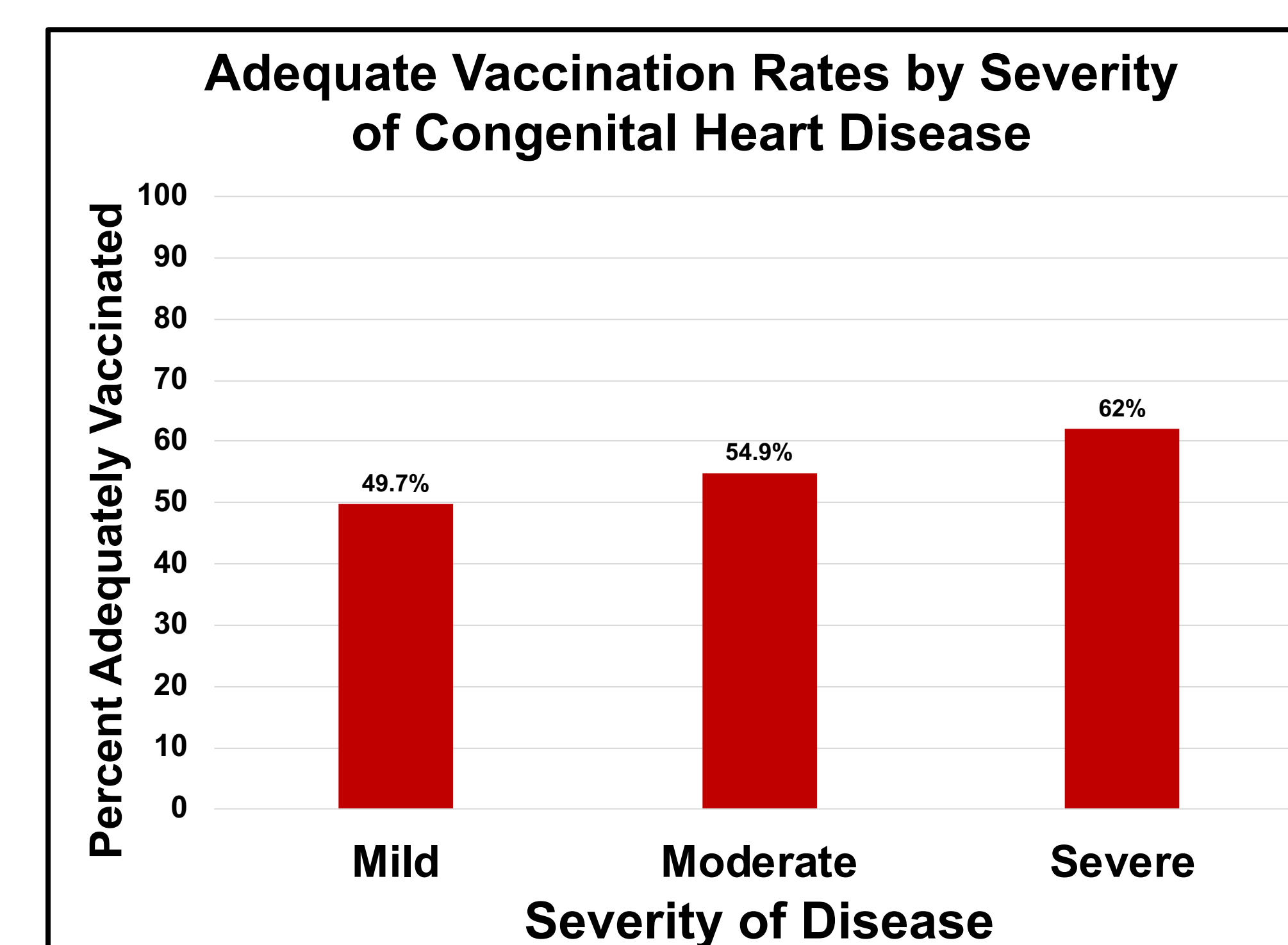


Figure 2.2 Influenza vaccination rates increase with severity of disease.

CONCLUSIONS

- High risk patients at CHW-FV Asthma/Allergy and Cardiology programs had a higher rate of influenza vaccination than the pediatric population of Winnebago county (31%)³
- There was a statistically significant difference between vaccination rates in the Asthma/Allergy program compared to the Cardiology program (p=0.0285; p<0.05)
- Of the patients seen in the Asthma/Allergy program, 24% received their vaccination at the subspecialty clinic
- Among asthmatics, persistent asthmatics had the highest rate of immunization
- With progressive cardiac complexity, immunization rates increased
- Offering influenza vaccine in sub-specialty clinics may improve vaccination rate among high risk patients by minimizing missed opportunities
- Future directions include prospective study of immunization rates after influenza vaccination is offered in both programs

REFERENCES

1. Esposito, Susanna, et al. "Influenza Vaccination Coverage among Children with High-Risk Medical Conditions." *Vaccine*, vol. 24, no. 24, 1 June 2006, pp. 5251–5255., doi:10.1016/j.vaccine.2006.03.059.
2. "Influenza (Flu)." *Centers for Disease Control and Prevention*, Centers for Disease Control and Prevention, 18 Dec. 2018, www.cdc.gov/flu/about/burden/2017-2018.htm.
3. *Influenza Vaccination Rates by Age and County for All Ages, Wisconsin*. July 2019, www.dhs.wisconsin.gov/publications/p02459e.pdf.