

# Survey of Hepatitis B Vaccination Rates in Adult Patients with Diabetes at a Large Internal Medicine/Geriatrics Clinic

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## Background

- Hepatitis B virus vaccination (HBV) is recommended for diabetic adults aged 19-59 years<sup>1</sup>
- Vaccination of diabetic patients  $\geq 60$  years remains at the discretion of the treating clinician<sup>1</sup>
- PPSV23 is recommended for all adult diabetic patients and PCV13 may be indicated based on age and risk factors<sup>2</sup>
- Previous literature demonstrates suboptimal vaccination rates in the adult diabetic population

## Study Objectives

### Primary Objective:

- Describe adult diabetic patients with documented HBV series completion or immunity

### Secondary Objectives:

- Compare HBV series completion or immunity in adult diabetic patients 19-59 years vs.  $\geq 60$  years
- Describe adult diabetic patients with documented completion of pneumococcal vaccine series (PCV13 and PPSV23)
- Compare rates of HBV and pneumococcal immunization by age or risk category
- Describe adult diabetic patients screened for hepatitis C and human immunodeficiency virus (HIV)

## Methods

### Study Design

- Single center, retrospective cohort
  - Inclusion: Adult diabetic patients with at least 1 visit to the Cleveland Clinic Internal Medicine or Geriatrics Clinic from 1/1/2017-12/31/2017
  - Exclusion: Patients with active hepatitis B infection

### Statistics

- Descriptive, data reported as number (percent) or median (interquartile range), as appropriate

Study Definitions	
HBV series completion	Receipt of 3-doses of HBV or combination Hepatitis A/HBV vaccine
HBV immunity	Qualitative positive Hepatitis B Surface Antibody (anti-HBs) or quantitative anti-HBs $\geq 10$ mIU/mL
Active HBV infection	Qualitative positive Hepatitis B Surface Antigen

## Results

### Study Population:

- 3104 patients included in cohort

Patient Characteristics	
Male	1559 (50.2%)
Age, years	64 $\pm$ 12
19-59 years	1053 (33.9%)
$\geq 60$ years	2051 (66.1%)
$\geq 65$ years	1542 (49.7%)
Race	
White	2254 (72.6%)
Black	648 (20.9%)
Asian	30 (1%)
Other	61 (2%)
Declined/Unavailable	111 (3.6%)
Diabetes	
Type II	2758 (88.9%)
Type I	138 (4.4%)
Unspecified	208 (6.7%)
Chronic Kidney Disease Stage V/ESRD on dialysis	380 (12.2%) 90 (2.9%)
Chronic Liver Disease	160 (5.2%)
HIV Positive	5 (0.2%)

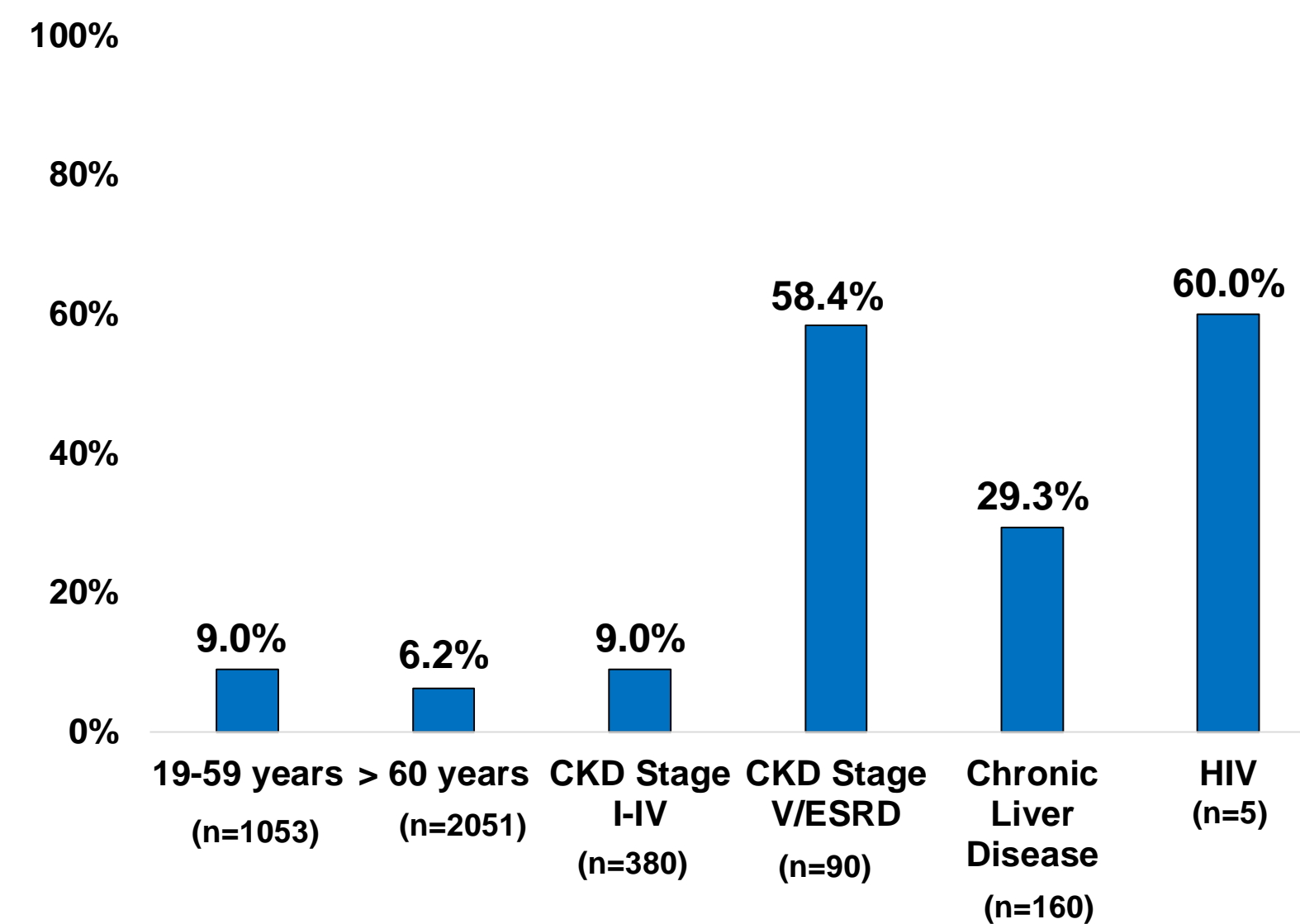
Data presented as number (percent) or mean  $\pm$  standard deviation  
ESRD = end stage renal disease

### Primary Outcome: Hepatitis B Vaccination or Immunity in Study Population

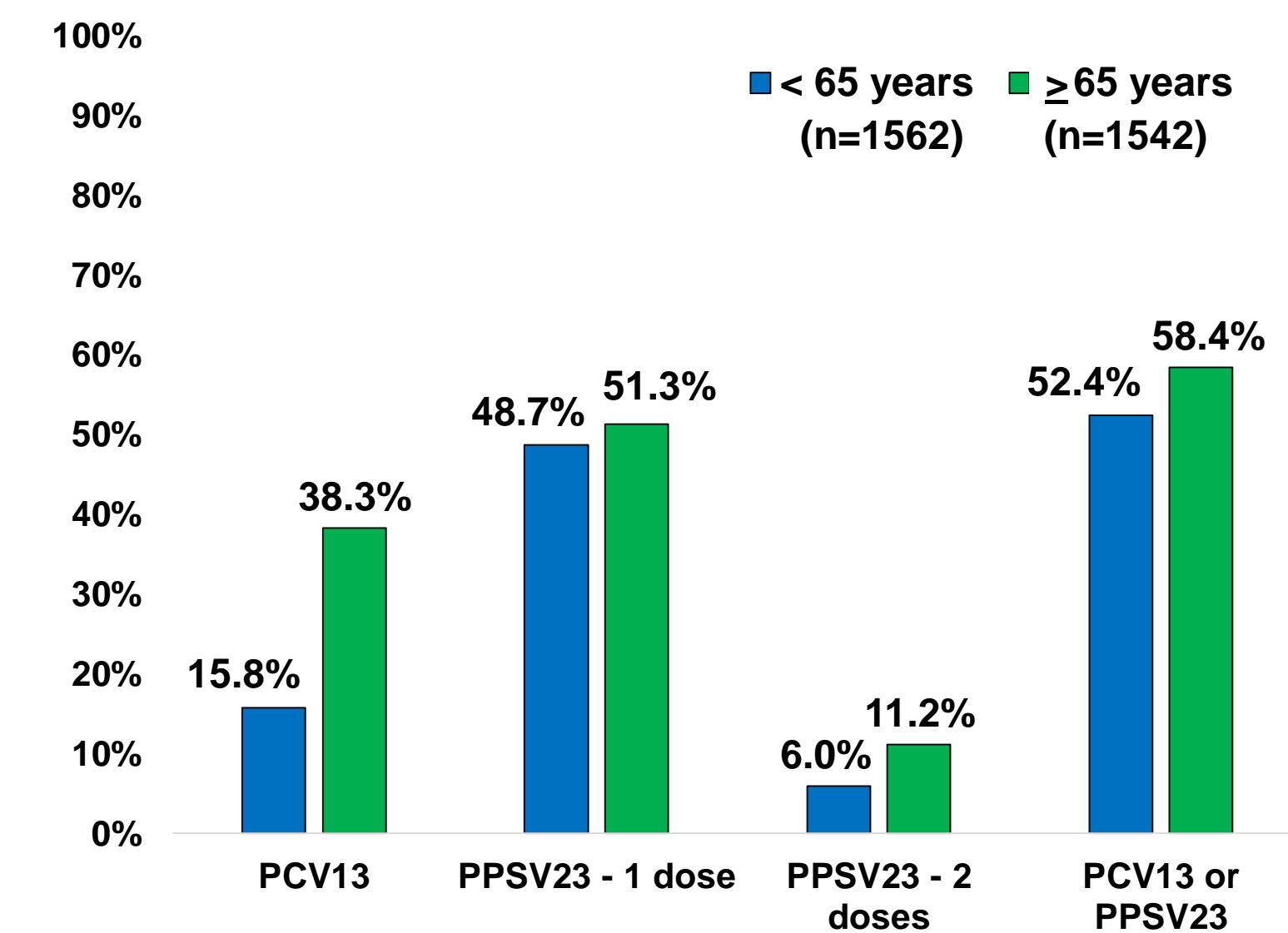
Screening and Vaccination	
Hepatitis B Screening	806 (30%)
Active HBV infection	10 (0.3%)
HBV immune	177 (5.7%)
Hepatitis B Vaccination	
1-Dose	171 (5.5%)
Complete Series	62 (2%)
Hepatitis B Immune or Series Complete	221 (7.1%)

Data presented as number (percent)

### Secondary Outcome: Hepatitis B Vaccination or Immunity by Subgroup



### Secondary Outcome: Pneumococcal Vaccination



## Results

### Secondary Outcome: Viral Infection Screening

	Hepatitis C	HIV
Age 19-59 years	449/1053 (42.6%)	43/1053 (4.1%)
Age $\geq 60$ years	739/2051 (36%)	64/2051 (3.1%)
Age $\geq 65$ years	486/1542 (31.5%)	45/1542 (2.9%)
CKD Stage I-IV	208/380 (54.7%)	18/380 (4.7%)
CKD Stage V/ESRD	78/90 (86.7%)	12/90 (13.3%)
Chronic Liver Disease	129/160 (80.6%)	14/160 (8.8%)

Data presented as number (percent)

## Conclusion

- Hepatitis B vaccination and immunity rates were low in this population of patients with diabetes at an internal medicine/geriatrics clinic
- Rates of hepatitis B vaccination and immunity were higher in patients with comorbid conditions conferring higher risk of hepatitis B infection
- Screening for additional viral infections, such as hepatitis C and HIV remains an opportunity
- Potential interventions to improve hepatitis B vaccination and screening in the diabetic population includes:
  - Incorporation of hepatitis B screening and vaccination reminders/alerts in electronic health record
  - Utilization of linked orders for hepatitis B and hepatitis C immunity status within the electronic health record to ensure screening for both viruses is conducted
  - Education campaigns to endorse HBV and pneumococcal vaccination in adult diabetic patients

- MMWR Recomm Rep. 2011 Dec 23;60(50):1709-11
- MMWR Recomm Rep. 2017 Oct 12;61(40):816-9