

Population Aging and Increasing Chronic Disease Burden among Unauthorized Agricultural Workers

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Introduction

- In the U.S., the undocumented Latino population is aging because of changing migration policies, shifting migrant flows, and population aging in host and receiving countries
- Farmworkers in the U.S. are twice as likely than the general population to live under the federal poverty line, they are exposed to harsh working conditions including long hours of physically demanding work and exposure to pesticides, and face barriers to healthcare
- About 44% of U.S. farmworkers are undocumented
- Undocumented farmworkers experience greater marginalization than agricultural workers with U.S. citizenship or immigrants receiving H-2A work visas
- Undocumented farmworkers face several social and economic challenges which could lead to negative health outcomes

Research questions:

- Has the average age of undocumented farmworkers increased over time?
- How is health among older farmworkers, specifically the number and type of chronic conditions, changing over time?

Methods

Data

- Observations from 19,434 undocumented agricultural workers were drawn from the from 2001 – 2018 **National Agricultural Worker Survey (NAWS)**
- Chronic disease burden was examined among 1,463 undocumented agricultural workers aged 50 and older

Outcome variables

Age

- Self-reported age was used to examine trends in population aging

Chronic conditions

- Self-reported doctor diagnosed conditions included asthma, diabetes, hypertension, and heart disease

Covariates

- Models were adjusted for sex (female/male), migrant type (settled, shuttle, follow the crop, newcomer), use of foreign health services (no/yes), use of health services in the U.S. (no/yes), having health insurance (no/yes), and age (in models predicting health outcomes)

Among undocumented migrant farmworkers in the U.S. responding to the National Agricultural Workers Survey (NAWS)

- 1) The age of undocumented farmworkers has increased from 2001–2018
- 2) Chronic disease burden has increased among undocumented farmworkers aged 50+ from 2001–2018
- 3) Diabetes appears to be driving increased chronic disease burden

Figure 1. Estimated marginal mean age by survey year, NAWS 2001–2018

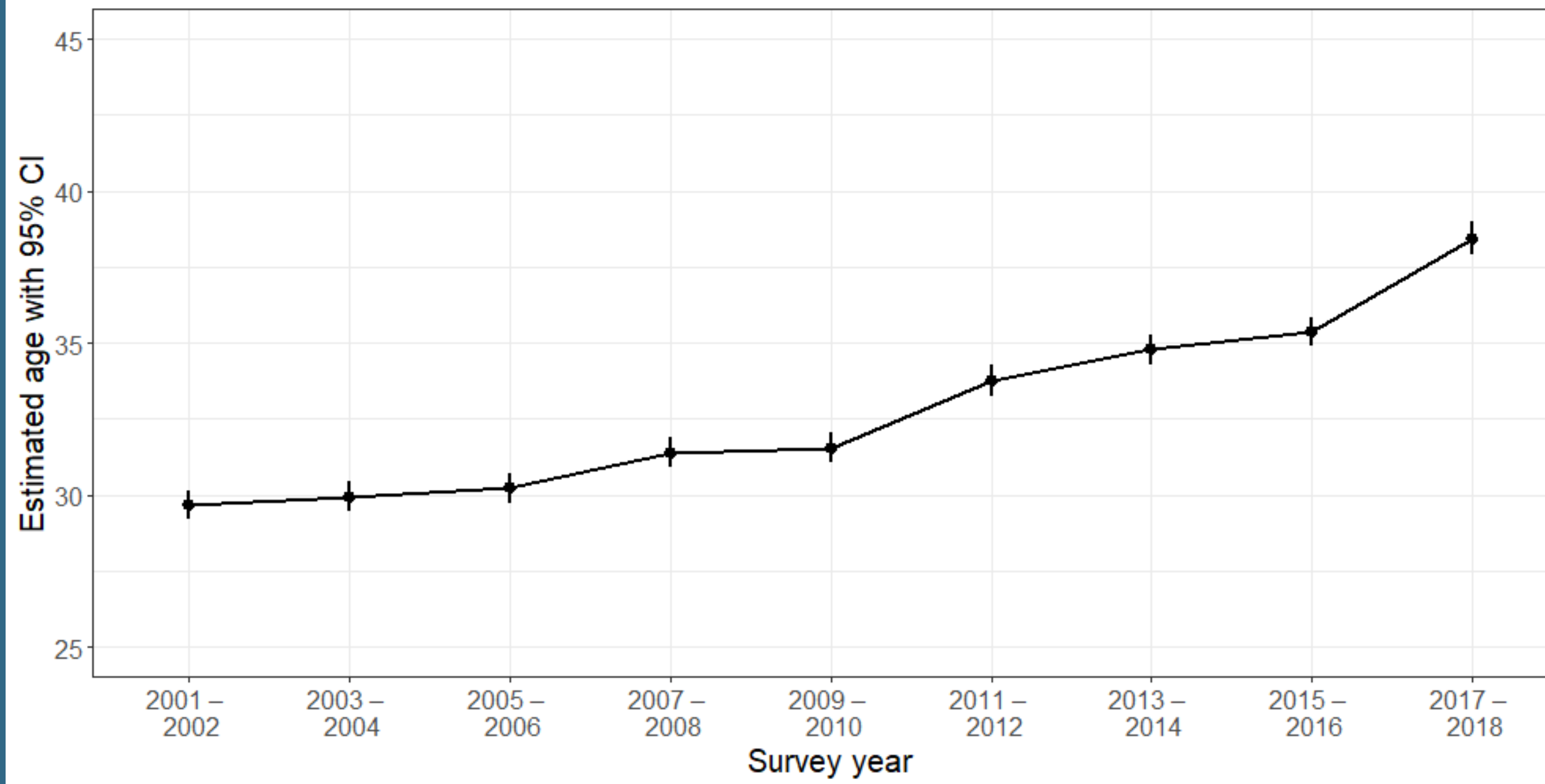


Figure 2. Estimated marginal mean number of chronic conditions among farmworkers aged 50+ by survey year, NAWS 2001–2018

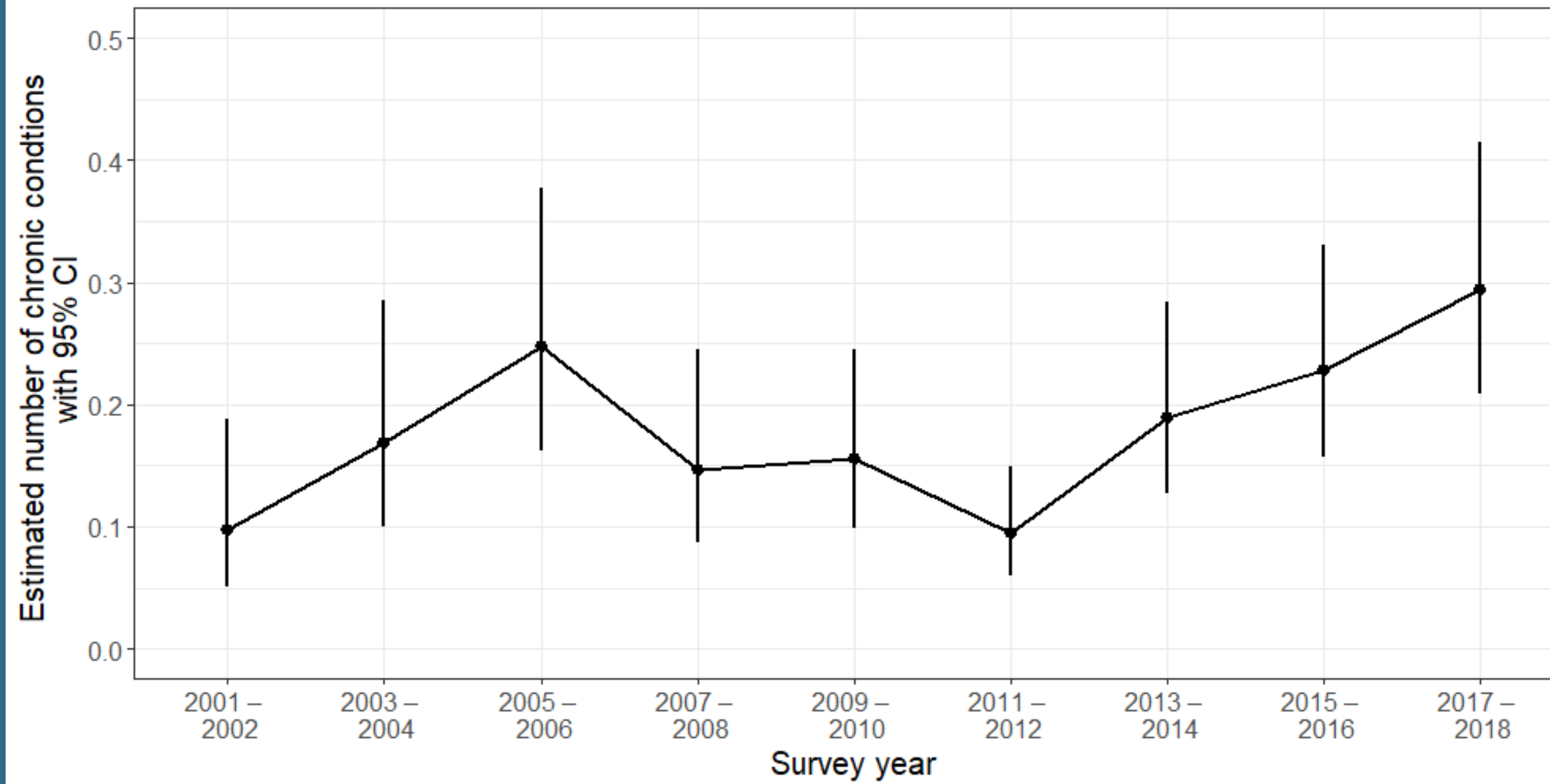
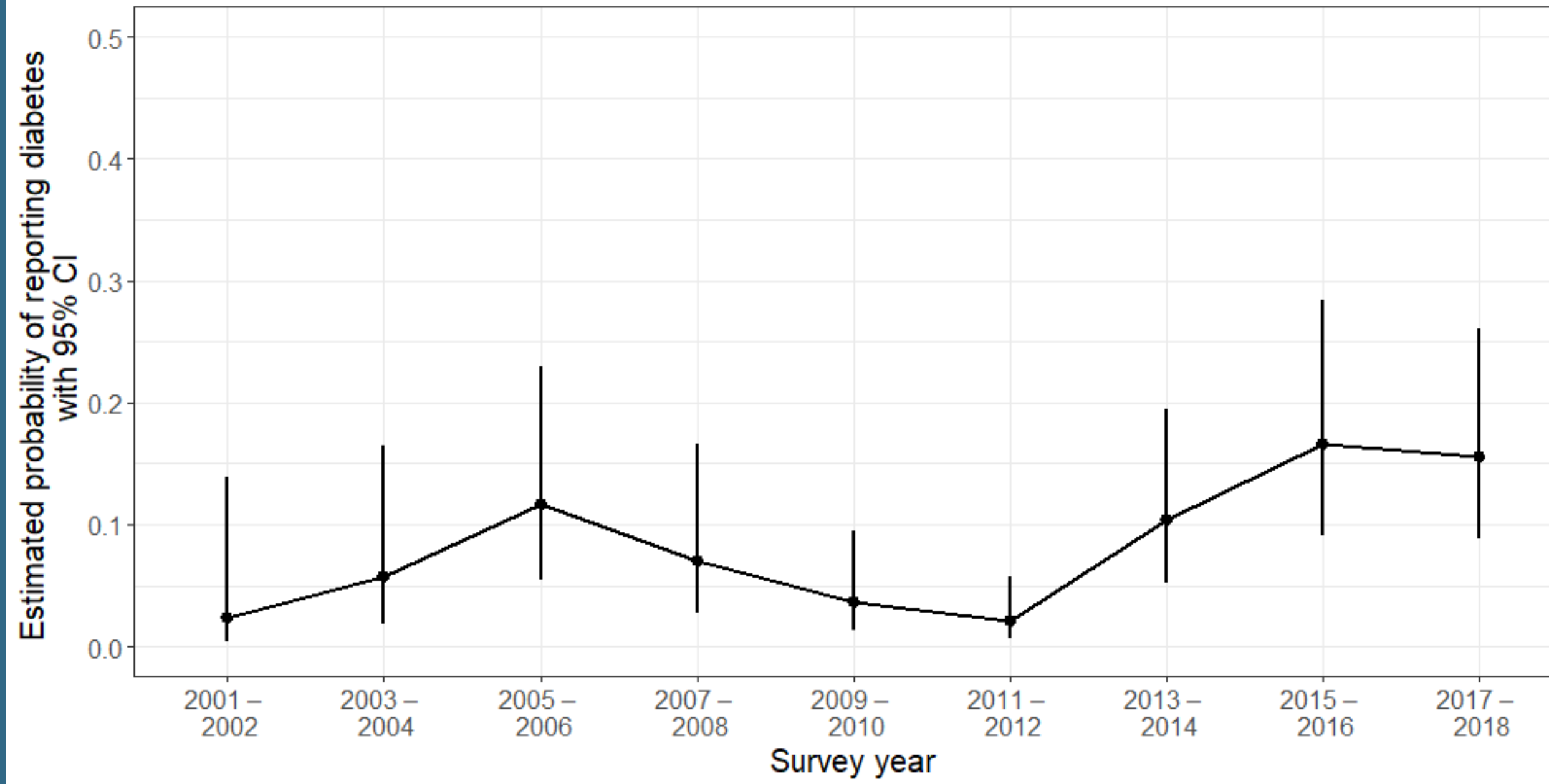


Figure 3. Estimated probability of reporting diabetes diagnosis among farmworkers aged 50+ by survey year, NAWS 2001–2018



Statistical Methods

- Weighted linear regression was used to estimate adjusted marginal mean age at each wave
- Weighted Poisson regression was used to estimate adjusted marginal mean count of chronic conditions at each wave
- Weighted logistic regression was used to estimate adjusted marginal probability of reporting diabetes at each wave
- All models adjusted for sampling weights
- Missing data imputed using random forest imputation

Descriptives

Table 1. Weighted descriptive statistics for undocumented agricultural workers, NAWS 2001 – 2018																		
	2001-2002		2003-2004		2005-2006		2007-2008		2009-2010		2011-2012		2013-2014		2015-2016		2017-2018	
	Mean/%	SD	Mean/%	SD	Mean/%	SD	Mean/%	SD	Mean/%	SD	Mean/%	SD	Mean/%	SD	Mean/%	SD	Mean/%	SD
Age	28.19	9.72	28.66	9.30	29.1	10.09	30.65	10.19	32.07	9.79	34.3	9.99	35.27	9.94	35.76	10.33	39.3	11.14
Male	84.87%		79.93%		81.87%		82.84%		76.10%		69.68%		71.35%		66.66%		67.07%	
Migrant type																		
Settled	40.58%		46.65%		51.34%		58.90%		62.13%		82.68%		81.05%		80.79%		86.44%	
Shuttle	17.24%		12.24%		12.45%		12.03%		20.37%		6.52%		8.30%		4.57%		4.20%	
Follow the crop	9.43%		10.67%		7.28%		6.16%		11.64%		6.76%		6.79%		8.25%		6.42%	
Newcomer	32.75%		30.45%		28.93%		22.92%		5.86%		4.03%		3.86%		6.39%		2.94%	
Use of foreign health services	21.64%		25.41%		28.19%		22.90%		8.68%		4.51%		4.89%		6.25%		5.89%	
Use of U.S. health services	23.65%		33.32%		34.10%		39.37%		45.79%		49.26%		52.11%		52.99%		71.51%	
Has health insurance	9.10%		10.72%		9.71%		14.09%		15.24%		16.14%		15.76%		25.15%		30.96%	
Diabetes	0.88%		0.79%		1.95%		2.46%		1.24%		3.04%		3.59%		4.28%		9.05%	
Hypertension	2.10%		2.19%		3.78%		3.44%		3.99%		5.97%		4.48%		4.10%		13.15%	
Heart disease	0.19%		0.75%		0.77%		0.33%		0.48%		0.41%		0.40%		0.25%		2.11%	
Asthma	0.75%		1.66%		1.64%		1.46%		1.75%		1.56%		1.85%		1.78%		2.69%	
Number of chronic conditions	0.04	0.20	0.05	0.25	0.08	0.31	0.08	0.31	0.07	0.28	0.11	0.36	0.10	0.35	0.10	0.35	0.27	0.56
n	3,285		3,200		1,863		1,856		1,881		1,521		2,064		2,584		1,089	

Table 2. Weighted descriptive statistics for undocumented agricultural workers aged 50+, NAWS 2001 – 2018																		
	2001-2002		2003-2004		2005-2006		2007-2008		2009-2010		2011-2012		2013-2014		2015-2016		2017-2018	
	Mean/%	SD	Mean/%	SD	Mean/%	SD	Mean/%	SD	Mean/%	SD	Mean/%	SD	Mean/%	SD	Mean/%	SD	Mean/%	SD
Age	57.07	4.85	55.79	4.31	55.63	4.49	55.71	4.75	54.75	4.44	56.05	5.27	55.31	5.45	56.30	5.44	56.52	6.55
Male	88.91%		84.25%		81.48%		89.68%		70.95%		52.97%		85.18%		75.71%		65.27%	
Migrant type																		
Settled	40.68%		58.06%		55.26%		63.93%		61.82%		92.82%		69.88%		83.52%		90.16%	
Shuttle	33.75%		24.64%		23.15%		24.21%		24.59%		2.45%		21.37%		10.88%		4.82%	
Follow the crop	11.04%		7.20%		10.76%		4.61%		11.36%		4.73%		4.78%		5.31%		5.02%	
Newcomer	14.53%		10.09%		10.83%		7.25%		2.24%		0%		3.97%		0.28%		0%	
Use of foreign health services	19.80%		21.16%		27.27%		18.02%		14.11%		6.26%		11.01%		4.60%		3.90%	
Use of U.S. health services	19.15%		39.34%		42.68%		42.11%		50.62%		66.69%		42.59%		48.61%		78.50%	
Has health insurance	5.92%		6.71%		5.32%		16.69%		24.46%		31.02%		18.39%		28.30%		33.23%	
Diabetes	1.25%		5.02%		10.26%		6.35%		4.31%		2.98%		8.38%		15.62%		21.40%	
Hypertension	2.97%		8.03%		15.82%		10.88%		17.21%		12.73%		12.29%		12.13%		24.92%	
Heart disease	0.00%		0.00%		1.47%		0.00%		1.14%		0.00%		0.09%		0.10%		10.03%	
Asthma	2.41%		2.83%		3.52%		0.98%		0.34%		3.30%		1.42%		3.81%		2.88%	
Number of chronic conditions	0.07	0.26	0.16	0.43	0.31	0.69	0.18	0.42	0.23	0.49	0.19	0.40	0.22	0.47	0.32	0.61	0.59	0.74
n	148		140		109		126		116		113		204		311		196	

Discussion/Implications

- The population of undocumented migrant farmworkers in the U.S. is aging rapidly
- The number of doctor-diagnosed conditions reported by undocumented farmworkers aged 50 and older appears to have increased
- Doctor-diagnosed diabetes appears to be a primary driver of the increasing chronic disease burden reported by older undocumented farmworkers
- Increasing access to insurance and health service use in the U.S. may be contributing to the observed increases in chronic disease burden
- As farmworkers in the U.S. are becoming older and experience greater chronic disease burden, services that focus on preventing and treating chronic diseases in this population are increasingly essential