

Estimates of the number of Year 1 Utah active medical marijuana cardholders and five year projected number of Utah active medical marijuana cardholders

Methods

U.S. states were identified that are adjacent to Utah and have active medical marijuana programs including Arizona, New Mexico, Nevada, Colorado and Montana. These five states maintain and publish data from medical marijuana registries, although Montana only provides two years of registry data on their website and was therefore not included in additional analyses. Information on the number of active medical marijuana cardholders by age and sex (when available) were downloaded for states with at least five years of data. Of note, the Arizona, Nevada and New Mexico registries provide detailed data online that align with the start of their medical marijuana programs. In contrast, Colorado's registry data begins in 2008 but the data is not detailed and the number of active cardholders shows considerable variability from year to year until 2015. A summary of information acquired from the state medical marijuana registries is

provided in
Table 1.

Table 1. Summary of medicinal marijuana registry data by state

State	# of years of registry data	First year of registry data	% of population that are active cardholders-First year	Last year of registry data	% of population that are active cardholders-Last year	Overall growth in % active cardholders	Average annual increase in % active cardholders	Average % male cardholders
Arizona	6	2012	0.55%	2017	2.34%	328%	34.5%	64%
New Mexico	7	2012	0.52%	2018	4.19%	706%	37.3%	NA
Nevada	5	2015	0.44%	2019	0.57%	30%	37.2%	NA
Colorado	5	2015	5.11%	2019	4.14%	NA	NA	66%
Average			0.50% ^a		2.81%	399%	36.3%	65%

^aDoes not include Colorado

Figures 1 and 2 display the change in the percentage of the Arizona population that are active medical marijuana cardholders by age group (Arizona only). As Figure 1 shows, the percentage of Arizona's population that are active marijuana cardholders varies considerably by age group with the <18 year age group possessing the lowest number of medical marijuana cards (~0.01% or less) and the 18-30 year age group possessing the largest number of medical marijuana cards (4.4% of the population is a medical marijuana cardholder in 2017). As shown in Table 1, New Mexico, Arizona and Nevada all experienced similar cardholder enrollment rates in their first year (0.55% of the population in Arizona and 0.52% in New Mexico while Nevada's enrollment rate in their first year was 0.44).

Figure 1. Percentage of Arizona population that are active medical marijuana cardholders by age group

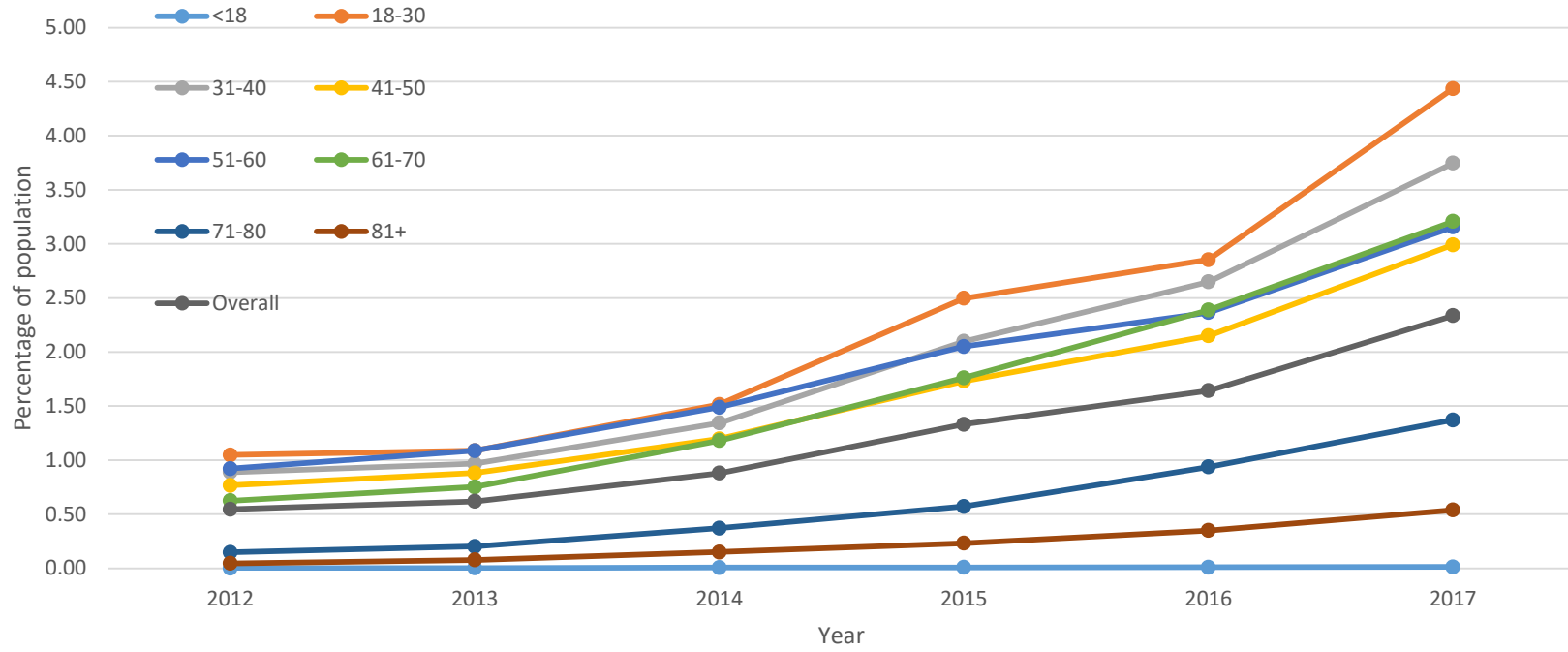
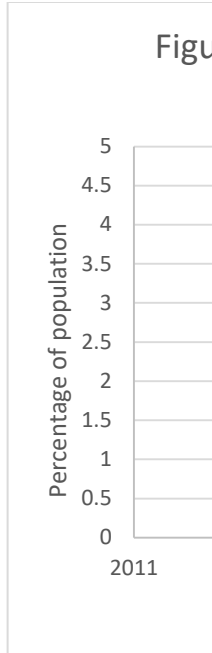


Table 2. Estimating the number of active medical marijuana cardholders in Utah based on Arizona registry data (approach 1)

Arizona			Utah					
2012 (first year of medical marijuana program)			2017 Population estimates			Year 1 estimates percent of population that will be active cardholders ^a		
	Males	Females		Males	Females	Males	Females	Total
Age group	% population with cards	% population with cards	Age group	Population	Population			
<21	0.002%	0.0009%	<21	543,573	520,482	11	5	16



Two methods were used to estimate the expected number of medical marijuana cardholders in Utah in year 1 of the program. The first was based on Arizona’s experience according to their registry data (Table 2). Arizona data was used as their first year rates of cardholder enrollment are very similar to New Mexico’s and Nevada’s, they provided detailed registry data by age group and sex, and their condition qualification list is similar to Utah’s. Table 2 shows expected year 1 enrollment numbers in Utah based on Arizona data. The second method (Table 3) used the average percentage of the population across three states (as shown in Table 1) by sex to estimate the expected number of total, male and female active medical marijuana cardholders in Utah in year 1. This method is more conservative than the first method. Next, the Year 1 estimates were used to project growth in the number of Utah active medical marijuana cardholders over five years based on the average annual increase in the number of cardholders (Tables 4 and 5). The projected number of medical marijuana cardholders in Utah in five years ranges from 38,350 to 70,835. Note that the projections in Table 5 ignore the small population under age 21 who will have access to medical marijuana in Utah as they are expected to be a negligible number.

21-30	1.6%	0.4%	18-30	252,681	237,268	4089	1020	5109
31-40	1.3%	0.4%	31-40	227,061	220,645	3052	920	3971
41-50	1.0%	0.5%	41-50	177,015	170,921	1858	820	2678
51-60	1.2%	0.6%	51-60	150,778	154,162	1839	987	2826
61-70	1.0%	0.3%	61-70	121,001	128,092	1158	418	1577
71-80	0.2%	0.1%	71-80	60,850	69,887	128	64	192
81+	0.1%	0.0%	81+	28,729	38,688	16	14	30
TOTAL	0.8%	0.3%	TOTAL	1,561,688	1,540,145	12,152	4,247	16,399

^aTotals for males, females and males+females is based on individual age groups

Table 3. Estimating the number of active medical marijuana cardholders in Utah based on Table 1 averages (approach 2)

Average first year active cardholder % of population	Average first year active cardholder % of male population	Average first year active cardholder % of female population	Utah population ≥21 years	Utah Male population ≥21 years	Utah female population ≥21 years	Year 1 estimate total # of active card members	Year 1 estimate male # of active card members	Year 1 estimate female # of active card members	Total
0.5%	0.8%	0.029%	2,037,778	1,018,115	1,019,663	10,189	8145	2957	11,102

Table 4. Extrapolating the number of active medical marijuana cardholders in Utah based on approach 1.

Sex	Utah population 21+ (in 2017)	Annual % population increase	Year 1	Year 2	Year 3	Year 4	Year 5	Year 5 projected population that are active card holders
Males	1,561,688	41% ^a	12,152	17,168	24,255	34,268	48,414 ^b	3.10
Females	1,540,145	52% ^a	4,247	6,438	9,758	14,791	22,421 ^b	1.46
Total	3,101,833	36% ^c	16,399	22,352	30,466	41,525	56,598	1.82

^aBased on Arizona registry data

^bTotal in year 5 when males and females are projected separately is 70,835

^cBased on the annual increase presented in Table 1

Table 5. Extrapolating the number of active medical marijuana cardholders in Utah based on approach 2.

Sex	Utah population 21+ (in 2017) ^a	Starting %population	Annual % population increase	Year 1	Year 2	Year 3	Year 4	Year 5	Year 5 projected population that are active card holders
Males	1,018,115	0.29%	41% ^b	8,145	11,484	16,193	22,832	32,193 ^c	3.16
Females	1,019,663	0.8%	52% ^b	2,957	4,495	6,832	10,384	15,784 ^c	1.55
Total	2,037,778	0.5%	36% ^d	11,102	15,135	20,634	28,130	38,350	1.88

^aThis approach ignores the small number of patients <21 years of age

^bBased on Arizona registry data

^cTotal in year 5 when males and females are projected separately is 47,977

^dBased on the annual increase presented in Table 1