# North Carolina: Medical Cannabis Outlook

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HedgeRow Analysis

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**North Carolina can expect $64.6M in annual tax revenue at medical cannabis market maturity**

With the possible impending passage of The North Carolina Compassionate Care Act (S.B. 3), all eyes are on the Tar Heel State for its proposed rollout of its medical cannabis program. The NC Senate passed S.B. 3 in a 36-10 decision on March 1st, but a vote in the House has yet to be scheduled. Per S.B. 3, the NC Department of Health and Human Services and the Medical Cannabis Production Commission would issue licenses to ten medical cannabis suppliers. Each supplier would be permitted to own and operate up to eight retail dispensaries. Priority will be given to applicants who locate more than one dispensary in Tier 1 counties, i.e., the 40 most economically distressed counties of the 100 total counties in the state based on NC Department of Commerce rankings.

What does this mean for North Carolina and its tax revenue? HedgeRow Analysis conducted a review of the growth of medical cannabis programs in Utah, North Dakota, Minnesota, Arkansas, Florida, Ohio, Connecticut, and New Jersey. At market maturity, our findings reveal a clear trend between state population and the number of registered medical cannabis patients, as well as between the number of patients and monthly sales revenue. Using simple regression modeling, we estimate the monthly sales revenue at market maturity in NC to be roughly $54M. NC Revenue Services could expect $64.6M annually at the proposed tax rate of 10%.

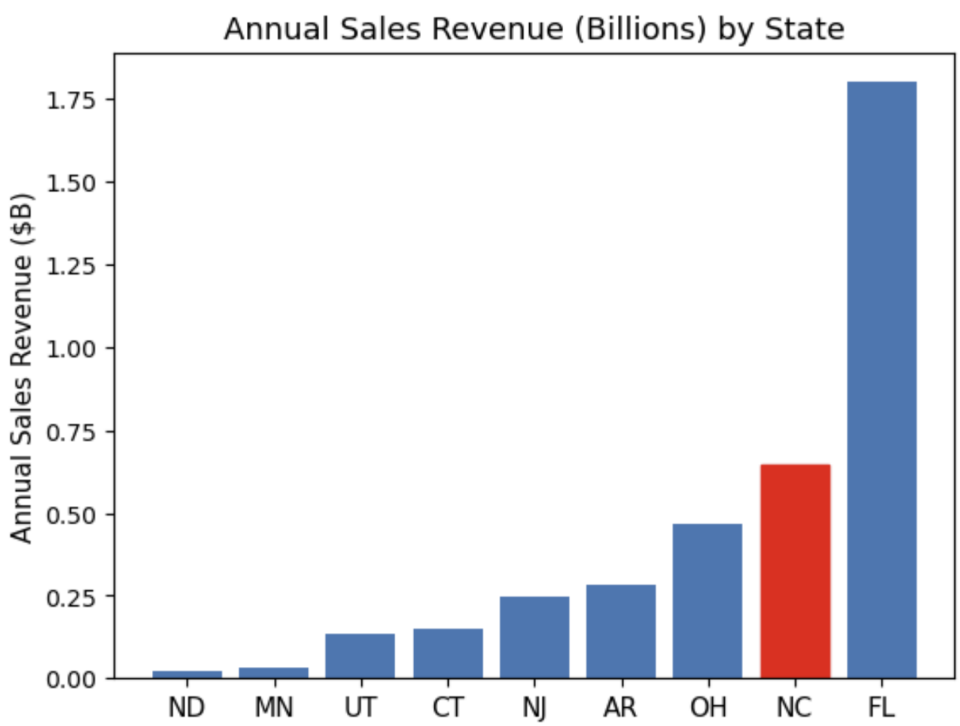


**Fig. 1** North Carolina's potential medical cannabis sales in comparison to other states.

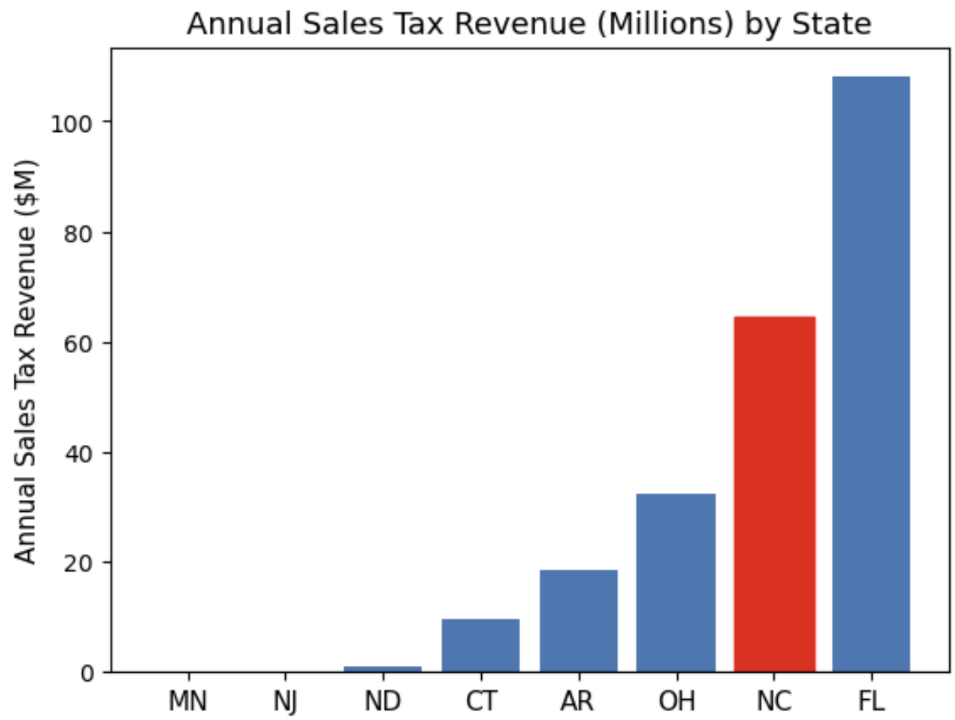


**Fig. 2** North Carolina's potential medical cannabis tax revenue in comparison to other states.

**North Carolina's dispensaries: up to $14M each in annual revenue at market maturity**

How will retail dispensaries fare in NC? The provision in S.B. 3 that prioritizes applicants who locate more than one dispensary in Tier 1 counties should facilitate a distribution of dispensaries across the state that isn't overly concentrated in urban areas. Accordingly, the retail market in urban areas shouldn't be overly cannibalized. As such, at market maturity urban dispensaries can expect revenue ranging from $8M to $14M annually, based on ratios in other states. For rural dispensaries, annual revenue is expected to range from $5M to $9M. The range is greater in urban areas than rural areas because easier accessibility to a greater number of dispensaries results in longer "tails" of the collective revenue distribution, i.e., some dispensaries with the ideal blend of brand, location, etc., have more potential to do exceptionally well in urban areas than in rural areas, where choice is more limited.

**By the end of Year 1, North Carolina can expect $15M in monthly sales revenue**

What about the path to market maturity? Predicting revenue in the early months of program rollout is more difficult. Some states have experienced a slower trajectory to maturity due to a slower rate of dispensary openings. States with deeply entrenched illicit markets also experience a slower path to maturity. To optimize the onset of tax revenue, NC should act swiftly in allocating its licenses across the state and should ensure the spatial distribution of the licenses is proportional to each county's cannabis-consuming population.

To develop a revenue estimate for the first year of medical cannabis sales in NC, we compared NC's population and the parameters of its medical cannabis program to the eight other states included in this study. Of those states, Ohio is most similar to NC when considering population, retailers per capita, and patients per capita (projected patients for NC). OH had one of the top revenue growth rates in part due to its swift rollout of its licenses. OH also has a comprehensive list of qualifying medical conditions. Under a scenario where licenses are awarded expediently in NC and its qualifying conditions are comprehensive, we expect a similar growth trajectory to that of Ohio. We estimate the monthly revenue in NC at the end of Year 1 of medical sales to be around $15M.

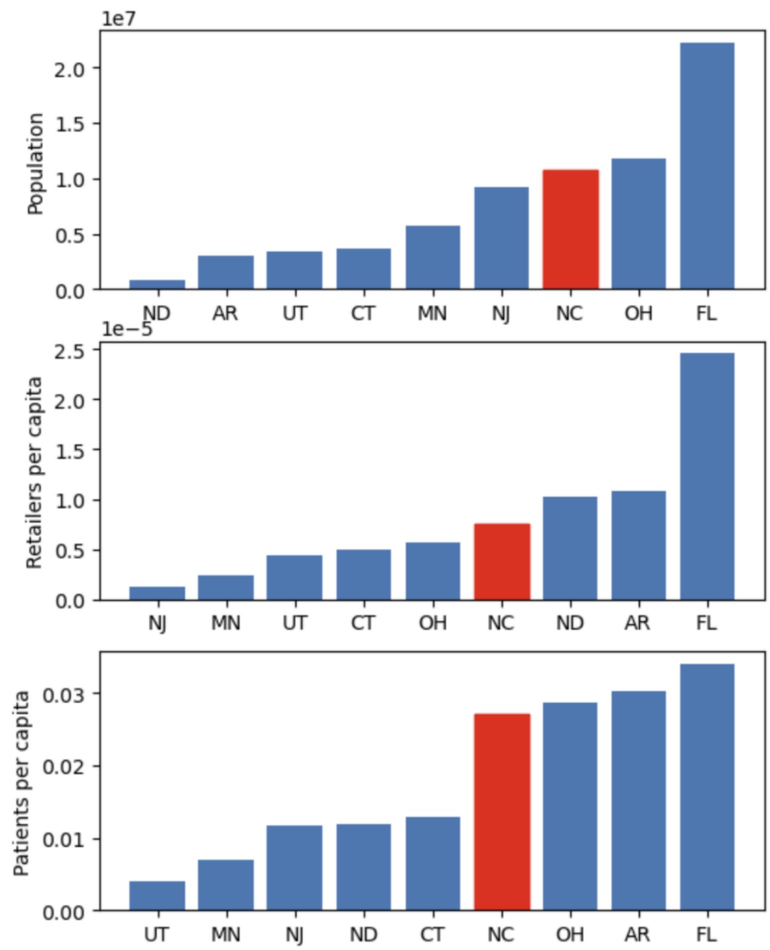


**Fig 2.** North Carolina's population, retailers per capita, and projected patients per capita in comparison to other states.

**Appendix**

**Table A1. Summary Data**

| State | # Medical Retailers | # Reg. Patients | Date Available | Monthly Sales Rev. (M) | State Population | Tax Rate |
|---|---|---|---|---|---|---|
| AR | 33 | 92,417 | 2016 | 23.767 | 3,045,637 | 6.5% |
| CT | 18 | 46,967 | | 12.576 | 3,626,205 | 6.35% |
| FL | 546 | 757,600 | | 150 | 22,244,823 | 6.5% |
| MN | 14 | 39,577 | 7/1/2015 | 2.572 | 5,717,184 | 0% |
| ND | 8 | 9,239 | | 1.66 | 779,261 | 5% |
| NJ | 12 | 108,524 | | 20.379 | 9,261,699 | 0% |
| OH | 66 | 338,049 | 1/16/2019 | 39.085 | 11,756,058 | 6.5% - 7.25% |
| UT | 15 | 13,681 | 3/1/2020 | 11 | 3,380,800 | 0% |

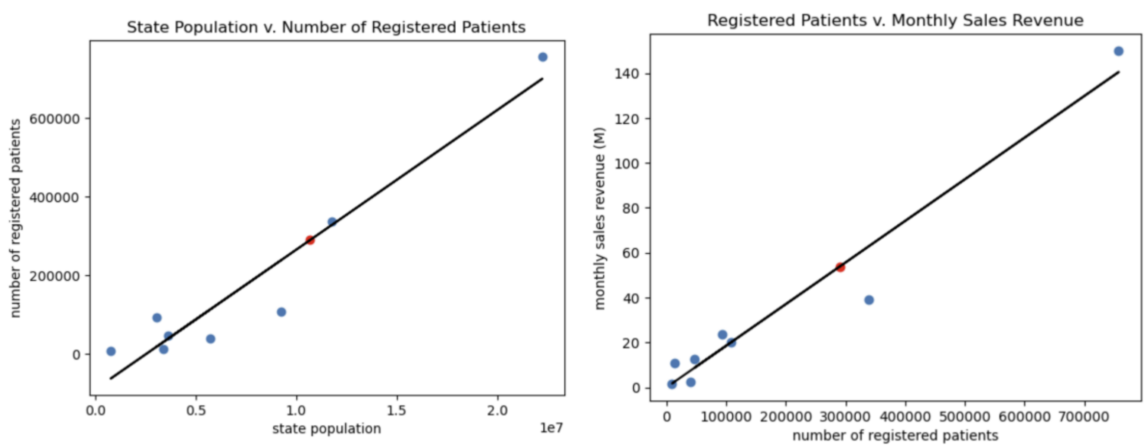


**Figure A1. Regression Analysis**

Values for Utah, North Dakota, Minnesota, Arkansas, Florida, Ohio, Connecticut, and New Jersey are displayed in blue. NC estimates of registered patients and state-wide revenue using the model trend lines are displayed in red. $R^2$ of 0.95 and 0.92 respectively.

**Figure A2. North Carolina Congressional Districts**

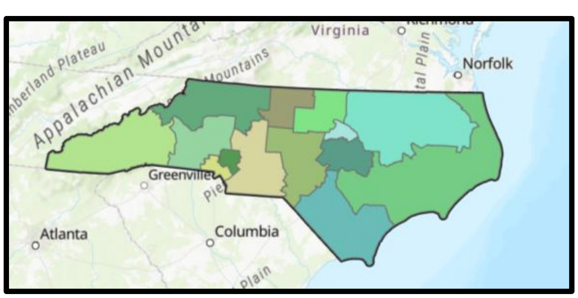

**Table A2. Qualifying Conditions by State**

| Condition | AR | CT | FL | NC | NJ | MA | MN | ND | OH | OK | PA | UT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A condition resulting in the individual receiving hospice care. | | Y | | Y | | | | | | | | Y |
| A terminal condition diagnosed by a physician other than the qualified physician issuing the physician certification. | | Y | Y | | | | | | | | | |
| Alzheimer's | Y | | | | | | Y | Y | Y | | | Y |
| Amyotrophic lateral sclerosis (ALS) | Y | Y | Y | Y | Y | Y | Y | Y | Y | | Y | Y |
| Anxiety | | | | | Y | | | | | | | |
| Arthritis | Y | Y | | | | | | | | | | |
| Autism | | | | | | | | | | | Y | Y |
| Cachexia or wasting syndrome | Y | Y | | Y | | | | Y | Y | | | Y |
| Cancer | Y | Y | Y | Y | Y | Y | Y | Y | Y | | Y | |
| Chronic motor or vocal tic disorder | | | | | | | Y | | | | | |
| Cerebral palsy | | Y | | | | | | | | | | |
| Chronic pain | Y | Y | Y | | Y | | Y | | Y | | Y | Y |
| Chronic pancreatitis | | Y | | | | | | | | | | |
| Crohn's disease | Y | Y | Y | Y | Y | Y | Y | Y | Y | | Y | Y |
| Cystic Fibrosis | | Y | | | | | | | | | | |
| Interstitial Cystitis | | Y | | | | | | | | | | |
| Dysmenorrhea | | | | | Y | | | | | | | |
| Epilepsy (and other seizure disorders) | Y | Y | Y | Y | Y | | Y | Y | Y | | Y | Y |
| Fibromyalgia | Y | Y | | | | | | Y | Y | | | |
| Glaucoma | Y | Y | Y | | Y | Y | Y | Y | Y | | Y | |
| Hepatitis C | Y | | | | | Y | | Y | Y | | | |
| HIV/AIDS | Y | Y | Y | Y | | Y | Y | Y | Y | | Y | Y |
| Huntingtons disease | | Y | | | | | | | Y | | Y | |
| IBS Inflammatory Bowel Syndrome | | | | | Y | | Y | | Y | | Y | |
| Intractable headache / hydrocephalus | | Y | | | | | | | | | | |
| Intractable skeletal muscular spasticity | | Y | | | Y | | | | Y | | Y | |
| Intractable neuropathic pain that is unresponsive to standard medical treatments | | Y | | | | | | | | | | |
| MALS Syndrome | | Y | | | | | | | | | | |
| Medical conditions of the same kind or class as or comparable to the others listed. | | | Y | | | | | | | | | |
| Migraine | | | | | Y | | | | | | | |
| Multiple sclerosis (MS) | Y | Y | Y | Y | Y | Y | Y | Y | Y | | Y | Y |
| Muscular dystrophy | | Y | | | Y | | | | | | | |
| Muscle spasms | Y | | | | | | Y | Y | | | | Y |
| Obsessive compulsive disorder | | | | | | | Y | | | | | |
| Opioid use disorder | | | | | Y | | | | | | | |
| Parkinson's disease | | Y | Y | Y | | Y | | | Y | | Y | |
| Peripheral neuropathy | Y | | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Post-traumatic stress disorder (PTSD) | Y | Y | Y | Y | Y | | Y | Y | Y | | Y | Y |
| Severe or persistent nausea | Y | | | Y | | | | Y | | | | Y |
| Sickle cell anemia | | Y | | Y | | | Y | | Y | | Y | |
| Sleep apnea | | | | | | | Y | | | | | |
| Spinal cord disease or injury | | | | | | | | | Y | | | |
| Terminal illness when life expectancy is less than x months | | Y | | Y | Y | | Y | Y | Y | | | Y |
| Tourette Syndrome | Y | Y | | | | | Y | | Y | | Y | |
| Traumatic brain injury | | | | | | | | | Y | | | |
| Ulcerative Colitis | | Y | | | | | | | Y | | | Y |
| Post Laminectomy Syndrome with Chronic Radiculopathy | | Y | | | | | | | | | | |
| Severe psoriasis and psoriatic arthritis | | Y | | | | | | | | | | |
| Vulvodynia and Vulvar Burning | | Y | | | | | | | | | | |